Foreword

A number of Parliamentarians, both individually and through Select Committees, expressed concerns about information technology (IT) projects – time, cost and performance – during 1997 and 1998. The Executive responded to these concerns by strengthening the monitoring regime, particularly through the central agencies.

We did not think it useful to duplicate the detailed work and consideration being given to the specifics of project monitoring, but believed it would be valuable to review the overall governance and oversight arrangements in place. We appointed Innovus Limited to interview 35 people with an interest in IT projects – including Ministers, other members of Parliament, central agencies, departmental chief executives, IT managers and project managers, suppliers, specialist contract managers, and interest groups – to prepare case studies and to draft this report.

The project team also reviewed the available literature on success and failure of IT projects, and that work is reflected in the detail of the report.

We received valuable insights that helped shape the final report from Ross Tanner (Deputy State Services Commissioner) and Jack Percy (Managing Partner at Andersen Consulting) as external advisers to the project team, and from Doug Bailey (SIMPL Group) as an external reader of the report.

The report is in three main sections, each addressing the issues from a different perspective:

- **Governance and accountability** is covered in Part One. It identifies the key players and roles in major IT projects, and discusses current practice and issues with these roles.
- **Understanding IT projects** is the subject of Part Two. It describes the environment within which IT projects operate, and the normal stages of projects. It discusses key issues with the conduct of IT projects, and concludes by commenting on project risks.
- **Reasons for project success and failure** are covered in Part Three. This part opens with an inventory of typical reasons for project success, and goes on to summarise the issues identified during the interviews on which this report is based. The issues are grouped under the headings of skills, behaviour and information; and we draw together the threads from the previous parts.

Finally, in the Appendix we propose a list of questions which each of the three key audiences for this report might use to test the validity of plans for, or progress reporting on, major IT projects.

D J D Macdonald
Controller and Auditor-General
20 April 2000

Contents

Summary

The Purpose of This Report

This report is about the governance and oversight of large information technology (IT) projects in the public sector.

Recent, highly publicised difficulties with public sector IT projects – such as the National Library and Police INCIS projects – have focused public and political attention on them. Problems have included failure to deliver what was required and major time and cost overruns.

Difficulties with IT projects are not new, or confined to the public sector or (indeed) to New Zealand. Much has been written about the need for sound project management, and the principles of effective project management are well known. Yet the difficulties with IT projects continue. Lessons learned are not shared, and the same mistakes recur from project to project and from entity to entity.

We did not think it would be useful to revisit the issues of project management in detail. Instead, we decided to examine the problem from the angle of governance and oversight – the top levels of IT projects.

The public sector is a far more open and transparent environment than the private sector, and the chains of authority and decision-making are longer. While private sector chief executives might only have their board of directors to account to, public sector chief executives must consider:

- the monitoring role of central agencies;
- their own Ministers; and
- potential Parliamentary and public interest.

The report refers to all aspects of large IT projects in the public sector. But it concentrates on, and its most important findings are for, chief executives, Ministers, and members of Parliament in their Select Committee roles – the top of the governance and oversight chain. The report is written for central government, but its principles are applicable to the whole Crown sector and (at least partially) to local government and the private sector as well.

The principles in the report distil current wisdom about large IT projects. While we expect most of the principles to stand the test of time, both principles and processes must be constantly refreshed in a rapidly changing environment. Key players must remain alert to changes that might challenge or complicate the principles.

For example, current work to spread information across agencies and sectors, for policy and other purposes, complicates the roles and accountabilities for development and management of systems. Such changes do not invalidate the principles – they merely make them harder to apply.

Key Messages

We discuss:

- basic governance structures for IT projects;
- how IT projects actually happen; and
- reasons for success and failure.

Each part of the report raises issues for consideration, summarised in a set of questions which we believe that chief executives, Ministers, and Select Committee members should ask with respect to any large IT projects they are involved with.

Our key messages for each of these three groups are set out below.

Key Messages for Chief Executives

Chief executives play a linchpin role in the success of major IT projects. Often, these projects are cornerstones of the entity's business plans, including change and development strategies. The chief executive therefore has a major interest in the project's success.

However, the chief executive is critically dependent on the quality of the people directly involved in the project, and on continuity in the department's business purpose and strategies over the long implementation time of the project.

The risk that a large IT project will divert key resources from normal operations – to the detriment of the day-to-day delivery of core services – needs to be carefully managed.

Project Management

The chief executive may well act as sponsor for a large IT project – particularly a project with significant business implications. Nevertheless, the chief executive must guard against being either too close to the project to assess purpose and progress objectively, or too remote to be aware of significant changes in status or risk.

The project manager for a significant IT project should have:

- a suitable track record;
- the confidence of organisational sponsors and central agencies; and
- suitably designed incentives to see the job through successfully.

The larger and more complex a project is, the more likely it is that a co-operative relationship with a competent lead supplier may be more effective than an arm's-length relationship based on tight output specifications.

In any event, the chief executive (or a senior business manager) of the lead supplier needs a forum within which to communicate with the departmental sponsor, as the supplier also has a significant stake – financially and for its reputation – in the successful outcome of the project. A project steering committee may provide this.

The Contract

The project contract should protect the interests of the Crown while establishing a proper legal environment for a relationship with the supplier that will stand for the duration of both the project and any subsequent support contract.

Quality Assurance

Independent quality assurance processes need to be established for most significant projects. The processes should concentrate, and report clearly to the chief executive, on possible or planned scope changes and how project risk is being managed.

Implications of Legislative Change

The Minister and the relevant Select Committee should be made aware of:

- the impact that any planned legislative changes would have on a project; and
- whether these changes are being sponsored by the chief executive's department or by another department or entity.

Key Messages for Responsible Ministers

Responsible Ministers are accountable to Parliament for the performance of their departments and, hence, for the departments' performance in managing projects. Ministers are heavily dependent on both central agencies and the departments themselves for information about the likely benefits, progress, and risks associated with projects being proposed or undertaken.

The Business Case

The Minister should expect the business case for a new project to clearly state, in measurable terms, what it will do for the department and for taxpayers – i.e., the intended business outcomes of the project. The risks identified in the business case should be relevant, based on the experience of competent advisers, reasonable (i.e. not understated), and show an understanding of the range of uncertainties in the project.

The business case should also include provision for sufficient funding to support competent, independent, quality assurance. The quality assurers should report to the project steering committee and the chief executive, and the assurers' unedited reports should be available to the Minister and central agencies.

Funding

Appropriations for funding will often be made either at a bulk level or so early in a project's life that cost and time estimates are very uncertain. Such contingencies and uncertainties should be clearly spelt out in the business case and, if not initially appropriated for, acknowledged and tracked for potential future supplementary appropriations.

Monitoring

Central agencies have clearly defined roles in monitoring the development of business cases and the progress of projects. The Minister should expect sound advice from them on these matters, based on their applying sufficient, competent resources to the project in question.

Regular project reports to the Minister should be brief, to the point, and factual. Reports should specify progress against the benchmarks established in the initial business case and details of progress for the latest reporting period. Reports should also keep the Minister informed on key risks, changes in key risks, and the effect of those changes on promised project outputs and outcomes.

The chief executive should also give the Minister confidence that the department is in full control of the issues identified in the "Key Messages for Chief Executives".

Key Messages for Members of Select Committees

Select Committees perform an important oversight function on behalf of Parliament and taxpayers. Through reviews of the Estimates, financial reviews, or inquiries, the Committees hold the Executive to account for its plans and actions. They do not have a hands-on management role but, as part of the oversight process, they have a reasonable expectation of being informed of planned major initiatives, and of progress on those initiatives.

Recent difficulties with major projects have diminished the confidence of some Select Committees in Executive performance and accountability for IT projects. Accordingly, the major objective of our tackling the subject has been to help Select Committees carry out their oversight role with more confidence in the outcome.

Central Agency Monitoring

Central agency monitoring roles have been clarified, and their capabilities are being strengthened, in order to improve oversight of departmental IT projects.

Information from Departments

A committee should expect information from the department on plans for, or progress on, large IT projects as part of their *Estimates* or financial review reporting. The information should have the characteristics identified above for reports to the Minister.

If a committee has concerns about project plans, risks, or progress, the most important factors for it to inquire into are those identified above in the key messages to chief executives and Ministers.

Implications of Legislative Change

When evaluating new legislation, a committee should expect advice from the department on the impact that the changes will have on its work in progress and the costs or risks which might be created by the legislative change.

Use of Example and Case Studies

We illustrate the themes that have emerged by using:

- the example of an imaginary government department; and
- actual case studies.

We have created a cameo of an imaginary government department – the Department of History and Ideas (DHI) – which is automating its core business processes to provide Internet access to citizens. The programme is in trouble because the DHI has made all the major mistakes possible. The cameo – while fictional – is built up from events that have actually occurred in a range of public sector entities.

Each episode of the DHI story looks like this:

The Department of History and Ideas (DHI) has been part of the Public Service for almost 100 years. Its role is twofold – to collect and record information on all aspects of New Zealand society relating to human endeavour and to disseminate the material through any medium available to citizens.

Successive governments have cut back its budget but it would be politically damaging to close it down as it is a well-loved resource for advertisers, teachers, sports coaches, writers and crossword puzzle experts. A new Chief Executive was appointed two years ago and charged with the task of preparing the department to be restructured as an SOE. The Chief Executive reports to the Minister of Culture and has an annual vote of $16 million.

The DHI has had approval to convert all its material into digital format and automate its systems for gathering, codifying, documenting and disseminating the material. Cabinet approved the Historical Modernisation project (HISTMOD) in 1998 with a budget of $6.5 million and an implementation time of 2½ years.

This report also uses actual case studies of projects that have been successful or provide useful lessons. Each case study looks like this:

Real examples of the theme for each section are taken from the following projects:

Land Transport Safety Authority – Drivers Licence Project

Department of Social Welfare – FOCIS Programme

ASB Bank – major development project

Inland Revenue Department – FIRST Programme

New Zealand Customs Service – Customs Modernisation Programme (CusMod)

Land Information New Zealand – Land*online*

Ministry of Agriculture and Forestry – Service Provision Project, Standard Desktop Project

National Library – NDIS Project

101 This report concerns large Government IT projects, funded principally from separate appropriation. They are generally business change projects supporting the re-engineering of the business processes of government departments.

102 In this part we:

- place these projects in the context of the overall goals and objectives of the Government;
- outline the governance and management roles that determine the success or contribute to the failure of the project; and
- finally, link these themes by showing the accountability of each role in the project.

Achievement of Government Objectives

103 The ***Government's objectives*** are expressed in a number of ways, most particularly in the statements of desired outcomes in the *Estimates of Appropriations* (the *Estimates*). Less formal expressions of objectives were to be found in the previous Government's "Strategic Priorities and Overarching Goals" and are to be found in the current Government's "Key Government Goals to Guide Public Sector Policy and Performance".

104 These objectives are pursued through the operations of public entities such as government departments, Crown entities,[1] and State-owned enterprises. Each entity has a Responsible Minister, who is primarily concerned with the Government's ownership interest, including the entity's capability.

105 The ***formal machinery of government*** is regulated by the provisions of a number of statutes. For the purposes of this report, the most important of these is the Public Finance Act 1989. This Act regulates the provision and use of public money. It also imposes accountability requirements (both before and after) on those who are authorised to spend public money.

106 These requirements include documents that must be provided to Parliament at the start of each year, such as Forecast Reports and Statements of Intent and, at the end of each year, the Annual Report.

1 As defined in the Public Finance Act 1989, and including other public entities declared by other Acts to be Crown entities.

107 The Government also maintains oversight through the ***monitoring roles of central agencies***. The Treasury and the State Services Commission (SSC) in particular, but also the Department of the Prime Minister and Cabinet (DPMC) and the Ministry of Economic Development, have roles to play in monitoring departments' spending on IT projects.

108 Central agency roles have changed dramatically from 10-15 years ago, as individual departments have been given greater autonomy to decide on their spending. From being regulators, the central agencies became monitors. However, over the last two years – as problems with IT projects have caused concern – the Treasury and the SSC have again taken a more active role.

109 ***Parliamentary oversight*** is regulated by the *Standing Orders* of the House of Representatives. Among other things, these set out the procedures and powers of Select Committees in conducting examinations of the *Estimates*, annual financial reviews and specifically focused inquiries. These examinations, reviews and inquiries are largely dependent on the accountability documents described above.

110 For the purposes of this report, the most important of these Select Committee activities are the financial reviews – which are reviews of the performance and current operations of government departments, "Sixth Schedule" Crown entities,[2] and certain other public bodies. Issues concerning the management of IT projects are most commonly addressed in the context of financial reviews.

111 Major IT projects form part of an entity's asset base, which can be funded from a variety of sources. These include Crown capital contributions, premiums and levies, and annual operating revenue. Not all of these sources are subject to prior scrutiny by Parliament, but all are the concern of the Responsible Minister.

112 In ***departments***, capital expenditure for IT is usually based on project definitions found in the department's Information Systems Strategic Plan (ISSP). This document needs to have obvious links to the departmental ***business objectives*** and goals. This is expanded further in Part Two, paragraphs 203-218.

113 IT projects are defined in two ways:

- in business terms, "what it will do for the department and potentially the citizen"; and
- in technical terms, "what it is as an IT system".

2 That is, Crown entities named in the Sixth Schedule to the Public Finance Act 1989.

114 Organisations that are successful managing projects will always emphasise what the IT system will **do** rather than what the IT project **is**. The ***project deliverables*** are therefore defined in the context of the organisation's business objectives.

