

Guidelines for the evaluation of public sector initiatives

Part B: Investment Evaluation Process



Government of South Australia
Department of Treasury
and Finance

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Abbreviations

Benefit cost ratio (BCR)

Cost benefit analysis (CBA)

Cost effectiveness analysis (CEA)

Cost effectiveness ratio (CER)

Department of Environment, Water and Natural Resources (DEWNR)

Department of Planning, Transport and Infrastructure (DPTI)

Department of the Premier and Cabinet (DPC)

Department of Treasury and Finance (DTF)

Full-time equivalent employees (FTE employees)

Government of South Australia (the government)

Guidelines for the evaluation of public sector initiatives (guidelines)

Information communication and technology (ICT)

Internal rate of return (IRR)

Investment peer review committee (IPRC)

Key performance indicators (KPIs)

Multi-criteria analysis (MCA)

Net present cost (NPC)

Net present value (NPV)

Net present value per unit of capital invested (NPVI)

Office of Design and Architecture SA (ODASA)

Office of the Chief Information Officer (OCIO)

Public private partnerships (PPP)

Sustainable Budget Cabinet Committee (SBCC)

Strengths, weaknesses, opportunities and threats analysis (SWOT analysis)

Treasurer's Instruction 17: *Evaluation of and Approvals to Proceed with Public Sector Initiatives*
(Treasurer's Instruction 17)

Part B: Overview

The Government of South Australia (the government) is committed to the efficient and effective delivery of essential services to the community, while maintaining budgetary discipline that creates the framework for responsible investments in the longer term.

Early and effective planning, prioritisation and coordination of public sector initiatives by a lead agency¹, that is based on clear and shared long-term strategic directions is essential. This is to ensure investments are delivered where and when needed, for a cost that represents 'value for money' (compared to alternative proposals), within budget capacity, and that provides for the sound management of risks.

A comprehensive evaluation of a proposed public sector initiative (proposal) will benefit both lead agencies and the government by:

- developing a common understanding and consistent framework for evaluating proposals on a comparable basis
- facilitating the provision of high quality business cases that support sound and accountable decision making processes
- establishing a basis for undertaking a post-implementation review of a proposal and its outcomes

Part A of the guidelines discusses the purpose and application of these guidelines and provides an overview of the investment evaluation framework, the required outcomes of the investment evaluation process and other government agency roles and support.

Part B of the guidelines details the investment evaluation process and the requirements of a completed investment proposal and business case.

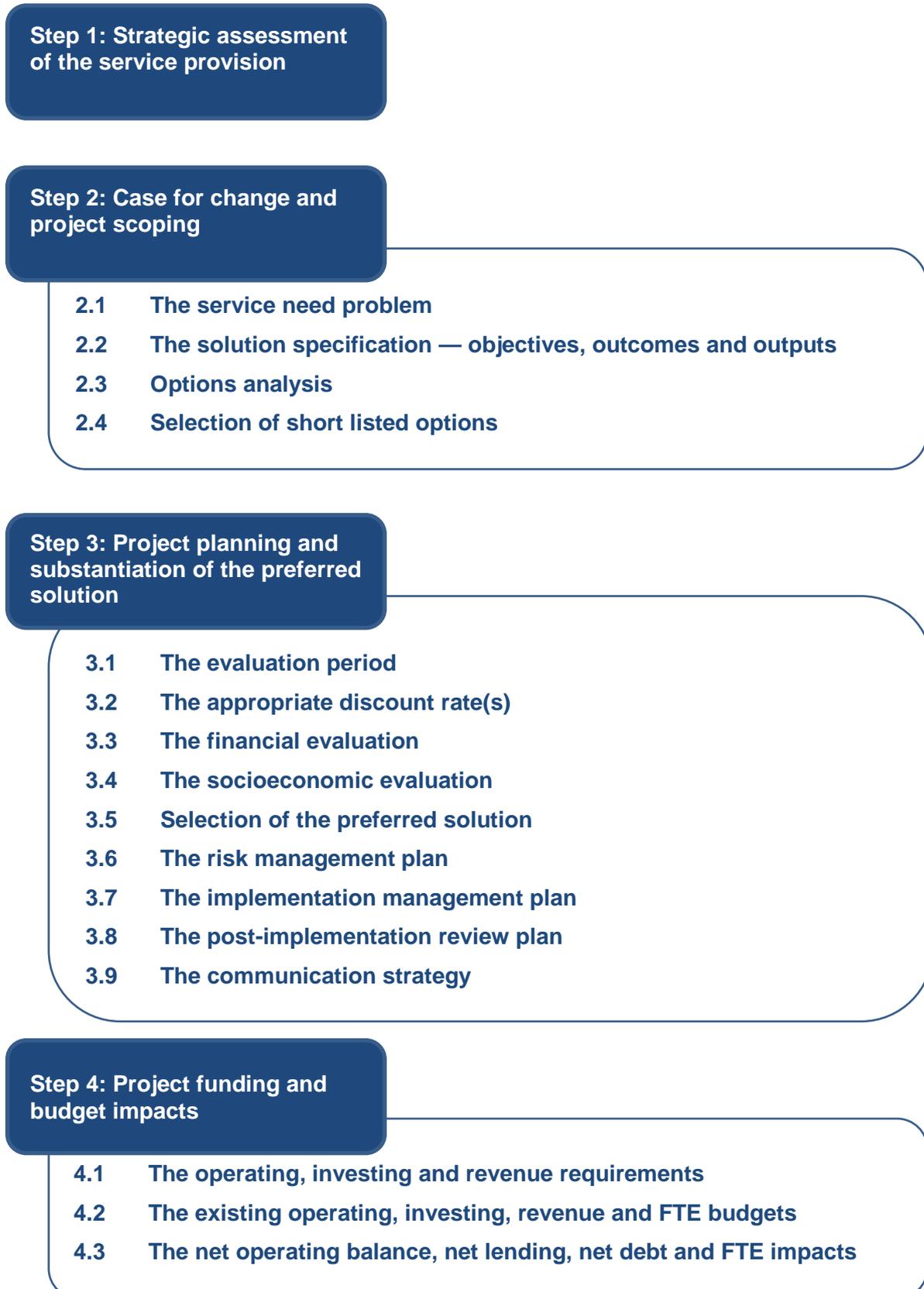
The specific components of a business case (incorporating the requirements of an initial investment proposal) are outlined in appendix 1. It is suggested that users of these guidelines first consult with appendix 1 and reference the relevant steps as detailed in Part B of the guidelines when undertaking the investment evaluation process.

