November 2008

ICT Business Case Guide Development and Review

(public version)

Department of Finance and Deregulation

Contents

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Introduction

Introduction

Purpose

This guide will assist Australian Public Service agencies provide government with sound business cases when seeking to make significant ICT investments.

The primary aim of a business case is to provide concise information on the benefits, costs and risks involved. The government will then determine whether an ICT capability is required, and select the most cost effective option to support its policy and service delivery objectives. If the objectives of a proposal can be achieved more efficiently without an ICT capability, this should be identified in the submission to government.

The guide will also assist senior officers and staff who review major ICT business cases prior to government consideration. Such reviews are conducted both by the sponsoring agencies and by the Department of Finance and Deregulation (Finance). The use of the guide will promote consistent and rigorous advice to government.

Method

The structure of this guide reflects the stages in the ICT Two Pass Review process (Two Pass), starting with the discussion of agencies' emerging ICT investment intentions early in each budget year, followed by the development, submission and review of first and second pass business cases. At each stage, we describe the purpose and the main issues to be addressed.

The guide is designed to avoid agencies redrafting material for different audiences. An ICT business case developed under this guide will assist agencies to address the needs of various areas in Finance including Budget Group.

The guide incorporates advice from the Defence Capability Assessment Branch in Finance, which has operated under a similar two pass process since 2004.

Business Case Package

The guide is supported by two tools: a template and a costing spreadsheet.

At first pass, when the cost and risk information will be available only in broad terms, the initial business case should be presented using the 12 page template and summary spreadsheets. Detailed information should be provided at second pass using the same package.

Specific information about the Budget process and timeframes is available to government officials from their Chief Finance Officer (CFO) unit. Further information about this document is available from the Australian Government Information Management Office at ictinvestmentframe@finance.gov.au.

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Two Pass Process Overview

Two Pass Process Overview

At a glance:

- In June 2008, the government introduced a Two Pass review process for major non-Defence ICT proposals.
- The aim is to provide better information to government on the benefits, costs and risks before final approval is given to acquire major ICT systems and support.
- The process applies to proposals with ICT costs of $10 million or more.
- The first pass involves an approach to government for in-principle approval to refine plans for practical ICT options, based on an initial business case.
- The second pass involves the presentation of a detailed business case to government for final approval to proceed to the acquisition stage.

Introduction

Under the Two Pass process, agencies prepare an initial business case to be considered as part of government's budget deliberations for that year.

The government considers whether it agrees with the proposal in principle and whether to provide funding towards a more detailed business case. Where the government approves an initial business case, the sponsoring agency then prepares a detailed business case. When it has completed the detailed business case, the sponsoring agency provides a submission for second pass review.

Finance and the Secretaries' Committee on ICT (SCICT) review both initial and detailed business cases before they are considered by government.

The time devoted to developing an ICT business case should reflect the cost, complexity and risk of the project. It should also reflect the vulnerability of the policy and service delivery outcomes and the relative importance of those outcomes to government. It is expected that most agencies will take at least six months to prepare a second pass business case, and to have the case reviewed by Finance and the SCICT. Depending on the scale of the cost and risk issues, this work may take longer. The Two Pass process is based on recognition of the scale of this work and provides agencies with the opportunity to seek funding at the first pass stage for their detailed business case development.

When does Two Pass apply?

The Two Pass process applies to proposals with:

- a high risk in terms of cost, technical complexity, workforce capacity or schedule; and
- a total cost of $30 million or more; and

Two Pass Process Overview

- an ICT cost of $10 million or more.

A proposal less than the $30 million threshold may also be included if the government considers that the proposal would benefit from a two pass review. This Two Pass process does not apply to Defence projects because Defence uses a separate two pass process for its proposals.

In addition to projects seeking new funding, the government may elect to apply the Two Pass process to major internally-funded proposals where it believes the ICT cost and risk indicate it would be of benefit to do so. Agencies should contact Finance as soon as they become aware of a project proposal that is likely to fall within the Two Pass cost and risk thresholds.

The decision on whether an ICT initiative should be subject to the Two Pass process should be reached as far as possible by consensus between agencies and Finance.

Agencies are encouraged to use a two pass process internally to assist in developing business cases below the Two Pass thresholds.

Timing

When	What Happens
From June each year:	Finance discusses ICT investment intentions with agencies. Finance reviews and discusses draft initial business cases with agencies.
From August:	Finance briefs the SCICT on the outcomes of agency discussions. SCICT provides guidance on whole-of-government implications.
From September:	SCICT reviews draft first pass business cases and provides advice on which proposals would benefit from Two Pass review.
Between December and April:	Government decides which first pass proposals will proceed to Budget deliberations. Government considers the first pass business cases and decides whether to: • agree in principle, subject to a second pass business case • refer the proposal back to the agency for refinement • ask for the proposal to return in the next Budget as a first pass case or • reject the proposal. Government decides what funding (if any) it will provide for the development of a second pass business case.

Two Pass Process Overview

When	What Happens
On completion of Second Pass Business Case:	Finance advises government on the Agency Business Case in consultation with SCICT. Government considers the second pass business case and decides whether to: • approve a second pass business case for implementation • consider the proposal in the next Budget or • reject the proposal.

Further information about the Two Pass process and Budget timings is available to government officials through your CFO unit, or from AGIMO at ictinvestmentframe@finance.gov.au.

Urgent Proposals

The government can consider urgent proposals outside the normal budget process, subject to the budget operational rules applying to such proposals. Agencies should contact Finance as early as possible to discuss the reasons for urgent consideration. Agencies will still need to develop an ICT business case consistent with the guide.

Approach

The stages in the Two Pass process are:

- **Emerging ICT Investment Intentions** – Possible proposals for the next Budget, with little detailed information available other than lessons learned from similar projects.
- **Prepare First Pass Business Case** – Set out the rationale, benefits, broad costs, key assumptions, likely risks and indicative schedule for the investment. The project budget comprises cost estimates from sources such as benchmarks and non-binding expressions of interest from industry.
- **Prepare Second Pass Business Case** – Re-visits the options that the government agreed to in principle at the first pass, but with more detail and rigour. It should include detailed analysis and non-binding, tender-quality estimates from the private sector.

[Appendix A] summarises the steps required to develop the first and second pass business cases. The basic method is the same for each pass, but the second pass requires greater depth and accuracy.

Both first and second pass business cases must include the rationale, assumptions and metrics behind the proposal.

Two Pass Process Overview

Interaction with the Gateway Review Process

The ICT Two Pass Review process complements the Gateway Process. Proposals seeking first pass approval that meet the Gateway criteria must submit a risk assessment using the Gateway Assessment Tool (GAT). Documents prepared for first and second pass under the Two Pass process may help agencies prepare for the Gate 1 Business Case Review.

Full details of the Gateway Review Process and how to contact the Gateway Unit can found at the following link: www.finance.gov.au/gateway.

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Emerging ICT Investment Intentions

Emerging ICT Investment Intentions

At a glance:

- Early in each Budget year agencies are expected to discuss their ICT investment intentions with Finance.
- The analysis from this stage will provide Finance with a basis for informed discussion with agencies during the first pass stage of the Two Pass process.
- This discussion is conceptual. Precise details of an ICT proposal are not expected.
- The discussion will cover a clear articulation of the broad options available (including any non-ICT alternatives) and the benefits, broad risk and cost issues, plus any potential whole-of-government efficiency improvements that may emerge.
- Finance will also use the information from the investment intentions discussions to advise government on whole-of-government priorities and issues.

Overview

From June each year, Finance holds discussions with CIOs and CFOs in agencies that are likely to develop major ICT investment proposals.

Similarly, agencies must advise Finance of significant ICT initiatives as soon as they formulate them. Detailed information is not important at this stage. The aim is to understand the nature, scale, complexity and cost of major emerging ICT initiatives.

During August, Finance analyses the investment intention data and reports its findings to the Secretaries' Committee on ICT (SCICT). The SCICT considers:

- whether a formal, first pass business case should be prepared for any initiative
- whole-of-government implications including avenues for cooperation with other agencies, for example through joint ICT procurement or infrastructure development.

Critical Questions

The questions considered at this stage are:

Strategic Alignment

- Which of the Government's policy and service delivery objectives would the ICT proposal support?
- What relative priority would the agency give it for the Budget and why?
- What are the broad options available for achieving the objectives, including any non-ICT options?

Emerging ICT Investment Intentions

Demand

- What types of end-user demand might be met?

Benefits

- What practical benefits would be delivered? How would the benefits be measured and what performance indicators could be applied?
- How would the government know that the project has delivered value for money?

Technical Risk

- What would be the scope of the ICT element? What would be excluded?
- Would the proposal be likely to involve untested technology?
- What risk rating would you give the proposal (extreme, high or medium), and why?

Workforce Risk

- What is your ICT workforce profile (skill sets and numbers) and capacity in relation to the proposal?
- What extra ICT workforce skills and numbers would you need to implement the initiative (after redeploying all available workforce)?
- Are the APS and external markets likely to have adequate supply?
- What indicative risk rating would you give the proposal (extreme, high or medium), and why?