An extract from DHI's Purchase Agreement that relates to the HISTMOD project covers the following Output Classes and their Outputs:

1. Preservation of New Zealand's History and Intellectual Capital –

(i) Collection and maintenance of biographies of every New Zealander that has competed in any sport or cultural activity at a national or international level.
- 10,000 biographies documented or updated
- $4 million cost.

(ii) Collection of publications of ideas or inventions that add to the intellectual capital of major export industries.
- 3,000 ideas or inventions documented or updated $2 million cost.

2. Development and enhancement of the skills, capabilities and confidence of every New Zealander –

(i) Dissemination of biographies satisfying 75,000 requests from the public.
- 75,000 requests satisfied
- $750,000 revenue.

(ii) Dissemination of success stories of individuals or organisations that have benefited from the use of the idea or invention satisfying 50,000 requests.
- 50,000 requests satisfied
- $500,000 revenue.

New Zealand Customs Service, CusMod[3]

From 1992 to 1997, the Customs Service undertook an extensive programme of change called CusMod (Customs Modernisation), to become a smarter organisation. The results have been dramatic:

The average time to clear goods through Customs has been reduced from 1.5 days to 40 minutes or less, for 90 percent of imports.

Over 50 per cent of goods are now cleared in transit – goods can be collected directly from ships and aircraft without being stored on the wharf or in warehouses – thus reducing importers' costs.

All communication for the importation of goods into New Zealand is fully electronic – there are no paper-based systems.

Passengers can be "cleared in the air" – most people are not stopped as they enter New Zealand. Instead, high-quality intelligence targets and checks high-risk individuals as they leave their aircraft. This means that less than 2 per cent of passengers are now stopped (down from 10 per cent).

Client satisfaction across a range of service quality attributes has been significantly improved.

With new work processes, systems, technology, and modes of behaviour well established, the Customs Service has evolved a robust and responsive infrastructure and is among the most innovative Customs organisations in the world.

3 Based on a paper *Building the Intelligence-Based Organisation: The New Zealand Customs Service*, June 1999, Derek LeDayn and David Keane. The Society for Information Management published the paper on its web site.

Governance and Management Roles

115 Departments develop the capability to enable them to contribute to achievement of political objectives. This often means implementing large business change projects involving IT development. Such projects can be complex and their success is achieved by many people in different roles each meeting their specified responsibilities.

116 In the central Government context, it is also particularly important to distinguish between "governance" and "management" roles:

- Governance and oversight are undertaken by those with the authority to approve projects and the use of resources for those projects. Chief Executives, Ministers and Parliamentarians have a governance role.
- Management is about the actual delivery of projects. Project sponsors and project managers have a management role.

117 Successful projects occur when the specific accountabilities and responsibilities of the multiple players are formalised, understood and well executed. Likewise, projects fail when any or all of those responsibilities are not met.

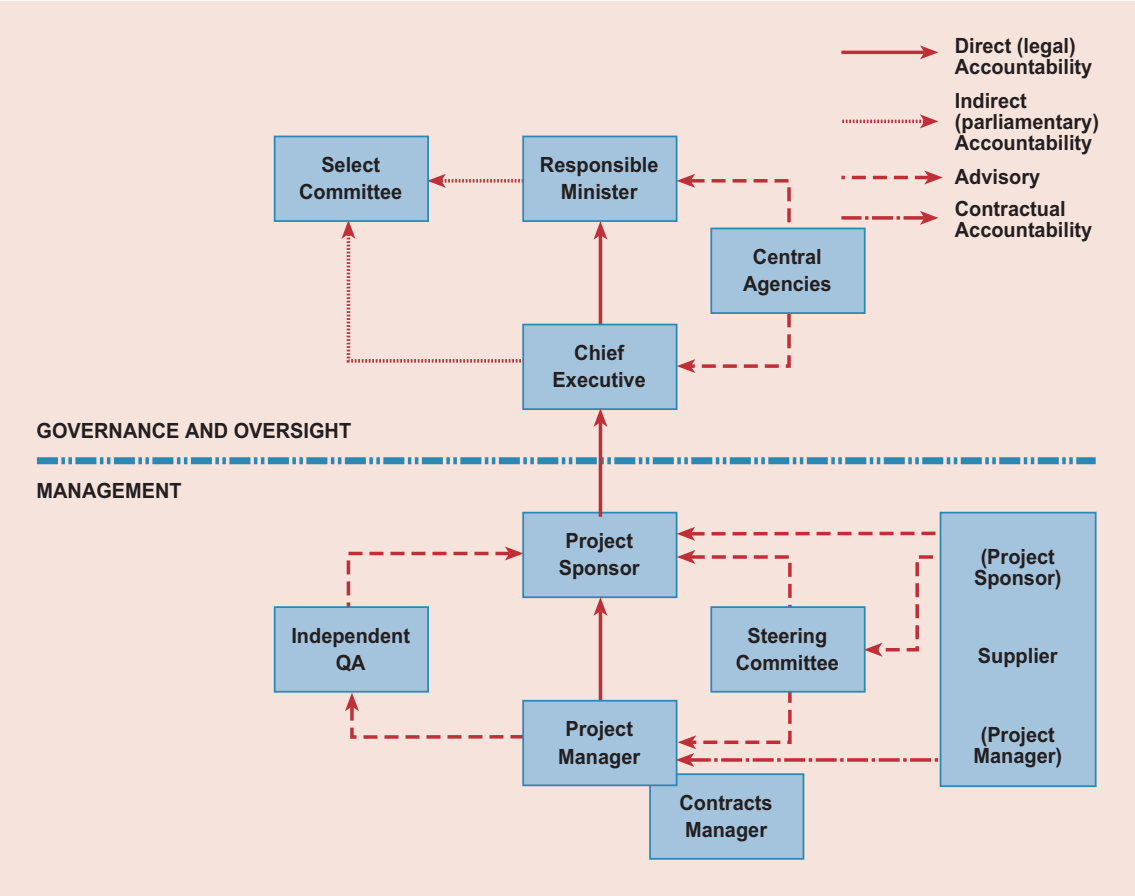
118 In the past, oversight and governance has often been addressed by "ignore unless there is a problem", then review and criticise. ***Active execution of oversight and governance responsibilities is as important as the effective execution of management responsibilities***.

119 "In the past, project success has relied on the heroic efforts of the project team. Often it has had to work in isolation, supported or misunderstood by the larger IT or business organisations. The success of the project has depended upon the creativity, determination and relentless hard work of the project team."[4]

120 Figure 1 on page 22 summarises the relationships between the roles and responsibilities. We have split these roles and responsibilities into groups reflecting the political, central agency, departmental and project levels of governance and management. Each role and its part in the governance or management of the project is expanded in the following paragraphs.

4 Treasury Board of Canada Secretariat: *An Enhanced Framework for the Management of Information Technology Projects.*

Figure 1
Project Roles and Relationships



Project Sponsor

121 **Each significant IT project should have a *Project Sponsor*.** The Project Sponsor may be the Chief Executive, but must at least be a manager who is senior enough to promote the interests of the project to the Chief Executive and other members of the senior management team.

122 In order to assure an appropriate level of engagement and commitment from the Project Sponsor, it is generally desirable that the success or failure of the project should impact directly on the Project Sponsor's areas of management responsibility.

123 The Project Sponsor has delegated authority from the Chief Executive for sign-off of project deliverables and expenditure to agreed limits. It is also important that the Project Sponsor is not overburdened with other duties and can devote to the role the amount of time necessary to discharge it effectively.

124 The Project Sponsor's role is to promote the interests of the project, to monitor its progress, to ensure that it is appropriately resourced, to mediate its interests with any competing interests of other business units, and in general to facilitate achievement of the Chief Executive's interests in the project. However, ***the Project Sponsor's role is not to manage the project itself***. That task belongs to the Project Manager, who is accountable to the Project Sponsor for the successful management and completion of the project.

Project Manager

125 The Project Manager's job is to ensure that the project is delivered in accordance with the contract, the defined scope and other baseline documents.

126 Project Manager is the single most important role and the person appointed needs to have the knowledge, skill and experience (the "track record") to manage the scope, complexity and risk profile of the project. It is a project role, not a governance role.

127 A model sometimes seen, particularly in large projects, is of a "team of peers" – that is, a project manager from the client organisation and a project manager from the supplier organisation jointly carrying the project management responsibility. This may be to capitalise on different skill sets (the client project manager may have specific business knowledge, the supplier project manager may have specific methodology and technical knowledge).

128 The disciplines adopted by a professional project manager are designed to enable him or her to deliver a computer system and its related business processes to the Chief Executive within the schedule and budget agreed between them at the beginning of the project (or modified by agreed variations).

Contracts Manager

129 Not well understood, and often confused with the roles of either the Project Manager or the Chief Executive or Chief Financial Officer, is the role of the Contracts Manager.

130 Contract management is an evolving IT role, having been well established in other procurement and outsourcing functions for many years.

131 The Contracts Manager is generally responsible for the working relationship between the customer and supplier – from the customer perspective – in large IT projects.

132 ***Working closely with but never overriding the Project Manager, the Contracts Manager benefits from not being involved in the day to day detail, when managing the responsibilities and obligations of the parties. It is very important that the arrangements for the management of an IT project, including the establishment of positions such as Contracts Manager, do not restrict, dilute or undermine the authority of the Project Manager.***

133 Successful Contracts Managers that we interviewed described the value of:

- understanding the contractual obligations of both parties;
- accepting that it is vital that the department fulfil its obligations in a project – the supplier cannot be solely responsible for success or failure;
- facilitating a contract which is designed to deliver the business objective;
- ensuring that incentives to succeed are in place for both parties; and
- facilitating reasonable, pragmatic and fair resolution of the many issues which arise throughout a project's life.

Suppliers

134 Large Government IT projects are characterised by reliance on suppliers for provision of all or part of the system. The quality of the relationship between the department and the supplier is critical to the success of the project.

135 Our experience and that of many project managers is that contractual relationships for projects with a high-risk profile develop most productively when:

- the Chief Executives of both organisations agree how it will operate, their expectations, and key performance measures;
- lawyers then prepare the contract encapsulating the agreed framework and work alongside the business representatives negotiating the details;
- the contract is signed off at the end of the Analysis phase; and

- the project managers of both organisations work together to manage the relationship from day to day.

136 The supplier project manager has a management role reporting to or alongside the departmental project manager.

137 The supplier Chief Executive may be in an advisory role to the purchasing Chief Executive and also may be an invited member of the Steering Committee.

138 The Government requires that, during tender or other supplier selection processes, departments conduct themselves in an "arm's length" manner with the potential vendors.

139 ***It is not necessary to continue this "arm's length" relationship once a supplier has been selected and a contract let. From that point, the department and the supplier need to work as openly and co-operatively as possible, within established guidelines of prudent behaviour and expenditure.***

140 While examples do exist of the dangers of "supplier capture", so do examples of excellent long-term outcomes through co-operative work between trusted, competent suppliers and departments.[5] These examples of co-operation are not "partnerships" (where risks are more or less equally shared), but are firmly based on the purchaser/supplier framework in which the relative roles and risks are clearly defined and understood. Suppliers underwrite, manage or minimise some risks; but management of political risks, and overall accountability, will always rest with the purchasing organisation.

5 Land Transport Safety Authority and UNISYS; Ministry of Agriculture and Forestry and Wang.

Ministry of Agriculture and Forestry

To meet its objective of ensuring that the Ministry's information needs are met in a cost effective manner, MAF Information established a service vision and service provision strategy. MAF Information also developed a service model, which was used as a tactical tool to identify those services which it would source from the market. Key to the success of this model was the establishment of a co-operative relationship with a supplier to provide these and potentially other key services.

MAF conducted the evaluation of responses to its Request for Proposal (RFP) for a Service Provider in a manner which met the contestability requirements of the process while not requiring the suppliers to "guess" MAF's requirements. The Request for Information (RFI) process was designed to identify a small group of suppliers with the most relevant **capabilities** for MAF's service provision requirements. A short list of three suppliers was clearly identified.

The evaluation team (comprising representatives of each business group and MAF Information) then made themselves accessible to the short-listed vendors during the proposal preparation process. This provided the suppliers with all the information they required, allowing them to "get to know" the organisation well during the proposal preparation process. This provided proposals which were well targeted and made the evaluation process more simple and certain.

The capabilities had been established during the RFI process, and the RFP process focused on **cultural and organisational compatibility, capacity to deliver, value for money, and willingness to link performance with payment**.

The Service Provision Evaluation Team were clear and unanimous in selecting Wang NZ. The relationship is well established and, like all relationships, experiences strains and challenges from time to time. The Contracts Manager and Infrastructure Manager are the key day to day interfaces with the supplier, with the MAF Manager, MAF Information and the Wang Relationship Director meeting regularly to review issues which have been escalated, topical issues or strategic direction. A key experience has been that the earlier issues are escalated to the joint sponsors, the more successfully they are resolved.

Both organisations review the service delivery to the business from the user perspective, as well as value for money for the services being delivered, as a regular part of the relationship.

Project Steering Committee

141 The formal interface between the project team led by the Project Manager and the business run by the Chief Executive is the Steering Committee. The Project Sponsor chairs this group.

142 ***There are differing views as to whether the Steering Committee acts as the first level of governance or the most senior level of project management. Our view is that it is the most senior project management group, with a delegated level of authority for sign-off of project deliverables and expenditure to agreed limits.***

143 However, the composition of the Steering Committee may help it form a useful bridge between managers and governors. For example, case studies given in this report illustrate the usefulness of including central agencies on steering committees, not in an executive role but as observers and advisers.

144 There can be risks in including central agencies – of unwarranted interference and creating barriers to open dialogue. But, if the situation is judiciously handled, these risks should be outweighed by the benefits of including the key Ministerial advisers in the process early, so that they know enough about the project's objectives and progress to exercise their monitoring role effectively.

145 The Chief Executive may also be a member of the Steering Committee. However, it may not be desirable that he or she is also the Project Sponsor as this can blur the management and governance functions of the two roles.

Independent Quality Assurance

146 Independent quality assurance is an established role of the project, reporting usually either to the Chief Executive or Project Manager.

147 Some projects have established effective independent quality assurance where the consultant reports directly to the Steering Committee or to central agencies, rather than to the department, to maintain separation and objectivity. In other projects, the independent quality assurance consultant reports to the Project Sponsor.

148 ***As a general rule, quality assurance reports should be made directly to the highest point of project management – such as the Project Sponsor or project Steering Committee. Quality assurance reports have the best opportunity to be effective when they are distributed unfiltered to the Steering Committee. They should not be made directly to – or be subject to any undue influence from – the Project Manager. They should also be made available directly to monitoring agencies.***

149 One issue of concern to Ministers and MPs is the lack of authoritative advice when considering a business case for an IT project, and throughout the project in their oversight role.

150 The valuable insight that independent quality assurance can offer could ameliorate this problem, but is often overlooked when differing views are held by the department and the central agencies.

151 Ineffective quality assurance may result from lack of funding, or from the "independent" quality assurance consultant becoming captured by the project through confused reporting lines.

152 ***Major IT projects would be well served by ensuring that quality assurance consultants are very senior, experienced and independent. People acting in this role who are not prepared to give their opinion honestly, frankly and independently are not serving the department, Responsible Ministers or MPs well.***

153 ***The extra costs that might be incurred for expertise and experience are low relative to the potential pay-off.***

Chief Executive

154 The Chief Executive has a governance role for the project as he or she has complete authority over the project roles and groups within legislative or regulatory limits.

155 The Chief Executive's relationship with the project should be at arm's length, but not too distant. A Chief Executive who becomes too close to the project risks losing the objectivity needed to fulfil the governance role. Similarly, if too removed from the project, he or she is ill equipped for the governance role.

156 It is important that the Chief Executive strikes the correct balance between these two extremes. Given the potential range and complexity of IT projects, it may be impractical for a Chief Executive to engage either as a Project Sponsor or as a member of the Project Steering Committee.

157 Every project needs a framework within which it will operate within the organisation. The Chief Executive is responsible for providing resources and setting expectations. Contractual relationships with suppliers in large and complex projects, i.e. those with a high-risk profile, are a major component of the framework.

158 The Chief Executive also needs judgement to know where to make decisions and where to leave decision making to the project professionals. He or she, usually not from an IT background, has to make sense of conflicting advice that is often technical in nature in order to resolve project difficulties beyond the authority of the Project Manager. In these situations, heavy reliance may be placed on independent advisers or consultants to interpret the issues within the department's business context.

Central Agencies

159 Central agencies – whose officials may also be members of the project Steering Committee – currently play a support role:

- to departments' Responsible Ministers;
- to the Finance, State Services and IT Ministers; and
- in monitoring and reviewing IT projects.

160 The SSC's responsibilities are set out in the State Sector Act 1988 (sections 6 (b) and (i), 8 and 9) and more specifically as recorded in *Cabinet Minute CAB (97) M 25*/13 "Monitoring function for Major Information Technology Projects in the Public Service". The latter established an Ad Hoc Officials Committee to support Ministers in assessing bids for IT projects and considering wider IT issues. It also set up the requirement for independent quality assurance for major IT projects (discussed in paragraphs 146-153).

161 The Treasury's role is very broad – as can be inferred from the Public Finance Act 1989, section 79 *Information to be provided to Treasury*.

162 Central agencies play an important role in the development of the business case that is the basis for the bid for funding. Their opinions, derived from review of the business case and other departmental material, are considered by the Responsible Minister during the bid evaluation.

163 The inclusion of the central agencies' monitoring roles in the hierarchy of governance creates the opportunity for independent and regular project monitoring assisting project managers and the Chief Executive, but also creates some tensions between the agencies and the department and between the agencies themselves.

164 A review of the monitoring regime in late-1999 noted that there are still a number of issues to address in the monitoring process:

- alignment of IT strategies with business cases;
- quality of business cases;
- the need for accountability to remain with Chief Executives;
- quality of quality assurance information; and
- the need for adequate expert resourcing in the monitoring role.

Responsible Ministers

165 Responsible Ministers must ensure that *the departments for which they are responsible carry out their functions properly and efficiently*.[6] Where significant IT projects are being undertaken, Responsible Ministers are likely to be concerned that they further the Government's *key goals* and the department's *key priorities*, and that appropriated funds are used as stated in the business case.

166 In practice, this monitoring role is usually supported by the activities of central agencies such as the SSC, the Treasury and the Department of the Prime Minister and Cabinet. However, the agencies are in turn very dependent on the department meeting its reporting responsibilities.

167 Ministers may receive conflicting information from the department and central agencies when a project is in trouble or justification for the business case is marginal. This could occur if:

- the department is so committed to the project that it is at risk of losing objectivity; or
- central agency officials have not had the time or the knowledge to interpret correctly the project issues within their monitoring framework.

168 This can place Ministers in a difficult position when determining what action to take.

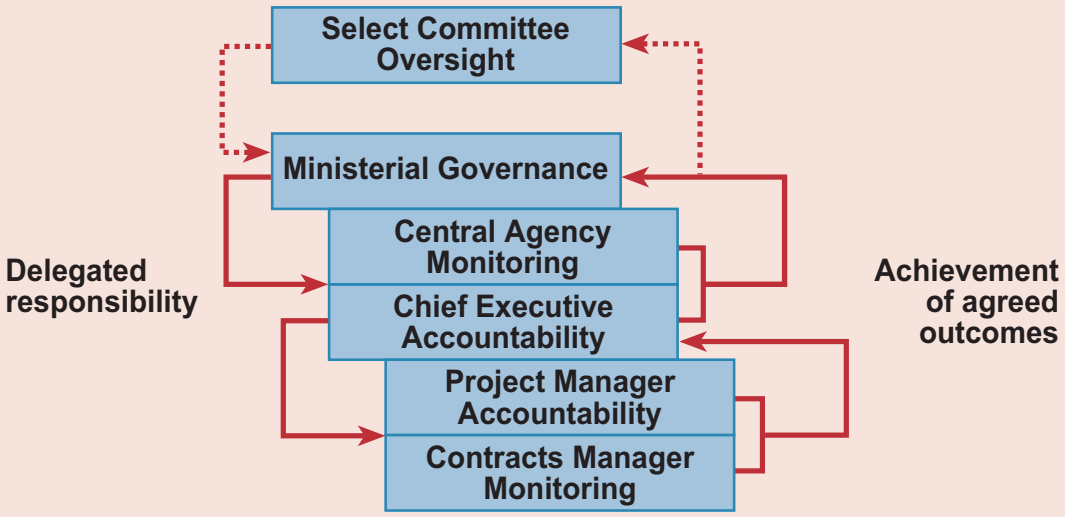
6 *Cabinet Office Manual*, Chapter 2.

Select Committees

169 Select Committees exercise an overarching governance role of behalf of Parliament and, ultimately, on behalf of taxpayers. They examine the *Estimates* and review the performance and operations of government departments. Their role has been jocularly described as "telling Cabinet what the voting public won't stand for".

170 The Select Committee's role is one of strategic oversight and high-level accountability. ***It is not a role of executive governance or project management***. However, the oversight and accountability processes of Select Committees can be extremely influential and may impact strongly on the project. Their actions and interventions should be carefully judged.

171 Having limited analytical resources available to them, Select Committees rely on the Responsible Minister, the Minister for Information Technology, central agency officials, and the Audit Office, as advisers, to discharge their oversight role.



DHI's Chief Executive initially appointed a project manager on contract, because he was concerned correctly that the IT Manager did not have the experience necessary. The person chosen had a variable track record and the CE viewed this as an asset as he believed that project managers learn as much from project failure as they do project success.

A local company (WebBase) specialising in Web design linked to databases was chosen as sole supplier. All technical aspects of the project were outsourced to them. They had about 30 staff and this was the largest project they had undertaken. Most previous business was conducted on a time and materials basis.

The CE delegated contract negotiations to the project manager, contrary to advice from the Treasury, SSC and the IT Manager (who wanted to do it herself), as he was taking 12 months off to study at Harvard. The Collections and Circulation Manager became the Acting CE, she was also the Project Sponsor.

DHI was a small department compared to others being monitored in the relevant Branches within the Treasury and SSC, and the Treasury Vote Analyst was new to the Branch and was spending all his time monitoring a large IT project that was in trouble. As HISTMOD met the criteria for SSC Monitoring Group, it was placed within the monitoring regime, but the SSC official was preoccupied advising the Department to restructure the same project the Vote Analyst was monitoring.

The Culture Minister had changed twice already because of Cabinet reshuffles.

The Social Services Committee was reviewing legislative changes to both the Privacy Act and the Copyright Act focusing on the ownership issues surrounding personal information and its use by Direct Mailing Companies.

New Zealand Customs Service

The Customs Service management team prepared the organisation for an intensive strategic planning exercise, they also started to work with other senior managers to understand better the wider environment in which the Service operated. In particular, they had a series of meetings with key stakeholder groups to identify the ways that Customs could become more facilitative in its work. These meetings showed there was not only a need for a change in work processes, but there was also some major "attitudinal" change required. The Customs Service was widely perceived as a "policing, law enforcement agency" with little regard for customer service or client responsiveness.

Against this background Customs Service senior management began intensive strategic planning. The purpose, as it was put to us, was to "get everyone pointing to the same compass point." It became clear that the old system of random checks would no longer work in the future. The Service needed to become much more sophisticated to capture high-quality intelligence so it could target its interventions. The new vision was based on the philosophy of striving for *minimum* intervention by stopping only "high-risk" goods and passengers.

With this vision now in place, and with senior management actively supporting the new philosophy, CusMod had a clear mandate to proceed.

With key stakeholder expectations now under close management, the CusMod programme could begin transforming the organisation to support the new strategic vision. The Customs Service soon discovered that this would require substantial outside support – both of sheer resources to do the work, and also in knowledge and expertise (especially in change management), which simply were not available in-house.

The Customs Service decided that what it really wanted was a "business partner" who would work with it in understanding the business, work out the goals, design a solution, and then help in selecting and building the component parts of the solution. Above all, the Service was looking for a partner who would share *responsibility* for implementation – thus reducing risk to itself.

Following a tendering process which produced a shortlist of three candidates (down from an initial 55), the Service eventually appointed Andersen Consulting as its preferred partner. Although Andersen Consulting did not have any track record in the Customs business, its proposal showed a "genuine willingness to share responsibility throughout the programme."Andersen Consulting also had a demonstrated track record – having recently completed a high-profile IT project with Inland Revenue Department.

Accountability for Achieving Objectives

172 In this section we outline accountability at each level in the governance and management hierarchy for delivering agreed objectives.

173 Accountability for project delivery and promised business benefits flows up the project hierarchy, each level hopefully matching its delegated authority.

174 The accountabilities of independent quality assurance, steering committees and suppliers are not considered here, as they are not in the direct project hierarchy.

Project Sponsor

175 The Project Sponsor is accountable for:

- promoting the interests of the project;
- monitoring its progress;
- ensuring that it is appropriately resourced;
- mediating its interests with any competing interests of other business units; and
- in general facilitating achievement of the Chief Executive's interests in the project.

Project Manager

176 The Project Manager becomes accountable for a project after agreement with the Chief Executive (delegated to the Project Sponsor) that he or she will deliver the specified deliverables within the framework of the management strategies and taking account of the project risks.

177 There are reciprocal responsibilities between the Project Manager and the Chief Executive.

178 From the Chief Executive's perspective, the Project Manager is responsible for delivering the agreed project deliverables within time and budget unless variations are agreed to and approved by the Project Sponsor. The Chief Executive relies on the professional expertise of the Project Manager to achieve these outcomes.

179 From the Project Manager's perspective, this assumes that the Chief Executive – through the Project Sponsor and his/her staff – has confidence that the specification of the new system and contracts with suppliers will deliver what the department wants. It also assumes that the Chief Executive will provide the framework and resources to enable delivery of the project outcomes.

Contracts Manager

180 This is an emerging role, which is likely to require a commercial or legal background, and might be sourced either externally or internally but usually part-time.

181 The Contracts Manager is accountable for monitoring and reporting on the compliance of each party's formal and informal obligations, on behalf of the customer.

182 Establishing and monitoring reporting requirements is a key part of this role.

183 The Contracts Manager has a valuable role to play in ensuring that the Project Manager, Supplier and Chief Executive do not lose sight of the original objectives of the project as he or she is not directly involved in the delivery of the project.

Chief Executive

184 The Chief Executive is accountable for the use of funds allocated to the project, ensuring:

- that the project team is actually delivering the specified system to the schedule agreed; and
- that the organisation is preparing itself to use the new system and its business processes to meet the business objectives of the department.

Central Agencies

185 Treasury and SSC officials are accountable to their Ministers to provide correct and complete advice about the viability of the business case, to monitor project progress against benchmarks, and to alert Ministers promptly when a project gets into trouble.

186 Officials are concerned to monitor project risk. However, in doing this they risk becoming accountable for the project outcomes, transferring that accountability from the Chief Executive.

187 The role each agency has is not prescribed in legislation. Instead, they have divided the responsibility since the SSC IT Monitoring Group was formed 18 months ago. ***There can still be tension between the two agencies which could interfere with their effectiveness***.