Agency Governance

- How would the necessary decision-makers and staff in your agency be involved in developing the first pass business case (business policy and planners, CFO, CIO)?
- How robust are the agency's finances? Could the agency meet the additional costs of governance associated with the proposal?
- What indicative governance risk would you give the proposal (extreme, high or medium), and why?

Inter-Agency Connections

- For which ICT aspects of the proposal would inter-agency cooperation be most useful (e.g. workforce sharing; joint procurement; reuse of existing or proposed ICT infrastructure)?
- Which agencies would be your strongest risk mitigation allies? How will you share your initial ICT investment intentions with them?

Cost

- What would be the indicative cost of the ICT proposal, taking into account the identified risks? What is the best case? What is the worst case?

Emerging ICT Investment Intentions

Schedule

- How many years would be needed to deliver the ICT initiative successfully (for both planning and implementation)?

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First Pass

Initial Business Case

First Pass
Initial Business Case

At a glance:

- Your first pass business case provides the government with its first opportunity to consider whether to use ICT to meet its policy and service delivery objectives.
- The business case should convey to government a range of practical, indicative ICT options, together with any non-ICT solutions that may be available, including the likely costs and risks associated with each one.
- Your business case should present an objective appraisal of the relative strengths and weaknesses of each ICT option (not an advocacy for a single, preferred solution).

Overview

In a first pass business case, agencies should provide government with three to four well considered ICT or other options. The business case provides the broad technical scope and a through-life cost estimate, risk mitigation strategy and schedule. Each option should be based on cooperative initial planning with other agencies where appropriate to address shared risks.

Agencies should also provide an accurate costing, risk assessment and schedule for the work needed to develop a rigorous business case for second pass, including for any joint planning, prototype work or studies that should be conducted with industry.

The aim is to provide concise information the government needs in order to decide whether to commission further work on any option or to eliminate some options.

Step One: Preparation

To assist in developing your business case, you should revisit the rationale, assumptions, benefits, risks and broad cost of the ICT initiative from the Investment Intentions stage.

You should also try to anticipate the following types of issues likely to be raised by decision-makers in your agency, in Finance, at the SCICT and in the government. For example:

- Whether an ICT capability is the most cost effective way to support the government's policy and service delivery objectives, or whether a non-ICT capability would better address the costs and risks involved. If the objectives can be achieved more efficiently through a non-ICT capability, this should be identified in the submission to government. The costs, benefits and risks of the non-ICT options would then need to be compared to the ICT options. To discuss the costs and benefits of a non-ICT business case, you should consult the relevant Agency Advice Unit in the Department of Finance and Deregulation. The remainder of this document addresses the requirements for the ICT options.

- Whether the proposed ICT capability will help to achieve the government's overall strategy and performance indicators for the relevant program (for example, in the case of service delivery to the Australian public, to reach a specified percentage of Australians with information quality and speeds at specified levels).
- How the benefits of the possible options will be measured.
- Whether the assumptions underpinning the cost estimates for the major ICT elements have been articulated clearly and are robust (for example, whether the scale of the proposed technology is suitable in terms of likely user demand).
- Whether any software development or customisation will be necessary or whether commercial off-the-shelf applications would suffice.
- Whether a true picture of through-life costs has been provided, including those costs to manage the acquisition, operation, maintenance, depreciation and disposal of technology.
- Whether the technology platform that would underpin the policy proposal would be developmental or proven, stable and in-service elsewhere, and could be provided by competing companies with long-term viability.
- Whether the required workforce will be available to perform the work within the cost and schedule proposed.
- Whether the ICT acquisition scope would be arranged in smaller-scale manageable modules, and the acquisition strategy would include appropriate exit points.
- Whether the potential for efficiencies and savings through joint ICT infrastructure development, procurement and workforce planning with other agencies (identified at the Investment Intentions stage) have been pursued and in-principle agreement achieved.

Step Two: Demonstrate Strategic Alignment

Identify the Business Problem

Your business case should begin by stating the practical business problem that options for a new ICT capability could help to overcome in achieving the government's policy and service delivery objectives.

An ICT investment may address several business problems, including:

- supporting stakeholder priorities and business needs
- enhancing the level of service delivered to stakeholders
- reducing agency and whole-of-government costs
- overcoming the limitation and constraints of a current solution.

Identify the Agency Context

The agency context section compares the proposed investment with your agency's strategic priorities. It should explain how the ICT investment could assist your agency to

deliver its outputs and outcomes more effectively and efficiently. The section must refer directly to the outputs and outcomes in your agency's Portfolio Budget Statements, corporate plan and annual report.

Step Three: Clarify Demand

A first pass business case should provide an initial assessment of demand sources and characteristics, particularly among end-users.

The following approach to demand definition relates to e-government projects involving online service delivery, but the approach can be applied to other types of proposals where there are a number of product users, including other government agencies.

Sources of Demand

Sources-of-demand triggers may include feedback from:

- client and end users of the current ICT system
- other related agencies and business groups
- advocacy groups
- community lobby groups.

Demand Characteristics

Establish what drives each trigger group using the questions below.

- Who is the end user?
- What are the end user's needs?
- What are the end user's expectations?
- What is the current most popular or common channel for accessing this service?
- Can anything be learned from its success or failure?
- How well does it meet all the demand requirements?
- Given the target market and its priorities, expectations and alternatives, how well will the proposed ICT capability meet each of the identified needs?

Note any needs that may not be accommodated, as these may represent barriers or risks that should be addressed later in your business case.

Next specify whether the demand you are addressing represents an opportunity to either:

- improve upon, expand, complement or replace existing offerings
- introduce an entirely new ICT service delivery option.

Demand Evidence

You should include as much quantitative and qualitative evidence for your demand estimate as you can. Your discussion of the evidence should include any evidence that might challenge your analysis.

First Pass
Initial Business Case

Step Four: Establish Benefits and Key Performance Indicators

Statement of Success

The Statement of Success section defines benefits and broad performance indicators for the ICT component based on the demand set out in the previous section. An example of a statement of success for an e-government proposal is at [Appendix B].

Benefits Definition

To support the Statement of Success, define the practical benefits that you intend to achieve from the proposed ICT investment.

Benefits Categorisation

[Appendix C] sets out a preferred approach to developing a benefits definition statement to help project staff plan, implement and review the project throughout its life. The method will clarify the measurable economic benefits from the ICT investment, both for end-users and for your agency. The method will also help you to define the qualitative benefits.

Once you have documented the benefits and key performance indicators, explain how those measures will be achieved.

Step Five: Clarify ICT Baseline and Gaps

The ICT Baseline and Gaps section documents relevant components of your current ICT baseline. For example, the section should briefly describe:

- ICT infrastructure (both hardware and software)
- voice and data communications facilities
- workforce skills and numbers
- security.

The section must describe any gaps that the project must address to meet the Statement of Success and performance indicators. Gaps may be specific elements or more general service levels related to current levels of interoperability, security and efficiency.

The purpose of this step is to clarify your ICT environment as it stands and any shortfalls. It is not useful to revisit past developments and events.

Step Six: Prepare for ICT Options Analysis

The business case must consider a range of options ranging from minimal technology upgrades to more innovative ICT business solutions, including those that may challenge prevailing inter-agency ICT planning and service delivery habits. This step ensures that all options are considered objectively on their merits. The outcome will be a shortlist of options for analysis and comparison in the initial cost-benefit analysis. Normally this shortlist will include a Base case (maintaining existing arrangements), a Do Minimum case (to address only urgent and unavoidable requirements) and two to three other options.

Your proposal must examine opportunities for sharing services and re-use within or between agencies. Where options involve inter-agency collaboration, product re-use, data sharing or processing, you should describe these shared services.

You should explore sourcing options, addressing both your agency's capacity to undertake the task and the availability of skills required for the project.

There are a number of primary sourcing options that may be considered, including:

- buying / licensing
- leasing
- renting
- sourcing or co-sharing with other agencies (including options such as open source software)
- leasing with regular upgrades
- private financing initiatives (subject to a separate business case process)
- a mix of these approaches.

Step Seven: Identify Practical ICT Options

Step Six will identify a shortlist of practical options. Step Seven describes each option in the following terms:

- high-level benefits, objectives, costs and risks
- functions performed
- capacity to integrate with the existing system
- potential constraints / limitations on the option
- market's ability to deliver the required products or services
- any critical organisational or business environment assumptions / impacts (particularly from external environments)
- high-level comparison to base case (see below)
- high-level impacts on stakeholders.

This step must set out how each option will perform over a five year period against the Statement of Success, benefits and performance indicators (Step Four).

Base Case Option

You should estimate the costs and benefits of maintaining the current operation, taking into account known external pressures for change including changes in demand for services, budgets, staffing and business direction.

Do Minimum Option

This option presents the minimum possible solution in terms of cost and effort required to meet only urgent and unavoidable requirements. The solution must be genuine and have

a reasonable prospect of achieving most of the elements of the Statement of Success, benefits and performance indicators developed in Step Four.

The Do Minimum option might include:

- restructuring business processes to achieve the desired result without any ICT investment
- using or adapting an application, technology or architecture that is already used within the agency
- reusing or adapting a solution already in place in another agency.

Other Options

Once you have established the base case and do minimum options, this section will outline two or three more demanding options.

No Other Options

If after you have completed your options analysis you decide that there is only one option that is practical, you should explain why each of the other options are not feasible. A business case for a significant ICT project with only one practical option would be exceptional and require detailed justification.

Step Eight: Clarify Option Schedules and Governance

You should indicate how long each option is likely to take to be fully operational and deliver the planned benefits. It is important to be realistic in your planning and to explain the logic and assumptions that underpin each element of your schedule. For example, to allow sufficient time for software development, test and evaluation, and user training and acceptance, you should look to similar work performed elsewhere in your agency or in another agency recently. You should use this knowledge to question informal schedule advice from potential industry partners.

Governance activities must be explicitly shown in the schedule for each option and must cover activities required in your agency, with stakeholders and reporting back to the government.

Step Nine: Identify Risks and Mitigation

A robust and reliable approach to risk analysis for ICT proposals can be developed based on the concepts and principles in *Standards Australia – Risk Management Standard AS / NZ 4360: 2004* and related methods such as the Project Management Institute's ICT 'Risk Universe' (http://www.pmi.org).

While your agency may use a variation on these methods, the proposal must be of a quality consistent with the Australian standard.

[Appendix D] provides a list of common ICT project risks that you should consider in developing your early thinking on ICT risk at first pass.

Advice to government on the soundness of a first pass proposal's risk management will take close account of two risk mitigation strategies: modular planning and exit points. They are discussed briefly below.

First Pass
Initial Business Case

Modular Planning

A major cause of project failure is the difficulty in managing scope changes effectively.

The discipline with which scope, objectives and benefits are defined and managed is therefore of major interest and must be a focus of project governance groups.

A modular planning approach is the most effective approach in managing the risk associated with ICT scope changes. Modular planning involves:

- reducing the technical scope of each option to small-duration, manageable stages
- designing stages so that each delivers net, measurable benefits
- the use of ICT prototypes to test the feasibility of stages before committing significant funds
- ensuring each stage delivers the intended benefits to end users, before embarking on the next stage
- the selection of flexible architecture to minimise the impact of changes in user requirements
- frequent reports on progress in realising benefits, lessons learned and any significant scope changes
- regular opportunities for senior decision-makers to re-evaluate the way ahead, taking into account changing agency operations and government priorities.

Exit Points

A first pass business case must establish potential exit points in the schedule for each ICT option. For each exit point, the business case must list the approximate exit cost and any other significant consequences. It must also identify the conditions that could trigger a recommendation to terminate. Some examples of triggers are:

- Anticipated benefits of the proposal are no longer sufficient to warrant further expenditure.
- Changes in stakeholders or their requirements have reduced support for the proposal.
- Stakeholders are seeking changes to such an extent that the project has become a new proposal.
- Cost estimates have increased x% from original estimates, bringing the original cost-benefit analysis into question.
- Identification of new risks has increased the risk rating to an unacceptable level.
- Mitigation strategies for high or extreme risks have been rendered ineffective.
- Workforce shortages in key skills have not been overcome.
- A lack of adequate market response to, or interest in, a key procurement process.

Exit points and triggers must be identified at first pass and reviewed in the second pass business case. They must also be included in any procurement processes, contracts and proposed reporting should your proposal be approved for acquisition.

First Pass
Initial Business Case

Step Ten: Develop Cost Estimates

The following section outlines the features required in the cost analyses in an ICT business case, including for each proposed module.

Definition of ICT Costs

ICT-related costs are expense and capital costs, including infrastructure, software, administration, maintenance and resourcing costs associated with the business transformation delivered by ICT enabled projects – including processes associated with the planning, design, development, change management, training and evaluation of the project.

To provide a common basis for planning, first and second pass business cases must apply the following definitions of ICT capital and operating costs:

- **Capital costs** – directly related to the creation of one or more assets (including relevant workforce costs).
- **Operating costs** – indirectly related to the implementation of the option and with no direct connection to the creation of an asset.

An outline of the major ICT capital and operating cost items that are the focus of attention during business case reviews is included at [Appendix E].

Variations

Not all ICT costs will fit neatly into either one or the other of the ICT cost categories, especially when considering the ICT workforce elements of a proposal. For example, it may be difficult, particularly at first pass, to determine whether the services of an ICT business analyst should be categorised entirely as a capital or operating cost item. The ICT capital and operating tasks involved may themselves be unclear, with consequent uncertainty for the attribution of effort required of the ICT business analyst when the underpinning research and information from industry will in most cases be preliminary only. In such circumstances, early engagement with Finance is recommended in order to arrive at a mutual understanding of the reasons for the cost attribution and supporting assumptions.

Cost Assumptions and Drivers

The key to reaching final agreement with Finance on the cost estimates for the options in your first pass business case is to provide clear statements that explain your logic and assumptions. A method to help clarify your assumptions and some examples are included at [Appendix F].

Information on the major cost drivers for your proposal and the metrics you have used will be crucial. For example, for your estimated cost of personnel for ICT maintenance and support, clarity on the number of personnel that are likely to be involved, their approximate salary levels, the likely duration of the work, and the rates of effort that would be expected over that period should be provided. Further information is included at [Appendix G].

First Pass Initial Business Case

Committed Estimates

You should provide a committed estimate for each option – rather than a 'cost band' estimate (such as 'between $50 million and $100 million'), since cost band estimates carry a high risk. Committed estimates involve a point estimate (of say '$50 million') plus or minus X%. This provides the government with clear advice on the likely cost of the ICT option taking into account the potential impact of the worst-case scenario. You should also provide the logic that underpins the point estimate and worst-case components.

Contingency

At first pass, the cost estimates for each option should include a significant contingency allocation particularly for options (or elements of options) with medium-to-high technology risks. For such options, a contingency allocation of at least 50% would be appropriate. You should build your contingency allocation by establishing the risk and corresponding dollar figure for each element (such as software development or customisation), after mitigation strategies have been considered.

Cost Benefit Analysis

At first pass you are expected to provide an initial cost benefit analysis for each of the options in your ICT business case. A basic method is included at [Appendix H]. It focuses on the benefits of each option from the perspective of end-users and of your agency. As part of your cost benefit analysis, you should consider each option in terms of the inputs of cost, volume and time. You should also conduct a basic sensitivity analysis.

The cost benefit analysis culminates in an overall economic assessment for each option and a comparison of the relative value of each option. This assessment is based on the net present value (NPV) method. At first pass, you are not expected to provide a definitive NPV calculation. However, in order to submit a convincing first pass business case, you are required to provide an initial NPV calculation for each option, and an initial comparison between the options even though the basis for the cost and benefit information may only be preliminary.

The ICT business case spreadsheet provides a framework for your initial cost benefit analyses, including your NPV work. A robust NPV calculation is expected prior to second pass, for which you can update the spreadsheet.

Further information on NPV analysis is available in the reference material produced by the Department of Finance at http://www.finance.gov.au/publications/finance-circulars/2006/01.html.

Proposal for Second Pass

The ICT business case template contains a separate section summarising the items, costs, risks and schedule for the work needed to develop a second pass business case. The work-to-second-pass section distinguishes between items that could be funded by your agency, and those for which you are seeking extra funds (such as technical feasibility studies, and prototype development, testing and demonstrations by industry).

Supporting Information

The initial cost estimates for each of your options at first pass should be based on sound information using various sources. Examples of useful sources include:

- **Benchmarks** – There may be cost data available from other projects of similar size and complexity that are either underway or have been completed recently. An initial first pass costing does not have to depend entirely on other broad planning estimates when actual expenditure results are available.
- **Research organisations** – There are several Australian and international research organisations that can provide information on the cost of ICT goods and services. Funding and time constraints may preclude commissioning new research prior to first pass. But it should be possible to obtain the latest information quickly for a reasonable fee or to reuse information obtained recently.
- **Internet** – A simple internet search can deliver useful insights into the likely cost of basic items such as computer and telecommunications hardware.
- **Agency contacts** – Your contacts in agencies in Australia (federal and state) and overseas can provide advice based on their own research or on recent acquisitions.
- **Expressions of Interest** – You may invite industry to make non-binding submissions indicating their interest in the proposal, their ability to meet specific project requirements, and/or to be assessed for inclusion on a potential future shortlisted opportunity to tender.
- **Consultants** – may be able to provide additional insights based on their experience which you can cross-check against your own research.

Step Eleven: Review Options

Once you have identified the costs, risks and schedule for each of your options, you should review them and develop a brief description for each covering key aspects such as:

- investment objectives and benefits likely to be met by each
- level of functionality likely to be achieved
- technical complexity likely to be required (for example in system integration)
- positive and negative implications for stakeholders, including related agencies
- relative value for money.

An example of a relative strength and weakness review is included at [Appendix I].

Step Twelve: Finalise Concise Case

ICT Business Case Template

The ICT business case template summarises the cost and risk analysis for each option. The template includes:

- A brief description of each option including:
  - its link to the government's policies, e-government strategy, and to agency policies
  - the benefits the option will achieve

  - the financial impact, risks and schedule
  - the underlying logic and assumptions taken
  - any limitations that would apply
  - governance and accountability arrangements.
- An overview of the relative value, and the pros and cons of each option.