188 The recent review of the central agency monitoring regime (released by the State Services Commission in November 1999) emphasised the value of involving central agencies early in major IT projects. To form their "second opinion" on the projects they must be very familiar with project rationales and business drivers.

Responsible Minister

189 The Responsible Minister is accountable to Parliament for the performance of the department including its performance in managing the project. The Government periodically modifies its political direction (either because of a change of government or because an existing government modifies its policies).

190 ***Where a change in political direction also changes the business objectives of a department with a project in progress, the Minister needs to consider the impact on the project deliverables, time scale and budget in four ways:***

- ***Is there any conflict between the objectives and outcomes of the existing project and the new policy or legislation?***
- ***If there is, should the project proceed?***
- ***If it should proceed, what changes are needed to ensure that it does deliver the new political direction. What allowance should be made for the new time and cost to deliver to the modified policies?***
- ***If it does not proceed, the Minister should withdraw funds for project completion and the project would be cancelled.***

Select Committee

191 The functions of a Select Committee are to:

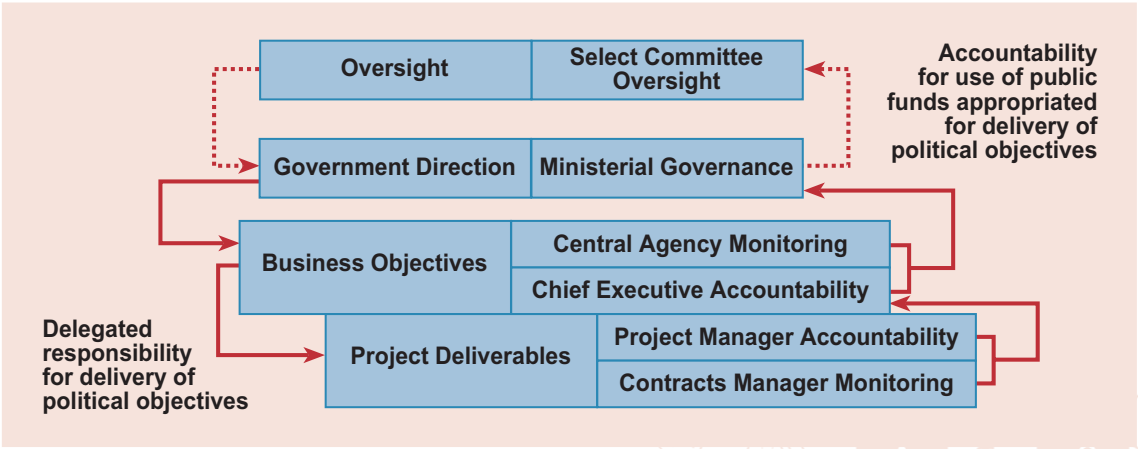
- review the capital components (if any) of the estimates for each department, during examination of the *Estimates*; and
- review the department's performance and current operations – and its capability (including IT capability) – during the annual financial review.

192 A Select Committee can also undertake special inquiries into any aspect of departmental activities, including IT projects.

193 However, a Select Committee review or inquiry is normally carried out at such a level that, unless a project requires a significant capital injection, or is a very significant part of a department's activities, the department is unlikely to directly inform the Committee of the project's status and health.

194 The Audit Office advises Select Committees and will draw a Committee's attention to issues with IT projects if it is aware of them and thinks they are significant.

195 **The Audit Office does *not* have a direct role in oversight of projects, but is concerned to establish that they are being managed and monitored appropriately.**



The Project Manager prepared a Terms of Reference (TOR) for his role in a hurry so it could be signed off before the CE left for Harvard. The TOR stated clearly his accountability for the success of the project as understood by both parties at that time. The Requirements Specification was being prepared jointly by WebBase and staff from the Collections and Circulation Department when the TOR was signed off. WebBase had expertise with relational databases but not with knowledge bases.

The SSC official took time off from his other project to help the Acting CE and Project Manager set up a Steering Committee, chaired by the Project Sponsor (also the acting CE). He was too busy to attend meetings himself. Other members were the IT Manager, the Project Manager, and representatives from the Hillary Commission and the New Zealand Educational Institute. The CE of WebBase was to be a member on an invited basis.

The new Culture Minister (not a member of the majority party in the Coalition), aware that the Social Services Committee was reviewing the Privacy and Copyright Acts, was personally concerned with the impact of proposed changes but was not aware that this would affect HISTMOD. The Select Committee was not aware either.

DHI did not have a policy section, relying on policy developed by the National Library and National Archives.

LTSA, Drivers Licence Project, from interview with Alan Woodside and Tony West, 21 July 1999

A single project office was established with members of LTSA and the supplier working together. Both parties reported regularly to the Steering Committee.

LTSA constructed reporting and communication mechanisms with the aim of mitigating risk including political risk. A series of "health checks" and independent reviews were a scheduled part of the project.

A monitoring group, chaired by LTSA with SSC, Treasury, and the Ministry of Transport officials, was established to maintain ongoing communication of project progress between the delivery agency (LTSA) and the central monitoring agencies.

LTSA commissioned a series of health checks, through independent audits of the project office.

There was also an internal Steering Group with UNISYS as principal supplier and AA (once selected) on it. LTSA also used public relations and communications channels to brief external agencies.

LTSA believes that the Government has a genuine political "need to know" the state of these projects and any issues arising from them. Consequently, LTSA welcomed the involvement of the central agencies.

201 All IT projects are made up of components. The health of each component affects the health of the whole project. Large projects often run for more than one year, some for three to four years. They are intrinsically more complex than smaller and shorter projects.

202 Components that Ministers and MPs should be particularly aware of are:

- the links between business strategies, IT strategies and the project objectives;
- the need for a sound business case to support the project;
- the phases of a project and the links between phases;
- the party controlling each phase and controlling each area of risk (it will not always be the same party);
- the varying accuracy of project time and cost estimates throughout the project, and the certainty of business benefits being delivered;
- the impact of scope changes during the project lifecycle on project success; and
- the different types of risk associated with IT projects.

Links Between Business Strategy and IT Projects

203 In paragraphs 103-114 we outlined the links between political objectives and the purchase agreement.

204 ***The department's business strategy should document how the outcomes and outputs set out in the purchase agreement will be delivered. From that, the IT Strategy should outline the required system capability and how to achieve it.***

205 At present there is no high-level Government IT Strategy providing a technical standards framework for departments to adopt and use. Clear and agreed business and IT strategies are both necessary to provide focus and direction for projects. In particular, projects which lack sound business goals consistently fail. Technology is not an end in itself.

206 ***A department with current, clear and complete business and IT strategies is more likely to be able to develop clear and complete Requirements Specifications for new systems. It will then be able to develop a coherent business case for a specific IT project.***

DHI's business strategy had been developed in 1997 by the CE himself, just before HISTMOD was approved. The CE was aware of the Select Committee's review and had held off updating the strategy until the new directions were clarified. He had forgotten to warn the Acting CE before leaving.

The business case had linked its objectives to the 1997 business strategy. DHI chose not to develop a separate ISSP believing that the HISTMOD programme business case would cover all aspects of the Department's Information Technology requirements. Consequently, there were no technology standards in place.

Example of good linking between Government political strategy and departmental business strategy for Land Information New Zealand

The Cabinet State Sector Committee in August 1995 authorised establishment of a core department of approximately 1,000 staff to have responsibility for a number of core databases. With automation of processes and digital conversion of data, it was expected that the department would settle at around 700 staff within five years.[7]

In 1996 LINZ stated its vision to be that "We will provide world class land and seabed information services that will ensure the security of New Zealand land rights and interests…"

LINZ's goals included:

- A secure fully automated land titles system available from remote locations with an average turnaround time of 24 hours for issuing titles.
- A fully automated and digitised survey information system accessible from remote locations.[8]

Following an initial feasibility study the first version of the Survey and Titles Automation Programme was born in 1996 and then improved and modified until it was approved by Cabinet in November 1997. It became known as Land*online*.

7 *Department of Survey and Land Information: Report on Scoping Study:* Cabinet State Sector Committee, STA (95) 38.
8 *Land Information, An Introduction*, Land Information New Zealand, 24 June 1996.

The Business Case

207 The business case for large business change IT projects will generally be made having regard to the full programme of projects. The duration of the programme may be quite long – in some cases exceeding five years – and the analysis and justification need to reflect the timing of costs and benefits.

208 ***The business case should identify and reflect all significant costs and benefits. The analysis of costs should include both the direct costs of the project and any indirect costs incurred by the department itself, other departments and agencies of the Crown in adjusting their business operations, or the general public. The analysis of benefits should include any direct efficiencies and cost savings for the department itself, for other departments and agencies of the Crown, and for the general public.*** Such costs and benefits may be either quantifiable in monetary terms or qualitative but unquantifiable.

209 ***As well as reflecting the expected timing of costs and benefits, the analysis in the business case should estimate and reflect uncertainty and risk (see paragraphs 244-253)***. It is unacceptable that a business case should be prepared and approved as if uncertain contingencies and outcomes were in fact certain. Every project carries at least some risk. Those proposing and those approving a project both need to be informed about, and buy into, that risk.

210 Approval is usually given by the Cabinet for the whole business case, with funding drawn down for individual projects.

211 It is likely that only some of the projects within a programme will produce benefits, often those projects coming later in the programme.

212 Projects which update technology without introducing business changes may not appear to offer tangible benefits. These are often referred to as "Infrastructure Projects". However, such a project[9] may be an essential stepping stone to:

- establishing an environment in which modular projects are able to be introduced;
- reducing the total cost of ownership of technology; and
- reducing the business risk, or exposure to IT failure, or loss of data or system availability.[10]

9 For example, MAF Standardisation Project, 1999.
10 Year 2000 compliance projects; business continuity planning projects.

213 ***During project planning it is desirable to manage risk by specifying exit points (or "off-ramps") where the project can be terminated early while still obtaining identifiable and worthwhile benefits (if any).*** These off-ramps to terminating the project (and funding) early may be triggered by:

- significant changes in the environment which affect the project; or
- specific issues or failures to achieve milestones during the project.

214 ***Where possible, criteria for these exit points should be set in advance, included in the business plan, and monitored by the Steering Committee. Rather than extensive change to the project, it may be a lower risk to take any available benefits and terminate it.***

215 ***Organisations that have developed a project culture will also make sure a post-project review is conducted some months after the new system has been implemented.*** The lessons learned are valuable in refining and improving project standards and controls as well as enforcing their value.

216 Lessons can also usefully be shared beyond the organisation running the project. For example, in the United States a number of companies have used such reviews to construct a Project Estimate Repository of Knowledge (PERK) – a database containing detailed software processes and project and resource measurements to help planning for future projects.

217 ***The post-project review should compare actual results with the business benefits promised in the business case.***

218 A good business case includes the following features:

- the business need for the project and its anticipated benefits linked to the department's key priorities;
- a clear description of the business function(s) that the project will support or improve;
- options available to the department, including the "do nothing" option for comparison;
- a risk assessment of each option which takes into account the elements of risk described in paragraphs 262-276, preferably quantified, using a suitable tool such as a Monte Carlo technique[11] [12];

11 Vose, David; *Quantitative Risk Analysis – A Guide to Monte Carlo Simulation Modelling*, John Wiley & Sons, England, 1998.

12 *Some government bodies (e.g. NSW Government) are gradually coming to insist on risk assessments in bids* [business cases] – Grey, Stephen; *Practical Risk Assessment for Project Management*, John Wiley & Sons, England, 1985.

- a cost-benefit analysis of each option providing a net present value or similar investment analysis outcome – the results being described as a range with confidence factors for the highest, lowest and most likely outcomes;
- an analysis of the strengths and weaknesses of each option reflected against the business need, the impact to the department, its customers and (where applicable) other agencies;
- a factual description of the expected qualitative benefits;
- the internal (departmental) and external (supplier) capabilities to deliver the project, including an outline of key project managers' skills and experience;
- an analysis of the impact of implementing the recommended solution on the business, customers and other agencies;
- a clear description of the scope of the project, including –
  - functionality;
  - time scale;
  - where it will be implemented; and
  - technology (mainstream or emerging products);
- governance and monitoring structures and their reporting requirements and intervals – including (where possible) criteria for specifying exit points; and
- for the recommended option –
  - key milestone dates and descriptions of what will be delivered, including provisions for post-project review;
  - key project performance measures that will provide a baseline for project reporting; and
  - key business performance measures that will provide a baseline for departmental reporting of derived benefits once the project is complete.

HISTMOD was to be implemented in two phases – the Web front end first linked to their existing Intranet, and the knowledge base second interfaced to the existing billing system.

The business case was prepared by the IT Manager, a librarian by profession, and she sought help from her brother, an analyst programmer who had recently completed an MBA.

The business case covered four areas:

1: **Business Benefits** savings of $2.5 million a year and gradual increase in outputs of 5% a year. This was the only detail provided.

2: **IT Infrastructure** covering a lot of technical information about the proposed tools to be used, concentrating on the latest Internet and Electronic Commerce designs.

3: **Project Structures** outlining the schedule and budget for all phases of the project.

4: **NPV Analysis** showing that the new system would break even after three years.

IRD, from interview with Tony Lester and Shirley Hepburn, 19 August 1999

IRD's FIRST Programme was structured about 5 years ago to focus on business directions and linked to the IRD strategic business plan.

The Directions Customer Requirements (DCR) business case was approved by the Government, the Treasury and SSC.