Agencies may obtain the ICT business case template and the ICT spreadsheet containing the cost analysis through their CFO units.

Sign off

Both your agency CIO and Chief Finance Officer must sign-off the business case template.

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Second Pass

Detailed Business Case

Second Pass
Detailed Business Case

At a glance:

- The steps for a second pass business case are the same as for the first pass, but require greater rigour and assurance, particularly in the areas of cost, risk and schedule.
- Analysis during the second pass stage will include measures such as proof-of-concept tests and formal market approaches to provide greater precision and confidence in estimates.
- The analysis concentrates on those options selected by the government for second pass treatment.
- The procurement plan must show how each ICT option could be acquired and delivered gradually with least possible risk.
- The governance plan should explain how progress will be monitored and measured in your organisation, how any emerging risks will be addressed, and when regular progress reports will be provided to the government.

Overview

A second pass business case builds more detail into the cost assessments and risk mitigation strategies developed for those options agreed in principle by the government at the first pass.

The revised cost estimates require rigorous planning of the scale and features of the ICT infrastructure, applications and support required for each option. The analysis will include non-binding, tender-quality estimates from the private sector where appropriate.

The acquisition strategy for each option should be arranged in smaller-scale, manageable modules with exit points.

After second pass, if the government agrees to a particular option, funding is allocated to cover the full through-life cost of the project. Agencies also have the authority to enter negotiations with industry to acquire the ICT elements. However, before agreeing to a final price, agencies should report back to government if the price varies significantly from that approved at second pass. Regular reports should also be provided to the government on benefits realisation, any significant emerging problems and proposed solutions including changes to scope, project schedule or termination.

To avoid repetition, this section of the guide focuses on what must be added to the first pass business case to complete the second pass version. The areas of difference are:

- proof-of-concept results
- technical design report

- detailed plans for procurement, governance, agency capacity building, and communication.

You can review the other main differences at [Appendix A].

Proof-of-Concept Testing

The aim of proof-of-concept testing is to obtain tender-quality cost, risk and schedule information. The standard of measurement for the tests remains the statement of success and benefits definition established at first pass [Step 4: Statement of Success].

The proof-of-concept prototypes should address the technical scale and complexity of each option, particularly the intangible elements. Particular attention must be paid to any required software development and integration due to the subjective and difficult nature of estimates for those activities.

Proof-of-concept activity must explicitly address any assumptions about the ease of interaction with other systems. Close attention must be paid to interfaces and to data migration, the ability to obtain required external data, and to testing key assumptions and likely take up rates based on end-user experience.

The ICT business case template for the second pass includes an explanation of how the proof-of-concept results impact on the original statement of success, benefits definition and performance indicators for each proposal.

Technical Design Report

The Technical Design Report describes:

- the scale and complexity of the technical architecture and design
- how the architecture and technical elements would help to achieve the benefits of the overall policy proposal, based on the Statement of Success agreed by government
- the extent of software development and integration work
- compliance with standards, particularly security and interoperability
- how any positive or negative technical issues realised since first pass should be addressed
- the tasks and timing for high cost, non-technical elements including program management, change management, workforce planning and user acceptance and training
- how the skills and experience required in your project management team will be provided or built.

For solutions that will rely on the agency ICT infrastructure, the report will address:

- how you will implement the ICT project component within your agency architecture

- the interoperability of the new option with older systems.

The technical report should also describe the extent to which the design of each ICT option would support whole-of-government architecture principles through:

- collaboration with other agencies in the development of the service
- re-use of existing cross-agency or whole-of-government services and facilities
- how services and facilities developed for the project can be re-used by other agencies.

Procurement

As with any procurement process, market testing for proposals and proof-of-concept prototypes must be conducted in accordance with your agency's Chief Executive Instructions (CEIs) or equivalent. Adherence to your CEIs will ensure compliance with the Commonwealth Procurement Guidelines (CPGs).

A prototype is a good or service intended for limited trial. It is important that in procuring a prototype, that an agency seeks value for money.

Approaches to industry for proposals and for proof-of-concept work to support second pass analysis should involve an open market approach and should cover each of the ICT options approved by Government at first pass. These market approaches must indicate that:

- a decision to proceed with the prototype work before second pass gives no explicit or implicit guarantee of future contracts
- the Commonwealth retains all intellectual property relating to the prototype development and tests
- the Commonwealth retains the right to discontinue any part of the work at predefined exit points within the project schedule and associated contract
- an outcome of the prototype work includes providing the Commonwealth with full documentation and information sufficient for a subsequent approach to market.

The CPGs allow for the direct sourcing of prototypes, although agencies should still consider the value for money benefits of a competitive procurement process.

Project Monitoring and Review

The second pass business case must specify how the agency, stakeholders and government will monitor project and review progress. The discussion of monitoring must explicitly describe how the project will report the measurement and timely delivery of benefits.

After the second pass, reports to agency decision-makers and the government should be triggered in particular:

- when tender prices or the final negotiated contract price differ from estimates calculated during the Detailed Design Review
- in the lead-up to decisions about whether to proceed to the next ICT module.

Agency Capability

The second pass business case must provide a clear and detailed assessment of the capability of the agency to implement, govern and support the project throughout its life. The Capability Maturity Model Integration (CMMI) method provides a good analytical framework for this advice www.sei.cmu.edu/cmmi/. Key competencies include agency skills in ICT implementation and management teams.

Other Project Plans

A description of the various plans that should be prepared in support of each option in your second pass business case is included at [Appendix J]. The Appendix includes plans for procurement, project management, governance, benefits realisation, risk management, stakeholder communications, and change management.

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Appendix A
Two Pass Summary

Appendix A
Two Pass Summary

	ICT Investment Intentions	First Pass	Second Pass
Objectives	To provide an early alert to emerging ICT priorities and cost and risk pressures.	To provide ICT options that the government may support in-principle for further work.	To provide the basis for the government to select the most cost effective ICT option for acquisition.
Approach	Initial sketch – no business case or detailed analysis. Strategic vision and common sense. ICT technical solution left open.	Clarification (not detailed analysis) of the ICT purpose, benefits, cost and risks for practical options.	Detailed analysis of ICT purpose, benefits, cost and risks.
Need Analysis			
Step 1: Preparation	Address critical questions and contact Finance.	Review the rationale, assumptions, benefits and risks addressed in broad terms in the Investment Intentions stage.	Review the initial business case provided at first pass.
Step 2: Demonstrate Strategic Alignment	Identify broad government policy and service delivery objectives the ICT initiative would support. Initial indications of potential inter-agency cooperation.	Clarify alignment with the government's broad policy and service delivery objectives – improved [eg. particular service] to [eg. particular communities]. Initial connections and discussions with potential inter-agency partners. Round-table discussions with potential partners. Whole-of-government guidance from SCICT.	Formally incorporated in performance indicators, costs, schedules and risks.

	ICT Investment Intentions	First Pass	Second Pass
Step 3: Clarify Demand	Early understanding of the type(s) of end-user demand that might be met.	Initial assessment of demand sources and characteristics, particularly among end-users.	Detailed specification of demand.
Step 4: Establish Benefits and KPIs	Aspirational – unlikely to be quantified.	Based on broad analysis of demand. Quantify benefits as far as possible, plus qualitative benefits. * Initial Statement of Success.	Benefits examined with rigour. * Revised Statement of Success. * Benefits realisation plan for each option.
Step 5: Clarify ICT Baseline and Gaps	Nil	Identify relevant components of your current ICT baseline. Identify any gaps that must be addressed to meet the initial Statement of Success.	Detailed analysis of relevant ICT baseline and gaps in relation to revised Statement of Success.
Option Identification			
Step 6: Prepare for ICT Options Analysis	Consider recent experience with similar projects in Australia and overseas.	Consider a range of options from minimal ICT improvements to innovative technology. Initial enquiries with industry for broad cost information via Expression of Interest. Shortlist of 3-4 practical options.	Focus on options selected by government at first pass. Draw on tender-quality information from industry. Joint studies with industry and other agencies.
Step 7: Identify Practical ICT Options	Articulate in broad terms only, if at all.	High-level review of practical options that could potentially deliver the desired solution. Convincing demonstration of demand and value based on research. Most promising options identified.	Detailed analysis of options selected by government at first pass.

	ICT Investment Intentions	First Pass	Second Pass
Step 8: Clarify Option Schedules and Governance	Indication of year(s) of delivery. Governance focused on potential financial implications and interaction between ICT and business planners within an agency.	Indicative - show timing of benefits by quarter. Clarify the required levels of committee governance and coordination between groups within an agency, and between agencies.	Committed schedules for each option. Formally defined governance mechanisms within and between agencies. Formally defined reporting regime for agency, stakeholders and government. * Detailed Governance Plan.
Step 9: Identify Risks and Mitigation	General, subjective discussion based on experience. General sketch of scope and complexity. Initial thoughts on whether e.g. untested technology would be needed.	Brief, formal assessment. Initial scope including technical design and whether e.g. customisation required. Initial options for modular development and exit points. * Risk management plan focused on major risks for each option, including project management skills and experience.	* Detailed risk assessment and management plan for each option. * Detailed technical and architecture report backed by feasibility studies, proof-of-concept prototypes and formal market approaches. * Agency capacity assessment using CMMI method. * Detailed Project Management Plan.
Step 10: Develop Cost Estimates	Rough estimate. Economic viability discussed in broad terms.	Initial estimate. * Cost spreadsheet with basic net present value calculation for each option (NPV per $ of capital investment).	* Cost spreadsheet with detailed estimates and cost data for specific items based on formal market testing. * Compulsory, detailed net present value calculation for each option (NPV per $ of capital investment). Any additional ratios and techniques needed to fully clarify the relative economic viability of the options.

Appendix A
Two Pass Summary

	ICT Investment Intentions	First Pass	Second Pass
Consolidation	Nil	* ICT business case template and spreadsheets. * Proposal for work to second pass (including for joint studies and prototyping with industry) * CIO and CFO sign-off.	* Updated ICT business case template and spreadsheets. * CIO and CFO sign-off.

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Appendix B
Statement of Success

Appendix B
Statement of Success

Example

This submission proposes an e-Procurement system that will deliver the following functionality.

Businesses will be able to:

- receive notification of available tenders
- download RFT/EOI documents
- lodge tender responses
- view agency spending history
- contact procurement officers via online information request form.

The agency will be able to:

- advertise and publish tender requests for 70% of tenders
- upload RFT/EOI documents for these tenders
- receive tender responses
- receive comments and questions from tenderers.

The project will deliver the following benefits.

Businesses will benefit through:

- increased single-point access to 70% of government tenders
- increased bid development time as documents are available immediately for downloads, reducing document retrieval time by up to four days
- saving money and resources in responding to tenders
- secure 24-hour-a-day, 7-day-a-week, geographically independent tender lodgement.

The agency will benefit through:

- saving money from a reduction in tender advertising costs of on average $5,000 per tender
- improved management of tender publishing process
- increased procurement transparency and accountability.

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Appendix C
Benefits Categorisation

Appendix C
Benefits Categorisation

Method

The following method involves evaluating ICT options using three categories:

- **End Users** – Refers to any external financial impacts on users, other agencies and other indirectly affected entities in terms of increased cost savings or increased revenue
- **Agency Costs and Benefits** – Refers to the internal financial impacts on the agency in terms of capital and operating expenditure, savings and costs over a project whole-of-life basis
- **Qualitative** – Refers to non-financial benefits that can be measured including strategic and policy results, governance value and social/service delivery value.

The business case will identify and categorise the benefits for each option across the whole project life, according to the categories outlined in the table below.

End Users	Increased user benefits	Any cost savings or increased revenue accruing to external users of the new technology or system.
	Increased other agency benefits	Any costs savings or increased revenue accruing to other agencies as a result of the implementation of the project.
Agency Costs and Benefits	Existing funding	Includes any existing funding that will be applied to the proposed project.
	Identified cost savings/revenue	Includes direct operating or capital cost reductions accruing to the agency as a result of the implementation of the proposed project and any increased revenue.
	Use of cash reserves	Any cash offsets, i.e. use of current reserves to fund the proposal.
Qualitative	Social value	Social benefits have an impact on the community. This category includes the project's contribution to governance generally, including community participation, transparency of process and accountability.
	Service delivery value	Includes any service delivery benefits delivered to stakeholders as part of the delivery of the project. This may include

Appendix C
Benefits Categorisation

		saving time and effort for citizens.
	Whole-of-government policy alignment	Includes legislation and policy that should be complied with by ICT projects including the Australian Government Interoperability Framework and Security Requirements.
	Whole-of-government strategy alignment	Measurable alignment of the whole-of-government strategic and ICT priorities.
	Agency policy/ objective alignment	Measurable alignment with internal agency policies and objectives.
	Stakeholder support	Support of key stakeholders such as internal agency, industry, other agencies and users.
	Environmental implications	Any environmental impacts including support for ICT initiatives such as eco-labelling and recycling.
	Other relevant information	Any other qualitative factors considered important to the detailed analysis of options.

In addition to identifying and categorising benefits, you should determine which benefits are integral to the success of your project.

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Appendix D
Common ICT Project Risks

Appendix D
Common ICT Project Risks

The following list provides examples of common ICT project risks. You should plan to address the risks specific to the options in your business case.

- Failure to identify, plan and resource all required project activities (technical and other).
- Vendor delays affect system delivery date.
- Inexperienced development staff or shortage of experienced staff (undue reliance on key staff).
- Staff shortages (sickness, attrition).
- Loss of key project staff.
- Delays in decision-making.
- Acquisition delays, probity concerns or inadequate contractual agreements to protect the organisation's interests.
- Unforeseen expertise requirements (include subject matter experts).
- Unforeseen system failure during development (such as hardware, software, development tools, financial).
- Unable to secure an implementation partner.
- Failure to achieve the anticipated project benefits.
- Underestimation of technology capacity requirements (workstation, server, LAN, WAN, M/F, etc.).
- System development model not followed through the project.
- System development model not suitable for delivery of the system.
- Insufficient control over infrastructure delivery delaying project implementation or increasing costs.
- Insufficient documentation supplied to maintain the system (once in production).
- User requirements not clearly, or inadequately, defined (scope changes including scope creep).
- Incorrect scope defined that does not match user requirements.
- Unauthorised changes to scope by implementation partner following sign off.
- Development tools do not suit the system development.
- Logic errors in programming.
- Failure to comply with the organisation's programming standards.
- Loss of program modules being developed/changed due to infrastructure failure or human error/intentional action.
- Incompatibilities between products cause interface difficulties.
- Delays to system delivery caused by interface difficulties.

Appendix D
Common ICT Project Risks

- Interfaces not complete in time for go-live date (lagging development).
- Systems to be interfaced impact go-live of this development.
- User acceptance testing (UAT) delayed due to development problems.
- Unable to commit users to user acceptance testing.
- UAT fails due to development problems.
- UAT fails due to inadequate performance.
- UAT scripts fail to test the full functionality and usability of the system.
- UAT does not cover system performance and volume testing.
- UAT does not cover system restart/recovery processes.
- Production environment build hampered by unforeseen problems.
- Production environment not ready for go-live.
- Backend processes not tested/stable at go-live (batch processes, back up, archiving, log review, etc.).
- System/environment not fully tested at go-live.
- User training delayed or hindered by technical/environment problems.
- Unable to commit users to training.
- Training materials or environment not ready at commencement of training.
- Untested changes are made to the production environment during implementation.
- Unforeseen problems with system porting delays go-live.
- Inadequate training and documentation for operations staff.
- Data corruption during migration.
- Data loss during migration.
- Incomplete data capture from the old system.
- Unauthorised changes to data during migration.
- Data is rejected at migration.
- Security of working files compromised during migration.
- Data migration failure prior to go-live.
- Insufficient testing of migrated data prior to go-live results in downtime or loss of processing in production.
- Incorrect data manipulation prior to migration leads to loss or misinterpretation of data during migration.
- Lack of management support for the project.

Appendix D
Common ICT Project Risks

- Lack of intended user support for the project.
- Lack of intended support staff for the project.
- Blow out of financial resources required.
- Failure to complete the project by the specified implementation date.
- Failure to achieve the anticipated project benefits.
- Failure to satisfy user requirements, or the user interface and screen flow are unacceptable to users.
- Failure to organise required policy or legislative changes to support the proposed system or procedural changes within the required time frame.
- Failure to take into account other internal or external activity occurring at the same time which could disrupt this project's development or implementation activities.
- Lack of attention to the resource implications of the cut-over from the old arrangements to the new system, including the impact on production work of training and other cut-over disruptions and the build up of backlogs of production work.
- Use of unproven technology.
- Underestimation of workstation or IT infrastructure capacity requirements.
- Unacceptable system performance, both in relation to availability and response times.
- Lack of staff with the skills required to undertake the project or components of the project.
- Unexpected loss of corporate knowledge in relation to key aspects of the project part way through the project.
- The possibility of industrial action within the agency, especially in relation to organisational and procedural changes.
- Occupational health and safety problems.
- Failure to identify all of the required project activities.
- Failure to adequately plan the commencement and staffing of the various key phases of the project.
- Failure of a contracted third party to deliver an acceptable project in the time frame required.
- Failure of a contracted third party to provide a robust, documented and easily maintainable product which is consistent with the agency's preferred application development/maintenance tool set and quality standards.
- Lack of attention to proper tendering procedures and practices for suppliers or products.
- Dependence on other environmental, industrial or third party performance beyond the control of the agency, or on other projects within the agency.

Appendix D
Common ICT Project Risks

- Failure to organise the timely performance of actions required to be undertaken by third party providers such as the communications carrier.
- Failure to adequately secure commercial or cabinet-in-confidence documents (hard copy or electronic copy) relating to the project.
- Breach of Privacy Act constraints.
- Failure to comply with legislative requirements, such as Finance regulations.
- Failure to achieve compatibility with the strategic business direction of the agency.
- Failure to achieve compatibility with the agency's IT strategic direction.