It is a multi-module programme, some of which are:

- Consolidating 26 phone and counter sites into 4 call centres (initially) and finally 1 call centre in Wellington. Closing 10 smaller branches.
- Loading IR66Ns (employer's monthly PAYE lodgments) via Internet or other electronic means.
- Eliminating IR12s for all employees.
- Externalising receipt of all cash payments.

Project Phasing and Deliverables

"Modular Projects" and "Phases"

219 A large project will often be broken into chunks or ***"modules"***. When this occurs each module will be a "project" and the collection of modules a "programme". A rule of thumb for success is to break a large project into modules of between six and nine months' duration. Risks increase quickly when the duration of a module exceeds 12 months.

220 Notwithstanding this, converting large projects into modules is ineffective in reducing risks unless the dependencies between modules are minimised or eliminated. ***In short, each module should reflect a self-contained and independently justified contribution to the efficiency of business operations. The successful completion of subsequent modules should not be necessary to realise that contribution.***

221 Each module will:

- be managed as a project in its own right;
- have a defined scope (a subset of the scope of the whole programme); and
- deliver a part of the overall business benefits.

222 Regardless of size, IT projects involve a series of sequential steps. A group of steps is known as a ***"phase"*** and each phase delivers a component that is used for activities in the next phase. Examples of components are the specification, a piece of software, and a training manual.

223 Large Government projects over the last six to seven years have been additionally described as "Business Infrastructure" projects. These projects have fundamentally changed the business processes of the department and at the same time provided a new integrated hardware and operating systems environment for the whole department – usually nationally across all its branches.

224 Examples of business infrastructure projects have been:

- the IRD FIRST system to manage tax compliance;
- the LINZ Land*online* system for registration of titles and survey plan approval; and
- the INCIS system for Police document management and intelligence.

225 There are additional risks surrounding the business infrastructure component of large modular projects. It is the single largest component to implement, usually expensive, and business benefits do not usually flow directly from it.

226 A department not familiar with the massive change triggered by IT is unlikely to have the appropriate standards and disciplines in place, and may also underestimate the potential cultural impact of the project and associated costs.

Normal Project Phases

227 Figure 2 below depicts the common phasing for a project, whether it is the implementation of a purchased package or development of software.

228 ***Each phase builds on the deliverable of the prior phase, and formal project disciplines require that each phase be accepted by the business and signed off before approval is given to proceed further.***

229 In practice, once the specification is signed off and supplier selected, phases are scheduled in part consecutively and in part concurrently. This introduces risk of rework being required but is offset by the potential for quicker implementation.

230 The business requirements are to the fore in the Initiation and Analysis phases, but the technology issues take over in the Design, Build and Implement phases (unless there is strong project management encouraging consideration of the business issues).

Figure 2
Project Phases and Milestones

PHASE	Initiation	Analysis	Design	Build	Implement	Production	Review
MILESTONES	Project and budget approved.	Specification, contract signed off.	Software, hardware designed.	Application, hardware installed.	System tested. Staff trained. Processes ready.	Teething problems resolved.	Lessons for future identified.

"Go-live" date

Importance of the Specification and the Contract

The Specification

231 The specification is the written description of what is required from the new system and what the project team will create. It is primarily intended for the business audience and is the equivalent of the architect's plan for a new building on which a contract to build is made with the builder.

232 Specifications are very hard to develop precisely and completely. Some reasons for this are that:

- The business and/or IT strategy are not well defined and the business requirement, direction and benefits are not clear.
- People find it hard to visualise and communicate clearly what is required and to justify why it is important. People are describing concepts; there is nothing to see or touch.
- It is hard to prioritise requirements and be disciplined about the need for discretionary pieces of functionality.
- The process is iterative and very labour intensive of middle management.
- Because it is intensive and time consuming it is tempting to use people not vital to the department's operation on the Specification team. These people may not have the vision to rise above the detail of "how it is done now" to "how it needs to be done".

233 The deliverables for the rest of the project are based on the specification. Where all or parts of a project are delivered by supplier(s) the specification forms the basis of the contract.

The Contract

234 We noted in paragraphs 131-140 the importance of the contract as the legal description of the relationship between the department and the supplier for the delivery of all or parts of the project.

235 The "courtship" stage of the contract begins with the first request for information or a meeting between department and potential supplier. Building blocks are the formal Request for Information (RFI) and/or the Request for Proposal (RFP) which occur in the Initiation and/or Analysis phases. Detailed negotiations about the structure of the relationship and both

parties' expectations occur before selection. The "legal" stage occurs after selection and this will often identify areas that have not been well thought through. The project may have moved into the Design phase.

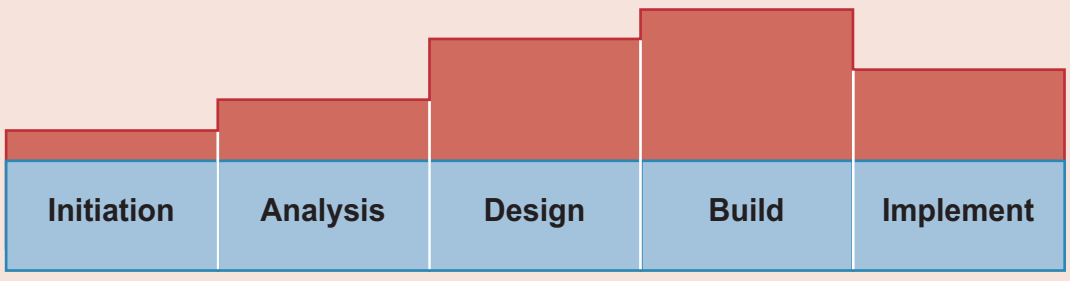
236 Prompt completion of contract negotiations is important, as it is rare to see a project put on hold until the contract is finalised and signed.

237 In the worst case it would be a race to see if the project was completed before the contract to supply was signed, although it would be an excellent test of the relationship!

238 If the contract is not signed during the Design phase at the latest, orders will have been placed for hardware, software licences, network equipment etc.; the project staff count will be growing; and the supplier will have completed many activities without making a commitment to deliver to schedule or quality. Lack of a properly developed and signed contract creates major risks, not only in cost terms, but also for quality and delivery of the project.

239 Figure 3 below depicts the lumpy nature of cost commitment for each phase, while the cumulative effect can also be envisaged.

Figure 3
Project Cost Profile



The Analysis phase ran into trouble, WebBase continued to recommend requirements based on their understanding of relational database functionality and use of the latest Web technology. The IT Manager was concerned that she was not directly involved in the specification workshops but was getting her information from a couple of friends who were. She regularly complained to the Acting CE who did not act on the complaints.

Meanwhile, the Project Manager was trying to negotiate a contract with the WebBase accountant. This also was in trouble as they did not get on and the accountant had not negotiated a contract before and was very suspicious of the Project Manager who had negotiated four contracts in the past.

DHI and WebBase had spent three months on this phase and now had quite different perceptions of the scope and duration of the project.

ASB Bank Limited, from interview with Ralph Norris, 12 August 1999

ASB has stable relationships with major suppliers but all large projects are contestable.

A major project was awarded to a supplier following tender. ASB wrote the contract and agreed and negotiated it with the supplier. The specification was also closely linked to the contract. The project was monitored by an Executive Review Committee made up of senior executives from both ASB and the supplier. This Committee met fortnightly, with operational teams also meeting regularly and reporting through to the Committee. The supplier did not deliver and, as the contract was ironclad and the specifications were clear, ASB terminated the contract and paid nothing further to the supplier.

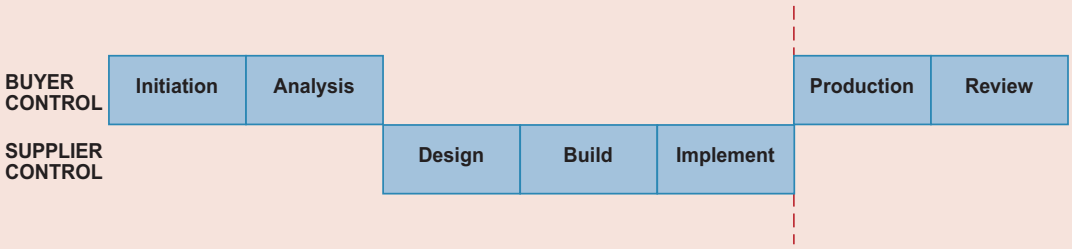
Project Phase Control

240 As the project proceeds, control of each phase swings from the department to the supplier – reflecting the work being done and the level of involvement of each party.

241 The Design, Build and Implement phases are technical, detailed and complex. As shown in Figure 4 on page 52, the department may have little direct control of the effort being expended. However, given the business risk, the department cannot afford wholly to abdicate control to the supplier and must keep itself well-informed.

242 Project phase control is also the area where many requests for changes or specification variations are raised.

Figure 4
Project Phase Control



243 The balance of control reflects the importance of having the business relationship and contracts in place, as the supplier effectively takes control for the longest and most intensive phases of the project.

WebBase convinced the Acting CE/Project Sponsor to begin the Design phase for those modules of the Requirements Specification that were complete, as the project schedule was getting behind. She agreed without checking with the independent QA (not due to visit for another month) or the SSC Monitoring group official. The Project Manager, who had resigned but was still on site at the time, advised her to finish the Specification and complete contract negotiations.

The Acting CE asked the IT Manager to take over as Project Manager until the CE returned in three months' time.

WebBase made good progress on the design of these modules (the Web front-end) as it was their core expertise. The balance of the Analysis phase dragged on quite unsatisfactorily. In the meantime, DHI handed completion of the contract to its lawyers and the contract was eventually signed before completion of the Requirements Specification.

… continued on next page.

During the Build phase, WebBase uncovered a serious defect in the security module of Web tools they were using. They logged it with the development company in Canada but received poor service. No-one else in New Zealand was using this particular product. After four weeks, WebBase obtained approval from DHI to visit Canada to expedite the problem. As this expenditure was outside the budget, the Acting CE was unwilling but could see no other option. She was very aware how dependent they were on WebBase and now conscious that DHI's lawyers had negotiated too hard on the fixed price deal.

The Acting CE was also aware that the IT Manager was not controlling WebBase well, and that the project reporting was now vague, waffling and spasmodic.

After a particularly unsatisfactory Steering Committee meeting where the Acting CE could not get clear answers from WebBase or the IT Manager about the state of the project risks, schedule or budget, she called in the Treasury Vote Manager and SSC IT Monitoring Manager.

LTSA, Drivers Licence Project, from interview with Alan Woodside and Tony West, 21 July 1999

The LTSA deliberately created a project environment that focused on the business requirements rather than the technical aspects. It maintained control throughout using the following mechanisms:

- A risk database and an issues database, jointly managed by LTSA and UNISYS.
- A mixture of permanent staff seconded to the project, contract staff, and the UNISYS team melded in together. It was a rolling team although a small core group remained with the project throughout.
- UNISYS was the prime vendor and managed the subcontractors (assuming that risk).
- Every Steering Committee meeting got many views of the project "world".
- The technology chosen was proven and met the standards set in the IS Strategy that IT must be proven, not right on the leading edge.

Estimation Uncertainty

244 The purpose of the first phase of a project, the Initiation phase, is to describe at a high level:

- the business outcomes required from the project;
- the new business processes, software functionality, data conversion requirements, and hardware platform; and
- an initial view of the project risks.

245 Based on this high-level understanding of what is required to be done, the timescale and budget for the whole project are calculated and incorporated in the business case, and, if the business case is approved, funds are appropriated. The expectations of the Minister and the Chief Executive for the time and cost to complete the project are now locked in.

246 However, estimating IT projects is an exercise in estimating uncertainty about all future project activities and system requirements. When the estimates are done initially (at the beginning of the project timeline) very little is known about the details of complexity that is involved.

247 IT professionals use two techniques to estimate uncertainty:

- mathematical models; and
- expert judgement.

248 Both techniques have strengths and weaknesses, but both need good historical data from similar completed projects to provide a realistic base. However, technology is changing so rapidly that often there is not enough historical data on which to base estimates.

249 Common problems that exacerbate the uncertainty of estimates are:

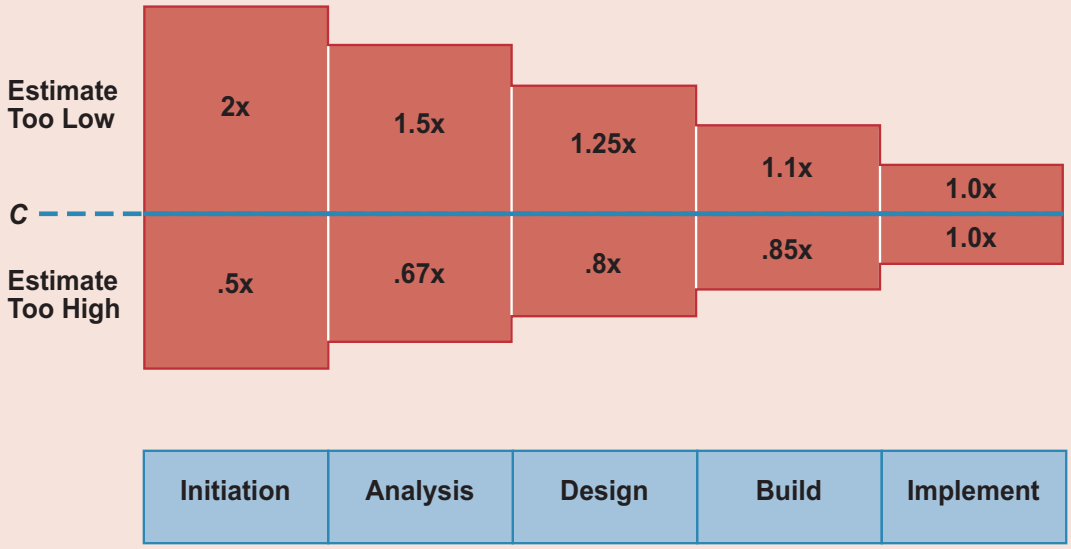
- use of new software tools, languages and changing technology;
- unclear or changing specifications;
- poor project control of the time and resource available;
- departments that do not have a track record of running projects nor a project culture; and
- lack of relevant skills for the technology being used.