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Appendix E
ICT Capital and Operating Costs

Appendix E
ICT Capital and Operating Costs

Capital cost categories in the ICT Business Case Spreadsheet

Capital Costs	
Hardware	Servers
	Storage
	Peripherals (printers, multifunction)
	Desktops/Mobile Computers
	Network Infrastructure
	Other Hardware
Systems Integration / Development	Project Management
	Architect
	Designing and Configuring
	Programming
	Testing
	Technical (data, storage, hardware etc)
	Security
	Other Systems Integration/Development
Fit-out	Fit-out
	Other Fit-out Expense
Other Capital Costs	Defined by business case author

Appendix E
ICT Capital and Operating Costs

Operating cost categories in the ICT Business Case Spreadsheet

Operating Costs	
Employee Expenses	Salary Costs
	Salary On-Costs
	Non-Salary Benefits
	Training and Assistance
	Other Employee Expenses
Property Operating Expenses	Property Operating Expenses
Specific Supplier Expense	Financing
	Insurance
	Legal
	Marketing
	Research
	Training Delivery
	Other Specific Supplier Expense
General Supplier Expense	General Supplier Expense
Corporate Support	Corporate Support Expense
Software Licensing	Applications Software
	Development and Deployment tools

Appendix E
ICT Capital and Operating Costs

Operating Costs	
	System Infrastructure Software
	Other Software Licensing Expense
System Maintenance and Support	Hardware Maintenance
	Software Maintenance
	Other System Maintenance and Support
Other Operating Expenses	Defined by business case author

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Appendix F Assumptions and Constraints

Appendix F
Assumptions and Constraints

Overview

Documented assumptions and constraints clarify the viability of each option. Assumptions and constraints that you should address will include:

- complexity of business requirements
- user numbers
- degree of user support required
- interdependence with other systems
- timing of events
- IT skills availability and location
- the scalability of a technical option and any service limits that may apply.

For example, an assumption relating to the number of users may be that an online service will have 20,000 logged-on users per day and no more than 5,000 at any given time. A constraint relating to the number of users may be that the system has a maximum capacity of 100,000 logged-on users at a given time.

A list of assumptions and constraints will help you to modify your analysis if they change. Documenting your original and revised assumptions will also help to justify any changes to the cost and schedule estimates that are likely to occur after first pass approval has been obtained.

For the purposes of estimating costs and benefits, you must make both financial and non-financial assumptions. Assumptions can be classified into three categories listed in the table below:

Task	Description
Known Costs or Benefits	These costs or benefits are known and are likely to be unchangeable over the period of the analysis. An example may be the rent on a project office of a known size, for a known period of time and at a known rate. Generally, most cost-benefit models will not have a high proportion of known costs.
Estimated Costs or Benefits	These costs or benefits use a relationship with another piece of information as the basis for estimation. It may be that some aspect of the cost or benefit is known (e.g. cost), but another aspect is unknown (e.g. volume). This creates the need to estimate the unknown factor through the extension of some predictable relationship. For example, if the development hours per function point is unknown, a method for predicting total development costs would be to research development effort on projects using similar development languages, platforms and

Appendix F
Assumptions and Constraints

Task	Description
	developer capabilities. You could then extend the average development hours per function point for those projects to your own project. You can also use costing or measurement data from comparable projects or similar entities.
Expert Estimated Costs or Benefits	These costs or benefits are those not able to be estimated using the above two methods. These types of costs and benefits should only be included if there is a degree of credibility in the expert's opinion of costs or benefits and should only be used if there are no other alternatives. This method may also be used when the cost of estimating the costs would be prohibitive.

The following provides examples of how you can present concise summaries in your ICT Business Case template:

Key Assumptions	
FMIS – Payroll System Integration Costs	Based on the FMIS interfacing with the payroll system "PayFast v. 2.3" as is currently in use in the department.
Infrastructure – On-line Initiative (Job Seeker Category XX)	The infrastructure solution is based on the service being offered to job seeker category XX (no other job seeker category was reviewed). The infrastructure solution is based on between 100,000 and 150,000 users. If the number of users is less than this, then there will be no impact on cost. If the number of users is greater than this, then the cost will need to be revised upwards.

Key Constraint	
Hardware – Online personal details portal	Infrastructure has a capacity of between 30,000 and 40,000 logged-on users at any given moment. An investment in infrastructure would be required to increase this capacity. The estimated cost for an increase in capacity is: • $1.5M for a 50% increase in users • $5M for 100% increase in users.

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Appendix G
ICT Cost Drivers

Appendix G
ICT Cost Drivers

Software

Software development and integration are good examples of cost drivers. Where a decision is made regarding the language used in the development of a particular type of in-house application, this will affect the time it will take to develop the particular application. This in turn may affect the costs associated with developing the application through an increase in programmer costs (i.e. hourly rate x number of hours).

As the programming cost increases, total cost also increases. If there is no resultant effect on the agency benefits, the net present value (NPV) of the investment in the new application will ultimately be reduced. This example illustrates that while a cost may be estimated, the actual outcome is influenced by several factors, most of which are not financial and may or may not be estimated using traditional estimation methods.

Focusing on cost drivers concentrates your investigations on specific key information, rather than minor cost aspects. For example, if the space required for a project team to implement a particular solution is known (i.e. it cannot occupy more or less space due to current lease restrictions and the building rent is fixed), then there is no use in gathering information about rent rates in the CBD, estimating the space required and averaging the rent to develop a cost estimate.

If the main determinant for software development design and programming costs is the level of language complexity, then any changes in the development language will always drive the cost.

Systems Development and Integration

Software development is one of the most difficult cost components to accurately predict. This makes an understanding of assumptions-based modelling and cost driver analysis extremely important to developing reasonably accurate cost estimates for software development projects. As discussed above, assumptions are based on one or more broad categories.

Using information from similar projects is a good way to make credible assumptions about the size, cost and duration of a software development project. There are limitations, as rapid technological advances often render previous projects obsolete. While the outcome of the project may be similar, advances in systems level software and integration make new technologies more attractive and more scalable over the medium to long term. If you can apply a previous project's costing, you will probably need to make alterations to account for:

- improvements in technology
- increases (or decreases) in the hourly rates for technical and project staff
- differences in scope, e.g. extension of the project to other agencies, increased functionality, changes in integration and support systems
- changes in the IT services industry, e.g. spare capacity, skill availability, attractiveness of the project, etc.

Appendix G
ICT Cost Drivers

You will most likely need to estimate some costs using the cost estimator relationship – particularly for purpose-built or customised government ICT projects. Most software estimation techniques based on some form of a cost estimator relationship use one or two major drivers on software development cost and measure and adjust those drivers on the overall cost of the software. Major drivers traditionally include:

- source lines of code (SLOC)
- function points
- object points
- use case points.

Depending on the software estimation technique, secondary drivers are applied to the main input (or main driver), which eventually assists in determining the total estimated cost for the project. Some of these drivers – such as cost of staff, complexity of the application, integration or development language – are reasonably obvious. However other drivers such as specification level and the required level of documentation are less obvious. The table below provides a list of some primary and secondary cost drivers in the software development estimation process. This list is designed to help you in the initial stages of sizing software and estimating costs. However, you will need to conduct a more robust analysis of cost drivers to undertake the estimation for second pass.

Primary Drivers (or Sizing Methods)	Secondary Drivers	
Source lines of code Function points Object points Use case points	Complexity of architecture, interfaces, development language, integration Technology maturity Specification level Effort uniqueness Reusability Breakage Scheduling issues (constraints, length, overlaps)	Number of locations. Personnel skill level. Internal & external interfaces Labour rates Overtime Overheads Personnel turnover Cost of money Inflation

Software Maintenance Costs

Estimating maintenance costs for new systems or software can be difficult. The level of maintenance required depends on a number of factors that are often difficult to predict prior to the completion of the development activities. Even when the system or software is implemented, estimates and budgets for maintenance costs and effort can often prove to be seriously inaccurate.

Appendix G
ICT Cost Drivers

Typically, maintenance costs are driven by the following factors:

- The size of the software
- The quality of the software
- The complexity of the software
- The service levels that must be met
- The levels of interoperability with other systems.

A typical approach to estimating software maintenance costs includes the maintenance-to-development cost ratio. Most external IT-based research companies develop maintenance benchmarks based on this model or a variation of it. You can contact these companies to obtain useful rules of thumb, e.g. [XX%] per year for maintenance and [XX%] per year for enhancements for [XX] type of application.

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Appendix H
Cost Benefit Analysis

Appendix H
Cost Benefit Analysis

Overview

This section clarifies the steps in estimating the value of the benefits of each option in your ICT business case. The method will help you clarify the value of each benefit in two main sets:

- costs and benefits to end users
- agency costs and benefits.

The method will also help you complete a comparative rating of your options against each set. The highest score should reveal the greatest return on investment for each benefit per dollar of capital investment. However, the result will only be as useful as the quality of the assumptions you make and the information you obtain.

Costs and Benefits to End-Users

It is important for government decision-makers to understand the impact that an investment decision will have on the end users of the goods or service that would be delivered by a proposal. End users may include consumers, other agencies, or any entities that may benefit indirectly from the proposal.