250 Assuming that there is no major change to the project scope, the ability of project managers to estimate time and cost to complete the project improves through each stage as more is known about what is being created.

251 Barry W Boehm is an expert in software estimating, and in his book *Software Engineering Economics* he presents factors of uncertainty for each phase. This represents industry experience that the level of uncertainty diminishes as the project progresses through each phase.

252 We have taken some elements of his work and summarised them in Figure 5 below. This shows the difference between the projected and actual cost at each phase of the project. For example, the final actual cost could end up being between half and twice the estimate provided in the Initiation phase, or between two thirds and one and half times the estimate of final cost calculated at the Analysis phase.

Figure 5
Project Cost Estimation Accuracy for Each Phase[13]



13 Adapted from a graph in the article *Software Estimating Technology*, Richard D Stutzke, Science Applications International Corporation, published in the book by Barry W Boehm, *Software Engineering Economics*, Prentice-Hall, 1999.

253 *The best approach to managing expectations is to acknowledge the factors of uncertainty throughout by:*

- *Building in contingency for time and cost based on a range of confidence factors that quantify the risks involved.*
- *Providing Ministers with a business case that highlights the risk profile and the benefit profile through a range of costs and benefits and payback periods.*
- *Re-estimating the time and cost to complete at the beginning of each phase, adjusting the confidence factors based on the current risk profile.*
- *Putting in place reporting mechanisms that enable the Chief Executive and central agencies to monitor progress and draw down contingency when really needed.*
- *Where uncertainties are high, consideration might also be given to seeking approval for funding in stages, with future funding contingent on satisfactory completion of early phases.*

DHI finally signed off the rest of the Requirements Specification and handed it to WebBase for Design. The WebBase CE sought a one-on-one meeting with the Acting CE to advise her that the specification was considerably larger and more complex than WebBase had bid for in the RFP and their understanding of requirements when negotiating the contract.

The WebBase CE also advised the Acting CE that the job now required expertise that WebBase did not have and they would need to subcontract to a specialist resource, probably from overseas. WebBase argued this cost was outside the contract.

The Acting CE, recalling the IT Manager's earlier concerns, believed that WebBase were aware all along about these problems and, breathing a silent sigh of relief that she had already briefed SSC and the Treasury, told him that an independent review was being set up by the central agencies. At this stage WebBase could continue with the Web design but was not to begin any other work.

Land*online*

Programme estimates have moved over time:

- February 1996, $82.7 million
- April 1997, $84 million
- November 1997, $97 million
- June 1999, $144 million (15% probability) to $149 million (50% probability).

It is now in the Build phase for two modules being run concurrently.

The cost increases between 1997 and 1999 were caused by substantial differences between initial estimates and actual quotes for facilities management and data conversion costs, and building in time and cost contingencies.

Impact of Scope Change

254 The scope of a project changes for many reasons.

255 Examples of "external" reasons are:

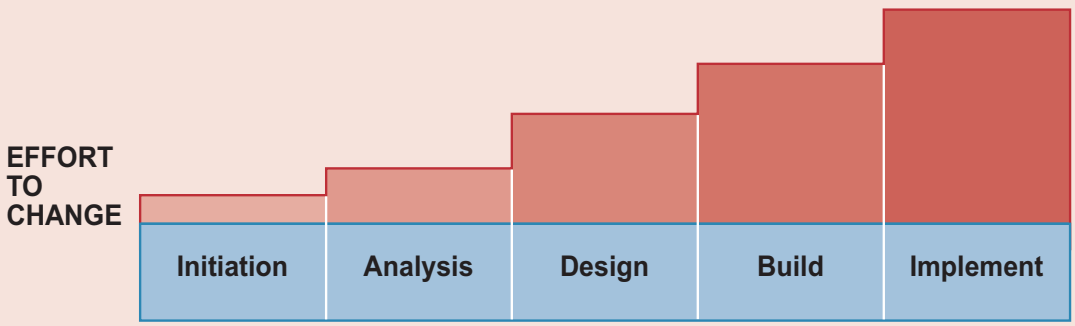
- legislative change;
- departmental restructuring; and
- changes to political direction caused by change of government or political objectives.

256 Examples of "internal" reasons are:

- clarification, and therefore expansion, of business requirements;
- change of technology platform; and
- change of design.

257 Any agreed change to the functionality will have to be incorporated into what is built. Not only will the new requirements need to be analysed, designed etc, but the impact of additional functionality will change aspects of the existing design. As Figure 6 on page 58 shows, the later the additional functionality is introduced the bigger is the impact on the schedule and budget.

Figure 6
Effort Required to Change Project Scope



258 Functionality change can be deliberate or hidden. Deliberate changes are those that are specified, costed and approved through a "Change Control" process. This will usually add to the breadth of the scope of the project, providing more than was originally asked for.

259 Hidden change occurs when the functionality delivered matches what was asked for but its quality is greater than specified. Project Managers may spot this from reports showing the software component was going through multiple iterations of development. This form of "scope creep" will occur in the Design and Build phases, where the department has least control.

260 Determining whether or not potential scope changes are being adequately addressed involves answering the following questions:

- Is there a clear and formal statement of the change request?
- Has the change request been analysed (how big, how much time, what resources)?
- Have all the stakeholders accepted and agreed to the implications of the proposed change?
- Has the project plan been modified to incorporate the proposed change?
- Have the modifications been communicated to all stakeholders?

261 Examples of control mechanisms to assist the Project Manager are:

- agreed design standards incorporated in the Specification supported by the contract;
- periodic independent quality assurance of the design and development outputs;
- good reporting procedures always consistent with the agreed specification and schedule; and
- clear escalation procedures in the contract.

SSC and the Treasury jointly set up a review of all aspects of the project covering its accountability, project management and technical design.

The consultancy chosen had good experience with Web design and knowledge bases. After reviewing the specifications of the two phases they concluded that they were inconsistent and incompatible. About 50% of the Web front end would need to be redesigned to support search engine type access to the knowledge base (the whole reason for the project). Redesign and recoding would add 6 months to the project.

The consultancy was also aware that the Social Services Committee was about to release its report on changes to the Privacy and Copyright Acts. Consequently, it was concerned that there could be major changes needed to the specifications of both modules.

LTSA, Drivers Licence Project, from interview with Alan Woodside and Tony West, 21 July 1999

The Drivers Licence project needed legislative changes before implementation. LTSA worked to a Government requirement to "go live" on 3 May 1999, acknowledging a risk that the necessary rules under the Land Transport Act 1998 would not be ready in time.

The rules were notified in the *Gazette* on 1 April 1999, less than five weeks before the system was due to go live. This was a large responsibility, which the Government managed.

However, as a result of consultation during the course of this final legislation being developed, several policy initiatives were changed, resulting in changes to business rules and system design. Had these been fully included in the "go-live" release, the 3 May deadline would not have been met. LTSA therefore put in place some manual "workarounds" for "go-live" implementation, intending to introduce more permanent modifications in due course.

Project Risk

262 In this last section of understanding projects we draw the themes together and consider projects from the perspective of the types of risk that can beset them.

263 ***The supplier(s) will have its own risk identification and management process. The most successful projects consolidate the supplier and client risk processes, sharing the identification and management of all project risks. Activities related to managing risk may be made the sole responsibility of either party, but both parties should be aware of all risks and the manner in which they are being managed.***

264 Large projects in the public sector are likely to be exposed to many types of risk. Some important types are:

- political risk;
- business risk; and
- technical risk.

Political Risk

265 Political risk is peculiar to public sector projects. The nearest we see in the private sector is either:

- public relations risk, where the company could lose shareholder confidence because of major failure in a project of the company; or
- economic risk, where a fundamental change in the economic climate affecting the viability of the project is not acknowledged by the company.

266 Political risk is external to the department, and is caused by Parliamentarians and/or the press. It is almost impossible for the department to deal with it effectively alone. ***We believe the best management strategy is regular, honest reporting to Ministers so that they are familiar with the project status. In return, the Ministers give early warnings of any political changes that could affect the project.***

267 Examples of situations included as political risk are where:

- legislation is passed affecting the scope of the project without consideration of its impact on the current project plan, with the expectation that the original business case will be maintained;

- public exposure of project problems diverts resources from dealing with the problems to reducing the fallout from the publicity; and
- short-term political imperatives may be in conflict with longer-term business and project objectives, and may trigger changes in project scope, with potential unacknowledged impacts on the project.

Business Risk

268 Business risk covers many risks, typically generated from within the department. Examples are:

- restructuring the department, with direct impact on the project scope and business benefits;
- change of Project Sponsor or Chief Executive, and consequent change in commitment to the project;
- changes in key project staff, with the change of Project Manager the most critical;
- lack of capability of suppliers (more often the smaller suppliers) to resource projects over a long duration; and
- failure to specify requirements clearly or with a focus on the business needs exposes the department to major scope change.

269 ***For each risk there will be separate mechanisms to manage it. However, the over-riding control is to develop and maintain a strong disciplined project culture.***

Technical Risk

270 Technical risk usually occurs when the reality of a system component does not meet the expectation set out during the Design phase. It can occur for many reasons, for example:

- the supplier withdraws support for a major component;
- the system specification was based on the functionality of a component that did not perform as expected (which can apply to hardware, packaged software or the features of the software language being used);
- functionality can be developed as specified but the time or expertise needed was underestimated; and

- resource or expertise for particular technical components cannot be obtained easily.

271 Management strategies are again variable but often involve:

- selecting proven components;
- including a technical substitution clause in the contract; and
- allowing a specific contingency for problems.

Risk of Disclosing Risk

272 One of the more frustrating aspects of risk is the predilection of project team members to understate risks and difficulties in order to protect the status and morale of a project. Those monitoring or reviewing projects are often faced with risk reporting that seems to suggest that "everything's fine", even when other project indicators do not support this position.

273 Risk management or mitigation processes can become "marketing programmes" for a project, and lose all value in the process.

274 *Risk is a very personal matter. It is the skills of individual people which give a business the capacity to operate successfully in fields which would be unduly risky for less capable teams. When you start looking into the risks facing a project you are in danger of making these skilled individuals feel that you are questioning their competence.*

There are many excuses for not joining in a risk analysis, but a large proportion can be rephrased as one or more of the following:

- *Are you saying I don't know what I am doing?*
- *It is too early to say anything useful about the estimates, we need more information.*
- *I know there are risks here but it is my job to handle them; go away.*[14]

275 Central agency officials and independent quality assurers often find that this confusion of risk identification with personal criticism of the project team members is a barrier to effectively discharging their responsibilities.

14 Grey, Stephen; *Practical Risk Assessment for Project Management*, John Wiley & Sons, England, 1985.

The consultancy recommended HISTMOD be cancelled; its risk profile was too high, and the schedule and budget needed to complete the project meant that the business case benefits would not be realised.

The consultancy highlighted the following risks:

Political Risk

The Select Committee (controlled by the ruling party) would recommend major changes to both Acts. As the legislative change would not be presented to the House until after the Election, it was unclear what form it would take. Thus the legislative framework on which HISTMOD was based may be changed, altering the specification of the system.

Business Risk

The major business risks were:

- The vision and management style of the CE and Acting CE were quite different – the change of personnel had confused the relationship between DHI and WebBase.
- Governance was poor, because of the lack of monitoring involvement from the central agencies and the Minister, and the dual role of the Acting CE.
- DHI's ability to get what it wanted from the new system was at risk because of poor project and contract management, poor work by the specification team, and the technical problems.
- The project was 35% through its schedule, and three months late, and had spent 60% of its funding. It could not be completed on time and budget. The IT Manager had approved purchase of hardware needed for the knowledge base without approval from the Acting CE.

Technical Risk

WebBase did not have the expertise to develop the knowledge base and they had specified the requirements incorrectly.

The security product defect could only be solved by substituting a different product. To do that would require additional hardware and rework of the Web software.

Political Risk

The case study of the LTSA Drivers Licence project (page 59) is also an example of political risk.

Business Risk

(DSW and WINZ, from interview with Dame Margaret Bazley, 17 August 1999.)

DSW has project standards and policies in place to ensure their projects are generally implemented successfully. As at 30 September 1998, when Income Support merged with the Employment Service to become WINZ, they were in the middle of the FOCIS Programme, which was on track. The responsibility for the FOCIS project was transferred to WINZ on 1 October 1998. As a result of this change in responsibility the project was redirected by WINZ Management with oversight from the SSC Monitoring Unit and the Treasury.

This is also an example of political risk, as the restructuring of the departments was politically driven.

Technical Risk

National Library's NDIS project foundered and the realisation of major technical risk was the core of the problem.

National Library chose to develop its own Search Engine for the Internet (similar to Alta Vista). They also chose to use an Oracle Knowledge Management database, which had not been used for such a large database before. The development team had persistent problems with the Oracle project and, after 6 months, Oracle withdrew support for it. Fortunately National Library had a technical substitution clause in the contract with the Systems Integrator CSC and this was exercised. However, because of the specification requirement to develop a search engine, the solution presented by CSC to replace the Oracle database was too costly. It was uncertain whether NDIS would be implemented in time to avoid Y2K problems as well.

National Library has recently implemented their new systems using standard library management systems.