The analysis of benefits to the end users also assists in assessing the relative value of each option against other options. The option that achieves the greatest level of economic efficiency for end users will be more likely to receive funding.

The summary below defines the key variables in costing the benefits to the end users and explains how to enter these variables into the ICT Business Case spreadsheet.

Incidence

Incidence is a volume metric where the particular cost saving or revenue increase is based on a total number of transactions, demand or other driver.

Value

The incidence value is the average value of savings or revenue generated per unit of volume. Where there is no incidence value, it is the total estimated saving or revenue generated.

Increased cost savings (incidence x value)

Increased cost savings relate to savings accruing as a result of the project. For example an e-government services project for electronic payments would replace over-the-counter transactions and may save users a transaction fee. Similarly a project may benefit another agency where there are inter-agency transactions that will be affected by a new system.

Appendix H
Cost Benefit Analysis

Increased revenue (incidence x value)

Increased revenue refers to any increased income accruing to external stakeholders. For users this may be a program that promotes awareness of a subsidy and facilitates the online distribution of that subsidy.

Total wealth generated (increased cost savings + increased revenue)

Total wealth generated is calculated as the total sum of increased costs savings plus increased revenue generated.

Entering data into the spreadsheet

For each of the end user costs and benefits identified, you must enter the following information into the end user worksheet in the ICT Business Case spreadsheet under the categories for user, other agency and other indirect entity:

- Enter a short description of the benefit that will accrue.
- If the benefit is an increased cost saving, enter the estimated value per unit or total value of that cost saving.
- If the benefit results in increased revenue, enter the estimated value of increased revenue per unit or total value of cost saving.
- Where the increased revenue or cost saving estimate entered is a per unit measure, the incidence (or volume of units) should be entered.

Entering this data into your spreadsheet for each cost benefit will help you calculate the total benefit generated. It is important that you document an explanation or justification for each cost benefit, as you will need to summarise this information in the final ICT Business Case template.

The results of your analysis of the end user benefits of the options in your business case will be separate from any calculations you may undertake using the net present value method (see the section on overall appraisal below).

Agency Costs and Benefits

This category involves the internal financial impacts on your agency in terms of capital and operating expenditure, savings and costs over the whole life of an ICT option. This information should be included in the overall appraisal of options (see the section on overall appraisal below).

Agency costs and benefits are estimated using slightly different methods for the various elements. For example:

- Employee expenses (operating) are estimated by defining salary costs and on-costs (e.g. superannuation), and determining the number of staff at each level who would perform certain functions at each stage of the project. Agencies should refer to the standard costing template prepared by the Department of Finance and Deregulation for assessing employee and related costs.

Appendix H
Cost Benefit Analysis

- Hardware is calculated either by estimating a total cost for each hardware category or by estimating quantities and costs for individual items or groups of items. Hardware capital costs begin their depreciation in the year that they are purchased.
- Non-hardware related capital costs (e.g. server installation, systems development, integration, and fit-out) are subject to a different depreciation treatment subject to the latest guidance from Finance. Once the hardware is deemed to be in use, these costs can be capitalised and therefore depreciated.
- Offsets involve cost savings, increased revenue, current funding for a particular option, or the use of cash reserves associated with the implementation of a certain option. Information on offsets will not be used to determine the financial viability of your proposal. But the information will reduce the amount of funding you should seek from government for the proposal.

Overall Appraisal

Your business case must include a discounted cash flow for each option using net present value (NPV). The calculation of NPV applies the principles of discounted cash flow where future cash flows are multiplied by a discount rate to obtain present values. Non-cash costs such as depreciation do not form part of a discounted cash flow calculation.

There are various NPV methods that could be applied. However, you need only apply the following:

- **NPV per $ of Capital Investment** – The NPV of net benefits divided by present values of capital costs. This indicates the ratio of capital costs against total expenditure, discounted over a period of years (the appropriate period will depend on the nature of the project).

You should confirm the appropriate discount rate with the relevant Agency Advice Unit in Budget Group in the Department of Finance and Deregulation.

A positive NPV is not necessarily required because in some cases significant benefits are non-monetary and not reflected in the economic appraisal. However an option's NPV value remains a key indicator when assessing options.

Once completed, the ICT Business Case spreadsheet will provide an overall summary of the costs and benefits of each option in your business case. The spreadsheet should be populated in conjunction with the Finance area of your agency.

First Pass

The ICT Business Case spreadsheet will help you focus on cost, volume and time as three key factors in the analysis of ICT options, for example in reaching broad conclusions on the cost, number and timing of possible hardware acquisitions.

Appendix H
Cost Benefit Analysis

Timing and Cash Flow

The ICT Business Case spreadsheet presents your analysis of the timing of the cash flows for each ICT option.

The timeframe for analysing the cash flow implications of each option should be discussed with the relevant Agency Advice Unit in the Department of Finance and Deregulation. The emphasis should be on the early years when significant benefits should be realised.

It is important to accurately reflect the timing of cash flows and the years in which benefits are expected to accrue. The timing of benefits could be affected, for example, by delays due to the system not being fully operational, or in the take-up of IT-enabled business process improvements, or in the realisation of savings from staffing efficiencies.

Second Pass

if you develop the following documents you should be well positioned to provide the necessary information to determine cash flows for NPV calculations:

- **Project implementation plan** – Creating a project plan is the most important input into the timing estimates. Your plan should indicate the different tasks that need to be completed at each stage of the project. The stages should give you an indication of when certain costs are likely to be incurred. For example, in the planning stage you are likely to incur initial design and planning costs.
- **Recruitment plan** – If an ICT option would require additional recruitment and contracts to be completed in-house, a recruitment plan will help you understand when costs may be incurred. A recruitment plan should detail the employee's desired profile, employee type (contract, full-time or part-time) and when the recruitment must begin and the employee must start. Often staffing costs comprise a large proportion of total implementation costs for ICT investments and this plan can map these costs in succinct time frames, helping you model cash flows.
- **Procurement Strategy** – A detailed procurement strategy will assist you to include contract costs associated, for example, with milestone payments.

Sensitivity Analysis

This analysis is fundamental to the evaluation of options. It is used to test the vulnerability of the options to unavoidable uncertainties. You should complete this for all options. The analysis should indicate how much a cost would have to increase or a benefit would have to decrease in order to make the investment not worth undertaking. Examples of the types of variables that are subject to a large degree of variability are wages, demand, labour savings and system and development costs.

Scenario Analysis

This is the process of analysing a series of variables that are included in discrete options. To make the analysis useful, you can develop scenarios that have a relationship to each

other. For example, Scenario 1 might include labour savings decreasing by 10% and system development cost decreasing by 5%, while Scenario 2 includes labour savings decreasing by 20% and system development costs decreasing by 10%.

Terminology

NPV per $ of Capital Investment

The Net Present Value per dollar of Capital Investment (NPVCI) represents the net present value of the project per dollar of capital investment expended. This measure is calculated by summing the present values of the net benefits and then *dividing* by the sum of the present values of capital expenditure. This ratio measures the benefit of the entire project given a limited budget for capital expenditure. In assessing options, a proposal with the highest NPVCI may be preferred, although other factors, such as the total NPV, also need to be considered.

Depreciation

Depreciation is defined as ‘the systematic allocation of the depreciable amount of an asset over its useful life (AASB 116). Depreciation is not a cash item. That is, its incurrence does not affect the viability (NPV, ROI, etc.) of the investment.

Nevertheless, to ensure a complete understanding of the accounting impact of the proposal, you should calculate depreciation based on the estimated useful life of the asset and the purchase date (for non-systems integration/development costs) or the in-service date (for systems integration/development).

You need to be careful when determining what systems integration/development costs are capital. Ensure that you comply with the current Finance Minister’s Orders and accounting standards when reporting depreciation.

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Appendix I Strength and Weakness Assessment

Appendix I
Strength and Weakness Assessment

Example: Grants Management Software

Option Total Cost	Strengths	Weaknesses	Go to detailed analysis?	Reason for inclusion/ non-inclusion
Option 1 – Base Case $0	No additional cost	Does not meet changing need of the grants process System is manual and prone to error.	Yes	The Base Case option should be included for comparison purposes.
Option 2 – Commercial Off-the-Shelf with minor modifications $3,250,000	Lower Cost. Commercially proven. Third-party reliance. Less potential system intrusion. Faster implementation. Links with existing infrastructure.	Not compliant with total business need. Slightly lower functional fit. Requires additional software or processes to fully meet the functional need.	Yes	Software is available Software is currently used in similar government agencies. Solution is less complicated
Option 3 – Existing system enhanced $6,500,000	Current levels of integration. Existing third-party support mechanisms 90% of business needs met.	Higher whole-of-life cost. Potential diminished support over time Additional level of complexity.	Yes	Some internal support for this option. High level of functionality and coverage of business needs.
Option 4 – Build own $12,800,000	Flexibility Meets needs	Highest whole-of-life cost. Additional maintenance management. High level of complexity	No	There is no major imperative to meet 100% of business needs Similar projects completed in other agencies that did not require a 'build own' solution

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Appendix J
Second Pass Detailed Supporting Plans

Appendix J
Second Pass
Detailed Supporting Plans

Project Management Plan

The project management plan provides an outline of the implementation plan for your project. You should include a staged outline of milestones, tasks, their duration and when they will be completed.