301 In this section we gather the themes of Governance and Accountability together with the Project Issues and put them in the context of three elements we have identified as necessary for project success. At the same time, we provide outlines of the problems hindering departments from succeeding.

302 We intend this section to provide reasons for project success and failure in the New Zealand public sector context.

303 Over the last two decades there have been numerous studies done on success and failure of IT projects. Typical of these is research done by Standish Group International,[15] which covers both public and private sector IT projects in the United States over the later 1990s.

304 The studies identify relative size and time scale as major determinants of project success or failure (larger, longer projects are much more likely to fail), and also identify a series of "success factors". Their "top ten" success factors, and the relative weighting attached to each, are shown in Figure 7 below.

Figure 7
Project Success Factors and Weightings

Success factor	Weighting
1. User involvement	20 points
2. Executive support	15 points
3. Clear business objectives	15 points
4. Experienced project management	10 points
5. Small milestones	5 points
6. Firm basic requirements	5 points
7. Competent staff	5 points
8. Proper planning	5 points
9. Ownership	5 points
10. Effort	5 points

15 *The CHADS Chronicles*, Standish Group International, 1999.

305 *We would expect Chief Executives and Project Managers to be aware of, and assess success factors such as these as part of their project planning and monitoring.*

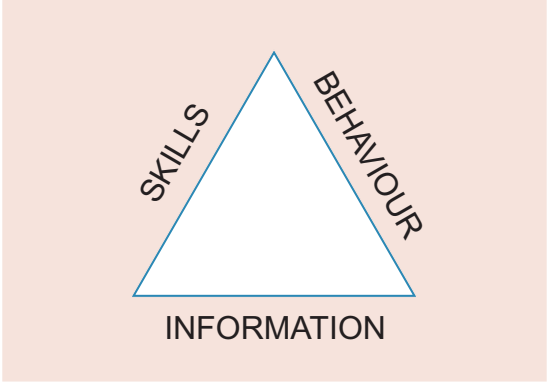
306 Our own more limited research is not inconsistent with the Standish work but, as both our situation and our concerns are different, we have framed our conclusions differently. Our concern was with New Zealand (not the United States), the public sector (not all sectors), and with governance and oversight (rather than project management).

307 The "success model" that is set out below reflects our attempt to bring coherence to the findings of our work in the New Zealand situation.

Success Model

308 Project success or failure is dependent on three groups of project inputs:

- skills;
- behaviour; and
- information.



309 These three elements are required at each level of the Project Organisation structure outlined in Figure 1 on page 22. The glue that holds these elements together across the three levels of structure is ***Communication and Listening***.

310 ***In our experience – which was confirmed by the opinions of people we interviewed – we believe these elements are inter-related. The strength or weakness of one element at any level in the project and governance hierarchy will have a positive or negative impact on the balance of the project.***

311 The degree of impact will depend on:

- the stage of the project and responsibility for control;
- the risk profile at each stage of the project;
- the skill level of the people in the team, particularly the Project Manager and Chief Executive;
- the quality of the reporting mechanisms;
- the quality of the business case, the specification, and the contract; and
- the strength of relationships between the department and the supplier, and between the department and the central agencies.

312 In paragraphs 314-333 we expand each element needed for success and contrast that with current problems that people in each role are experiencing or observing.

Summary of Current Problems

313 We have summarised in Figure 8 on pages 70-71 a collection of the key issues that have occurred in one or more of the projects that we reviewed in the course of this exercise. The bullet points in the summary identify issues that put the players at each level at risk. Whether the project is consequently at risk depends more on the impact of the number and combinations of these issues than any individual issue causing significant difficulties to the project.

Figure 8
Key Risks and Difficulties

Organisation Level	Key Risks and Difficulties
Select Committee	Has difficulty in performing an effective role in overseeing IT projects • Not having a clearly defined role • Receiving information late • Not having enough time to review project issues.
Responsible Minister	Has difficulty in performing an effective role in governing IT projects • Receiving information late • Not receiving reliable information (information is filtered according to different perspectives) • Not enforcing CE's reporting accountabilities • Uncertain legislative timetables • Changing policies without full and comprehensive input from the Department, and without full understanding of the impacts.
Central Agencies	Are struggling to provide effective scrutiny of IT projects • Lacking IT knowledge to interpret project reporting • Lacking time to monitor thoroughly • Having too much staff movement to build up historical knowledge of projects • Misunderstanding the "least cost" concept • Not receiving reliable, accurate information.

… continued opposite

Organisation Level	Key Risks and Difficulties
Chief Executive	Has difficulty managing projects well • Lacks understanding of the appropriate role • Not accepting ultimate responsibility – passing it to others • Not providing a clear vision of the outcomes required.
Project Manager	Has difficulty effectively managing projects • Has insufficient experience for the role carried out • Captured by suppliers who have different interests.
Contracts Manager	Lacks separation between Project and Contracts Management • Inadequate legal support for effective IT contracts • Inadequate guidelines for "best practice" IT contracts • Pre-disposition to win-lose contractual relationships.
Supplier/IT Industry	Is struggling to provide adequate IT support • Not receiving clear direction or assertive management from the department • Not being direct and comprehensive in their own advice to the department.

Success Elements and Current Issues

Skills

314 By "skills" we mean ***knowledge of the process, technology and culture; judgement and experience; a relevant track record.***

315 Depending on the role, there will be different skill levels required in each of the following areas:

- the business of the department and its management;
- the purpose of the project, its proposed benefits, and its risk profile;
- project management;
- contract management; and
- technical components used.

316 Individual skills are fundamental for each project.

317 The retention of staff over a long period, to build a project culture and departmental knowledge of managing projects successfully, is also necessary to build up a skill base to alleviate dependence on individuals.

318 ***All interviewees stressed the need to have skilled people, particularly the Project Manager, and for continuity of people in key project roles throughout the project.***

319 The comments in Figure 9 on pages 73-74 were derived from our experience and interviews.

Figure 9
Current Issues with Skills

Organisation Level	Skills Requirement	Issues Raised
Select Committee	Ability to commission research on project status from varying sources and devise focused questions on IT projects.	MPs are voted into Parliament for many reasons, but not for their IT expertise. There are no effective mechanisms for learning from other projects.
Responsible Minister	Ability to read between the lines and assimilate conflicting advice from Departments and Central Agencies. Ability to force delivery of agreed reporting.	There is no authoritative advice available, so Ministers have to understand the key aspects of the project to place decisions in context.
Central Agencies	Understanding of project management concepts. Ability to interpret technical and project advice and reporting. Ability to understand the status of project risks and issues in order to question effectively in Steering Committees. Ability to request more appropriate reporting where it is inadequate. Ability to understand the operation of the department within the context of Government objectives.	Focus on "least cost" concept reflects lack of appreciation of the uncertainty surrounding projects and the use of formal project disciplines to manage it. Limited IT knowledge to be able to monitor and interpret project reporting, and communicate consequences and recommendations effectively. Should the Crown Law Office bring in skills for IT contracts? Risk of accountability transfer from CE to Central Agencies.
Chief Executive	Ability to interpret advice from varying sources. Leadership. Understanding of the different requirements between projects and operational business areas co-existing in the department. Ability to set up relationships with suppliers. Promulgating general standards for purchasing. Ensuring that significant projects conform to these standards.	Problem recognising they need to get good advice. Lack of understanding about their role in contract negotiations. Delegate inappropriately on contract establishment and risk management. Display an immature approach to vendor management. *… continued on next page.*

Organisation Level	Skills Requirement	Issues Raised
Chief Executive … continued	Selecting the right project manager. Being aware of health/project stress symptoms. Developing an organisation culture that values continuity of staff. Use of supplier expertise as an IT advice resource. Acceptance of need for a personal IT adviser.	Risk of accountability transfer from CE to Central Agencies. Confuse constructive suggestions from vendors with vendor capture. ITANZ wants to see ability for CE to contract as he/she sees fit, not having to rely on the full-blown tender process. Quality of the tender management process is poor, and people are too junior to run it properly.
Project Manager	High degree of skill vital for project success. Needs specific skills in: • Relationship management • Contract management • Line management • Leadership • Technical awareness • Project control disciplines • Risk management • Some understanding of the business • Cost management.	Lack of skill in preparing reports or setting expectations of supplier reporting. Reporting can be sanitised, with issues buried, and descriptions long and /or vague, confusing reporting of problems. When projects are in trouble, an unskilled project manager will use language that is invariably positive, and promise that issues will be solved, but no dates given. Skilled people in short supply for project management and contract negotiations.
Supplier/IT Industry	Same project management skill as the department. Technical expertise. Relationship management.	Dependent on the skill of the Project Manager for project success. Cost of the tender process and contract negotiations is considered too high.

Behaviour

320 Project management professionals across all industries have developed disciplines to make order out of what is otherwise a chaotic mixture of activities and roles. They are usually grouped together as methodologies but are also known as project standards, policies and procedures.

321 In the IT industry there are many methods and guidelines in existence. One such example is the Project Management Institute's *Book of Knowledge*.[16]

322 Effective use of a methodology requires considerable discipline by the Chief Executive and the Project Manager to enforce its use. The application of the methodology will be shaped by the culture of the organisation and will in turn enable the development of a project culture in the organisation.

323 Organisations (either in the private or public sector) that develop a strong project culture supported by a project methodology firmly enforced are likely to deliver projects successfully.

324 A project manager supported by his or her Chief Executive will enforce use of:

- proven estimation and scheduling techniques, and mechanisms to size project scope to achievable chunks;
- defined accountability for project outcomes;
- procedures for managing and reporting project risk, issues, scope change, progress and variances;
- consistent reporting and monitoring; and
- predetermined measures for reviewing the project viability where it has problems.

325 Current issues with behaviour that were raised with us are listed in Figure 10 on pages 76-77.

16 1996 Edition, Project Management Institute.

Figure 10
Current Issues with Behaviour

Organisation Level	Issues Raised
Select Committee	The emergence of problems provides opposition MPs with an opportunity to attack or "blame" officials and the Government. It is legitimate for a select committee to hold officials and the Government to account, to ask questions, to seek assurances and to express concerns. However, the existence of problems in a complex project does not necessarily mean anyone is to blame. The attribution of fault (if it exists) is a difficult matter. It can be done fairly only after a careful and time-consuming examination of quantities of evidence. Natural justice requires such a process, but a select committee may not have the time, resources or skills to undertake it. Unrestrained "blaming" for political point-scoring is destructive to the chances of project success. It encourages management to become excessively risk averse, to conceal rather than confront problems, and to make disingenuous reports.
Responsible Minister	Lacks awareness of political impact of legislative changes on project scope. Appears helpless to intervene effectively because of the "separation of power" principle. Doesn't enforce conformance by CE of agreed reporting targets.
Central Agencies	Not enough time to monitor thoroughly enough to build up the background about the department and the project(s). Change requirements for development of business case and monitoring over the project life. Inconsistent policies on contingency arrangements and funding.

… continued opposite.

Organisation Level	Issues Raised
Chief Executive	Sometimes too close to the project, sometimes too removed. Not enforcing a business focus. Varying examples of the understanding and development of project culture for the department based on project standards, policies. Using the tender process too much, focusing solely on price for each project or project phase – rather than seeing the value of a longer-term relationship with supplier. Contract negotiation left to lawyers rather than being set up by the CE and then supported by lawyers. Over-reliance on penalty clauses, and on the contract as protection against risk. Denial of actual project health; discounting the severity of problems. Marketing the ability to solve problems without the actual capability to do so.
Project Manager	Over-reliance on the supplier. Focuses on technical issues to the detriment of the business requirements. Accepts constant change without rigorous questioning.
Supplier/IT Industry	Being kept at arm's length during the tender process. Limited information being provided and not enough time to clarify issues with the RFP. This leads to bad surprises after selection and perhaps leads to selection of the wrong supplier.

326 *A project culture and clear governance will help to eliminate behaviours that contribute to project failure, so that:*

- *problems are reported factually, honestly and promptly;*
- *the parties have a realistic understanding of the purpose of the contract as a basis for the relationship;*
- *focus is put on the business requirements over the technical aspects;*
- *the project is structured to avoid supplier or consultant capture;*
- *the environment is constructive and productive;*
- *change is tightly managed; and*
- *everyone has a good understanding of business requirements and the technical implications in the Analysis phase.*

327 *The behaviour of MPs in Select Committees is very important when a project is at risk but is salvageable. The actions (or lack of action) of people in every role can compound to make a vicious spiral leading to failure. MPs may contribute to the vicious spiral leading to failure when they use project problems as an opportunity for political gain. These actions will force the Project Manager to be diverted to minimising political flak rather than focusing on saving the project.*

328 *MPs displaying constructive behaviour are more likely to encourage the Responsible Minister and/or Chief Executive to review the project status and seek help.*

329 *We believe positive behaviours are displayed by people in roles throughout the whole hierarchy – from Ministers to Project Managers – where they have the skill or judgement, information and project disciplines in place to support decision making within a structured project culture.*

Department of Social Welfare, from interview with Dame Margaret Bazley and Neil Miranda, 17 August 1999

DSW has put IT policies and standards in place and together with its IT Strategy has never deviated from that without good reason. Examples of its strict but effective IT policies and standards are:

- Enforce the policies and standards for all staff and consultants. Users are not used to specify complex systems, but are used to define scope, which is a prerequisite for all projects.
- Put an IT Strategy in place and don't deviate from it without good reason. This includes a common infrastructure. "There have been times when we have had to be bloody minded to keep to the strategy as everyone is an 'expert' yet few know what they are doing", Margaret Bazley said.
- Have a structured approval and monitoring process to be followed by every GM. This covers resourcing of project and IT Management roles, Steering Committee monitoring, independent quality assurance and reporting of findings, development of business cases and review against the ISSP by the CFO and DSW IT Director before sign-off, and project ownership. DSW applies more rigid and ruthless management for IT than for any other area of the business.
- Government funding is managed by the Director-General, IT Director and GM of the operating department. As both roles report to the DG, accountability for the project is clear. Each project is monitored by the ISSP Steering Committee, which also makes sure that the benefits signed up for in the Business Case are delivered. The GM requests a capital release for each phase. The budget is approved by the DG only on recommendation from both the IT Director and CFO collectively. Approval is also based on meeting the technology standards which avoids vendor capture. The IT Director has to have approval from each GM for Infrastructure projects.
- DSW always negotiates its own contracts – it does not hire lawyers to do it, and it has a reputation for the most stringent contracts. DSW ensures that key people are named in the contract and ensures they are committed, with strong penalties. As continuity and knowledge is vital, key people cannot be swapped out without DSW approval. Their contracts have mechanisms to enable DSW to move in fast and remedy problems.
- DSW works closely with the Treasury, and reports quarterly. They have also done formal briefings to Maurice Williamson for Cabinet Committee or Ministers where required. They have never briefed a Select Committee, just answered questions.