Project management is essential for any organisation in helping to save money and use time efficiently. Importantly, you should clearly describe project plans, governance structures, accountabilities and roles and responsibilities to ensure your project's success.

When developing your business case, you should ask the following questions:

- Has the scope been clearly articulated, including a list of deliverables and milestones?
- Is the project scalable, and how will re-scoping be managed? Clear and strict governance arrangements for re-scoping and changing requirements need to be established.
- Is there a clearly defined project structure with accountabilities, outlining ownership and responsibilities, including problem resolution? Are these parties aware of their roles and responsibilities for the project? Have project evaluation and review points been planned?
- How will cross-agency initiatives work?
- Is the project critically or partially dependent on other business or policy initiatives?
- What is the critical path for the project and how will you know if you are on track?
- Is the budget achievable for the overall project and the work to be done?
- How will assurance be provided as to the progress of the project and ensuring that it remains on track to original budget and timetable?
- Are planning assumptions able to be confirmed including timescales and the impact of interfacing projects?

Answers to these questions and an outline of project milestones, components and timings should be included in the Project Management Plan annex to the Business Case template.

Governance Plan

A governance plan defines the structure of the governance roles and responsibilities including steering committees, project sponsors, external stakeholder involvement and key decision points where executive input or approval is necessary.

The governance plan should reflect the wider set of governance arrangements for your agency's IT and business as a whole. It may include governance-related policies that specify and document rules that govern the provision of services and related assets

Appendix J
Second Pass
Detailed Supporting Plans

through their stages of identification, planning, development, implementation, operation and review.

By documenting the distribution of organisational responsibilities for managing change and the relevant decision-making processes, you can reduce the risk of project failure and improve interactions between business users and the ICT project implementation and service delivery.

Benefits Realisation Plan

The benefits realisation plan defines or outlines:

- the benefits to be achieved through the implementation of the project
- stakeholders' confirmation of anticipated benefits
- when benefits are anticipated to accrue
- how benefits will be measured
- reporting arrangements.

The business case for an ICT investment must identify the business benefits that are expected to be realised from the project. The benefits must support your strategic and corporate business objectives and outcomes, and contribute to wider government policy priorities. Key steps that you must work through include:

- benefits identification
- benefits definition
- benefits planning
- benefits realisation, monitoring and reporting.

In defining the benefits that should be achieved through the implementation of the project, you should consider the following questions:

- What are the economic, financial and qualitative benefits expected from the project and have they been agreed with key stakeholders?
- When are these benefits anticipated to accrue?
- How will the potential benefits be measured?
- Does the project include an evaluation strategy? How will success be evaluated?
- Who will the benefits be reported to (e.g. key stakeholders)?
- Who will be assigned responsibility for delivering the benefit(s) and have they agreed?

The end product is a benefits realisation plan that includes key assumptions and sensitivity and risk analysis of those benefits expected to contribute most to outcomes.

Appendix J
Second Pass
Detailed Supporting Plans

Risk Management Plan

A risk management plan will provide a detailed outline of the risk assessment and mitigation strategies you identified. You should expand the risk analysis section to include the plan you will use to manage the risks associated with the project. This plan should include:

- risk monitoring approach
- risk log approach
- approach to the management of designated risk mitigation actions
- risk governance plan (i.e. how are risk and risk mitigation activities and results reported to the project stakeholders).

Stakeholder Communications Strategy

You should develop a stakeholder communications strategy that would facilitate whichever option is selected from those covered in your second pass business case. It is useful to outline the stakeholder consultation that has already taken place during the development of your business case.

Change Management Plan

As part of a second pass business case where an option presents a significant shift in organisational behaviour, you should submit a change management plan. You should provide change management strategies for key aspects including how the project will address issues of corporate culture, business process change, scope changes, end user training, documentation and acceptance.

Evidence that you have considered the implications of the change on the agency and its people and that you have a strategies to proactively manage this change will support your business case. It is also important to provide evidence that the activities in the change management plan align with the project management plan. The table below outlines some key aspects of a change management plan.

Component	Description
Stakeholder Management and Business Readiness	This element involves the identification of the key stakeholders and provides an assessment of their current state of readiness for change.
Communication	This element uses the list of the key project stakeholders and assesses the communication issues for each against the key project milestones.

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Second Pass
Detailed Supporting Plans

Component	Description
Organisational Design	This element is the point at which the potential impacts on the organisational design (people, processes, technology) that are likely to flow from, or be required to change, to deliver the intended outcomes are considered.
Job Design	This element flows from the organisational design considerations and focuses on the extent to which current job design aligns with the future changes to the work environment.
Education	This element draws together the training and education needs flowing from the consideration and identification of the requirements to facilitate the change effectively and sustain it over time.
Transition	This element draws together the project deliverables, project plan milestones and the assessments against the elements above to establish a transitional plan from the existing arrangements to the new set of arrangements.

Procurement Strategy

A procurement strategy should outline sourcing options and the procurement strategy including Expressions of Interest (EOI) and Request for Tender (RFT) arrangements.

The procurement strategy must be developed for each option, include the type, size and phasing of the intended procurement(s) and comply with your agency's Chief Executive's Instructions.

The business case must consider:

- uncertainty and/or innovation in the requirement as far as is known
- the complexity of the project (particularly outsourcing)
- the scale of the project
- the length and flexibility of the timescales for implementation (e.g. can a number of procurement steps be run in parallel?)
- the priorities of the business benefits to be achieved
- the possibilities of change in the customer organisation's operations
- availability of project management and technical expertise
- the ability of the market to respond in terms of capability and the likely number of providers that may be selected or proposals evaluated.

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Second Pass
Detailed Supporting Plans

You should also consider the capability of the market to deliver and the market demand for the ICT project, which is critical to its success.

Market capability refers to the number of suppliers in the market and their ability to provide the product or services required for the successful delivery of the project.

Market demand refers to the source, type and level of external demand for the ICT project you are undertaking. It is particularly relevant for e-government projects in which there are public users of the project or where there are external agency users.

These considerations will help you determine whether the sourcing decision is justified. It will also influence whether you will need external assistance to scope the procurement requirement and assist you in the evaluation process through to contract negotiations. If you require external assistance it will have a financial impact that you must identify in the business case.

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Glossary

Glossary

Term	Definition
Architecture environment	A grouping of technical components makes up an architecture. The aggregation of these architectures across an organisation makes up the architecture environment.
Capital costs	Generally, non-recurring costs that give rise to the creation of an asset. (Generally accepted accounting and taxation definitions may provide exceptions to this.)
Cash flows	Funds flowing in and out of an organisation.
Custom development	An application that is developed for a single purpose and organisation, as opposed to a packaged solution that can be reused across many organisations.
Development language	Application instructions are codified in a standard format that the programmer can understand and the computer can translate. This is called a development language or a programming language.
Enhancement	A noteworthy improvement to a product that is in use as part of a new version or an additional related capability. The term should be used to distinguish an improvement of some existing product capability from a totally new capability. Enhancements can add, change or delete functionality from software. Enhancements may include a stand-alone 'subsystem' development.
Financial risk	The financially quantified variability of returns from those that are expected.
Governance	The processes, people and procedures that provide a set of guidelines and rules used when making decisions.
Infrastructure environment	The software, services, products and equipment used in processing, storing, displaying and transmitting information. This may include infrastructure solutions, reference architecture and common engineering criteria.
In-house application	An application that is developed within the organisation.
Interoperability	The capability of systems to communicate with each other and function effectively together in the same environment.
Maintenance	Comprising very small enhancements (less than two weeks in duration), defect repair and other changes that don't affect application function. Maintenance should be 'keep the lights on' activity.

Glossary

Net present value	The present value of an investment's net cash flows minus the project's initial capital outlays. NPV of the investment is calculated through the discounting of cash flows that occur in future periods. Getting the timing right will help you ensure that cash flows occurring in later years are appropriately discounted, i.e. brought into today's money through 'discounting' the cash flows by the opportunity cost of that money (what the organisation could have earned on that money by not investing it in the project).
Operating costs	Recurring costs that do not give rise to the creation of an asset. (Generally accepted accounting and taxation definitions may provide exceptions to this.)
Process mapping	A logical method for representing processes, decisions and information flows diagrammatically.
Replacement	The substitution of an equivalent hardware or software version following decommission of the current version, release or edition of hardware or software already installed and in use by an agency. A replacement can include elements of an upgrade or an enhancement.
Scenario analysis	The process of analysing the impact of movements in a series of variables that are included in discrete options on the viability and cash flows associated with an investment.
Sensitivity analysis	The process in which variables are adjusted to examine their impact on the viability and cash flows associated with an investment.
Service delivery value	The value that a service delivers to an entity or organisation. Improved service delivery value can be achieved by reducing the cost of the service, or by improving the benefits that the end user will receive from the service.
Upgrade	A new version, release or edition of hardware or software already installed and in use by an agency. Where a new version, release or edition includes a totally new module, or modules, of functionality, the exercise is considered to be an upgrade project with enhancements.