Information

330 Formal reporting is built into every layer of the project and governance hierarchy, the particular requirements for each level vary according to the project. We believe the characteristics of good reporting are that it is:

- timely;
- relevant;
- factual;
- concise;
- consistently formatted; and
- grounded in the business case.

331 Good reporting will show actual progress, benchmarked against agreed performance measures.

332 Information is provided, or obtained, from the following sources:

- formal written or oral project reporting;
- independent quality assurance reporting or advice;
- supplier advice; and
- central agency monitoring and reporting.

333 We received many comments about the type of information provided and issues with it. The comments appear in Figure 11 on pages 81-84.

Figure 11
Current Issues with Information

Organisation Level	Information Sources	Issues Raised
Select Committee	Estimates examinations. Financial reviews. Anonymous information. Background material from research used to ask searching questions.	Has a genuine political need to know what is going on. Estimates rarely show a project as a separate item. Projects are not reported against baselines. Not getting information required: "too little, too late"; information not provided on projects in trouble. Not enough time is spent on reviewing projects – spends only 3 hours twice a year on departmental reporting for each department. No effective mechanisms for learning from other projects. Lessons learned are not shared among departments.
Responsible Minister	Business case from department. Advice from Central Agencies on business case viability. Advice from external advisors. Routine monitoring reports from Central Agencies.	Reporting cycle is not met, and no real way of ensuring it's met without strong Ministerial direction. Reporting can be waffly, or written with "heavy spin". *… continued on next page.*

Organisation Level	Information Sources	Issues Raised
Responsible Minister … continued	Monthly exception report on current projects being monitored to Minister (IT) from SSC. Periodic reporting from CE, which includes IT project progress.	Information reporting cycle is 3 to 6 monthly, interval is too long and out of step with monthly business cycle – information provided is "too little, too late". Information is filtered, either on purpose or through the lack of IT expertise of officials.
Central Agencies	Steering Committee reports. Copies of project quality assurance reports. Independent advice.	Tension for the Treasury between monitoring project risk for Responsible Minister and avoiding direct management of project. For monitoring to be effective it is necessary for departments to report projects regularly and consistently. Insufficient budget and time to monitor progress. The "least cost" concept has been misrepresented, the original meaning was "value for money". Information reported to officials can be filtered; QA reports should be provided unfiltered. How can independent QA advisors remain "independent" and not become "advisers"? *… continued opposite.*

Organisation Level	Information Sources	Issues Raised
Chief Executive	Internal project reporting. Quality assurance reports. Relationship with and advice from supplier's Chief Executive. Occasionally, independent IT adviser.	Quality assurance reports are useful when they are unfiltered. There can be confusion about the difference between supplier suggestions as constructive for the department and being captured by the supplier. Independent advice is necessary. How can independent quality assurance advisers remain "independent" and not become "advisers"? Varying clarity of business requirements, project outcomes and project specifications.
Project Manager	Regular project reports. Quality assurance reports.	Lack of skill in preparing reports or setting expectations of supplier reporting. Reporting can be sanitised, issues buried, long and/or vague, confusing reporting of problems. When projects are in trouble, an unskilled project manager will invariably use language that is positive, and promise that issues will be solved, but no dates given. *… continued on next page.*

Organisation Level	Information Sources	Issues Raised
Project Manager … continued		The same comments occur in reports in successive months, not the action actually taken. Recommendations from quality assurance reports not actioned either at all or in a timely manner. The independence of a long quality assurance relationship is at risk. Quality assurance reporting may obscure problems where implementation of earlier recommendations have proved incorrect.
Supplier/IT Industry	Requests for information and requests for proposals. Steering Committee papers. Project reporting.	Suppliers are showing frustration over the process, would like to advise the Government better. CE's reliance on penalty clauses unbalances the relationship.

CYPFA project monthly reporting regime, from interview with Treasury Vote Analyst, Jason Minkhorst, 19 July 1999

Characteristics of effective monthly project reporting:

- Summary report from Project Director (approximately 6 pages) clearly showing progress against plan, management of risks identified at the beginning of the project, and a number of easily understood measurements.
- Supplier's Project Director report (unfiltered) providing a useful comparison of the supplier's view of the project status, progress and issues.
- External quality assurance consultant's report – consultant reviewed all parts of the project (technical, project management, budget, performance).
- These reports go to the Project Board monthly.
- Funding is released monthly by the Project Board, providing checks and balances.

Appendix

Questions for Key Stakeholders

This appendix sets out the questions which arise out of our analysis. We believe these questions should be asked by Chief Executives, by Responsible Ministers, and by members of Select Committees, when considering major IT projects.

If any one question is answered in the negative, the department should be put on enquiry about this specific issue. If there are more than one or two negative answers, the need for a more thorough review of project status may be indicated.

Chief Executives

The Business Case

	✓ or ✘	Para Ref
Does the project as described in the business case support the Government's objectives?		103
Does the business case support the relevant key priorities?		218
Does the business case clearly state the benefit of the project in business terms – i.e. "what it will do for the department and potentially the taxpayer"?		208
Is the business case consistent with the department's IT strategy?		206
Does the business case commit to a sound governance and project management structure?		115 - 171
Does the business case propose a project in modules or phases?		219 - 230
Does the business case provide a possible range of eventual costs, consistent with the information available at the time?		244 - 253

… continued on next page.

The Business Case …continued

	✓ or ✗	Para Ref
Does the business case identify the *external* drivers which may change the scope of the project? For example: • Legislative change • Departmental restructuring • Changes to political direction.		255
Does the business case identify the *internal* drivers which may change the scope of the project? For example: • Clarification, and therefore expansion, of business requirements • Change of technology platform • Change of design.		256
Does the business case indicate how the risk of scope change will be managed?		260 - 261
Does the business case clearly establish the Political Risk to the project and how this will be managed?		265 - 267
Does the business case clearly establish the Business Risk to the project and how this will be managed?		268 - 269
Does the business case clearly establish the Technical Risk to the project and how this will be managed?		270 - 271

Reviewing Project Establishment

	✓ or ✘	Para Ref
Do the proposed project governance and management arrangements accord with good practice?		115 - 171
Have critical success factors been considered in establishing the project?		301 - 307
Does the Project Manager have suitable experience?		126
Do the project inputs demonstrate the presence of appropriate		308 - 313
• Skills?		314 - 319
• Behaviour?		320 - 328
• Information?		329 - 332
Has a risk management process been implemented reflecting the ongoing identification and mitigation of		262 - 264
• Political risk?		265 - 267
• Business risk?		268 - 269
• Technical risk?		270 - 271
Does the contractual relationship with the supplier reflect the intention and desired outcome of the project?		134 - 140
Is high quality, independent quality assurance (reporting to the Chief Executive and Steering Committee) established?		146 - 153
Have project performance measures been agreed?		218
Have suitable arrangements been made for post-project review?		218

Project Monitoring

	✓ or ✗	Para Ref
Do you receive written reports monthly?		330
Is the monthly reporting you receive • Timely? • Relevant? • Factual? • Concise? • Consistently formatted? • Grounded in the business case?		329
Does the reporting show progress against the agreed performance measures?		218
Does the reporting measure "intended outcome" versus "currently forecast outcome"? Are changes during the project which will affect the realised benefits clearly explained?		189 - 190 253 - 261
Does the reporting include ongoing reporting on risks and the management of those risks?		262 - 276
Do you receive the independent quality assurance report "unfiltered"?		148
Is suitable preparation being undertaken to integrate the new system into the rest of the department's operations?		184

Responsible Ministers

The Business Case

	✓ or ✘	Para Ref
Does the project as described in the business case support the Government's objectives?		103
Does the business case support the relevant key priorities?		218
Does the business case clearly state the benefit of the project in business terms – i.e. "what it will do for the department and potentially the taxpayer"?		208
Does the business case commit to a sound governance and project management structure?		115 - 171
Does the business case propose a project in modules or phases?		219 - 230
Does the business case provide a possible range of eventual costs, consistent with the information available at the time?		244 - 253
Does the business case identify the *external* drivers which may change the scope of the project? For example: • Legislative change • Departmental restructuring • Changes to political direction. *… continued on next page.*		255

The Business Case …Continued

	✓ or ✘	Para Ref
Does the business case identify the *internal* drivers which may change the scope of the project? For example: • Clarification, and therefore expansion, of business requirements • Change of technology platform • Change of design.		256
Does the business case indicate how the risk of scope change will be managed?		260 - 261
Does the business case clearly establish the Political Risk to the project and how this will be managed?		265 - 267
Does the business case clearly establish the Business Risk to the project and how this will be managed?		268 - 269
Does the business case clearly establish the Technical Risk to the project and how this will be managed?		270 - 271

Reviewing Project Establishment

	✓ or ✘	Para Ref
Are the links between business and IT strategies and the project objectives clear?		203 - 206
Has the project been designed in discrete modules, or do the business benefits require the entire programme to be completed?		219 - 226
Is the life of the project more than 2 years? If so, what are the strategies to protect the project from technology and business changes?		219 - 226
Is the department competent to execute this project? What are the central agencies' views of its organisational readiness?		185 - 188

… continued on next page.

Reviewing Project Establishment …continued

	✓ or ✘	Para Ref
Do the proposed project governance and management arrangements accord with good practice?		115 - 171
Has the department considered critical success factors in establishing the project?		301 - 307
Does the Project Manager have suitable experience?		126
Has a risk management process been implemented reflecting the ongoing identification and mitigation of		262 - 264
• Political risk?		265 - 267
• Business risk?		268 - 269
• Technical risk?		270 - 271
Has the contract been concluded, with prices and deliverables agreed?		234 - 239
Does the contractual relationship with the supplier reflect the intention and desired outcome of the project?		134 - 140
Is high quality, independent quality assurance (reporting to the Chief Executive and Steering Committee) established ?		146 - 150
Has funding for independent quality assurance been established commensurate with the size and risk of the project?		151 - 153
Have project performance measures been agreed?		218
Have suitable arrangements been made for post-project review?		218

Project Monitoring

	✓ or ✗	Para Ref
Do you receive written reports at regular, agreed intervals?		330
Is the reporting you receive • Timely? • Relevant? • Factual? • Concise? • Consistently formatted? • Grounded in the business case?		329
Does the reporting show progress against the agreed performance measures?		218
Does the reporting measure "intended outcome" versus "currently forecast outcome"? Are changes during the project which will affect the realised benefits clearly explained?		189 - 190 253 - 261
Does the reporting include ongoing reporting on risks and the management of those risks?		262 - 276
Are "unfiltered" independent quality assurance reports available to you on request?		148
Does the reporting provided by the Department concur with that from the central agencies?		159 - 167

Members of Select Committees

Reviewing Project Establishment

	✓ or ✘	Para Ref
How does the project as described support the Government's objectives?		103
Are the links between business and IT strategies and the project objectives clear?		203 - 206
Has the project been designed in discrete modules, or do the business benefits require the entire programme to be completed?		219 - 226
Is the life of the project more than 2 years? If so, what are the strategies to protect the project from technology and business changes?		219 - 226
Is the department competent to execute this project? What is the Minister's view of its organisational readiness?		185 - 188
Do the proposed project governance and management arrangements accord with good practice?		115 - 171
Has a risk management process been implemented reflecting the ongoing identification and mitigation of		262 - 264
• Political risk?		265 - 267
• Business risk?		268 - 269
• Technical risk?		270 - 271

… continued on next page.

Reviewing Project Establishment … continued

	✓ or ✗	Para Ref
Has the contract been concluded, with prices and deliverables agreed?		234 - 239
Is high quality, independent quality assurance (reporting to the Chief Executive and Steering Committee) established?		146 - 150
Has funding for independent quality assurance been established commensurate with the size and risk of the project?		151 - 153

Project Monitoring

	✓ or ✗	Para Ref
Do departments report to you on progress on major projects as part of Estimates Examination or Financial Review?		191 - 193
Is the reporting you receive • Relevant? • Factual? • Concise? • Consistently formatted? • Grounded in the business case?		329
Does the reporting show progress against the agreed performance measures?		218

… continued on next page.

Project Monitoring … continued

	✓ or ✘	Para Ref
Does the reporting measure "intended outcome" versus "currently forecast outcome"? Are changes during the project which will affect the realised benefits clearly explained?		253 - 261
Does the reporting include ongoing reporting on risks and the management of those risks?		262 - 276
Does the reporting provided by the department concur with that from the central agencies?		159 - 167