¹ The public authority as defined under Treasurer's Instruction 17. The lead agency is the public authority instigating the proposed public sector initiative.

The investment evaluation process

A detailed outline of the investment evaluation process is shown below in figure 2.

Figure 3: Investment evaluation process outline



In addition to the four steps shown in figure 2, the investment evaluation process requires that accountability for the information contained in the investment proposal and business case are signed off by lead agency officers.

The scope and depth of the investment evaluation will depend on the scale and nature of the proposal. It is recommended that the lead agency consult with DTF in the initial stages of an investment evaluation in order to ascertain the extent of analysis required.

The decision to proceed with a proposal by the government will be influenced by the current policy and priority context of the government and the quality of the business case, in particular:

- demonstration that the underlying service provision is a strategic priority to government
- evidence that a service need problem exists that should be addressed
- consideration that all realistic options have been considered without a bias towards a 'preferred' solution
- the financial impacts of the proposal to the government
- the socioeconomic impacts to the broader community
- the budget impacts of the proposal and the relative 'value for money' and 'net benefits' of the proposal compared to other proposals being considered by the government
- the degree of confidence that the government has that the proposal will be successfully implemented within the budget and timeline estimates and that the stated benefits will be realised as stated
- the capacity to fund the proposal within the current budget context.

A sound business case developed in accordance with these guidelines should provide the necessary information to satisfy most of these broad requirements; however, a sound business does not guarantee that approval to proceed with a particular proposal will be granted by the government.

These guidelines promote an investment evaluation process that is objective. Effort should be made at every step of the process to exclude bias from the analysis, especially when considering alternative solutions to the identified service need problem.

Step 1: Strategic assessment of the service provision

The focus of any proposed investment in a public sector initiative is the service provision and its links to government priorities and strategic directions.

An understanding of the service provision is required in both the investment proposal and business case and should be established before proceeding to assess an identified problem and potential solutions.

The strategic assessment of the service provision is critical for justifying an investment in a proposal. This assessment should:

- provide evidence of the extent that the service contributes to the strategic priorities, goals, targets and objectives of the government
- demonstrate the rationale for the continued provision of the service by government.

It may be insufficient to refer to the historical provision of a service as a basis for a further and continued investment.

Lead agencies are required to comply with the requirements outlined in DPC Circular 024 — Integration of South Australia's Strategic Plan into Government Agency Planning Processes.

Key documents and policies that outline the government's strategic priorities include:

- the South Australia Strategic Plan and priorities documents
- the South Australia Planning Strategy
- the Strategic Infrastructure Plan for South Australia (for infrastructure requirements)
- the government's Strategic Asset Management Plan
- the government's Information Communication and Technology Strategy.

Other relevant sources of information include:

- the work of the Office for Design and Architecture, including the Integrated Design Strategy
- lead agency strategic and corporate plans and any other government documents and announcements
- requirements of current agreements between the government and the Commonwealth Government
- Council of Australian Government's decisions regarding infrastructure planning and Infrastructure Australia publications and directions.

A strategic assessment of the service provision should include:

- an assessment of the type, scope, outcomes, outputs, and timing of services currently being provided (where applicable), expressed in measurable (quantity and quality) terms where possible
- evidence that the current service provision is consistent with the government's policy targets and objectives, and lead agency's targeted service delivery outcomes (results sought) and outputs (services delivered)
- a description of key stakeholders and beneficiaries and any key relationships and/or interdependencies associated with the service provision²
- a description of any other public and private service providers and the market in which these services are provided³
- a discussion concerning the implication(s) of the lead agency continuing, discontinuing, expanding or retracting the service provision
- a justification that the lead agency is the most appropriate agency to continue providing the service provision going forward.

Associated detailed analysis underlying the above should be provided in appendices of the investment proposal and business case.

² The beneficiaries may include the government, the lead agency, other agencies, recipients or users of the service, the profession or workforce delivering the service as well as wider benefits to the community, industry sector or to the state or national economy.

³ Where service providers include other government agencies, details of any cross-agency strategic targets and objectives relevant to the identified service provision should be provided.

Step 2: Case for change and project scoping

The case for change presents the justification for a proposal. This justification is based on evidence that a service need problem exists, and that the benefits in addressing this problem by a proposal outweigh the 'do nothing' option.

The case for change is required in both the initial investment proposal and business case.

The case for change and project scoping process is provided below in figure 4.

Figure 4: Case for change and project scoping

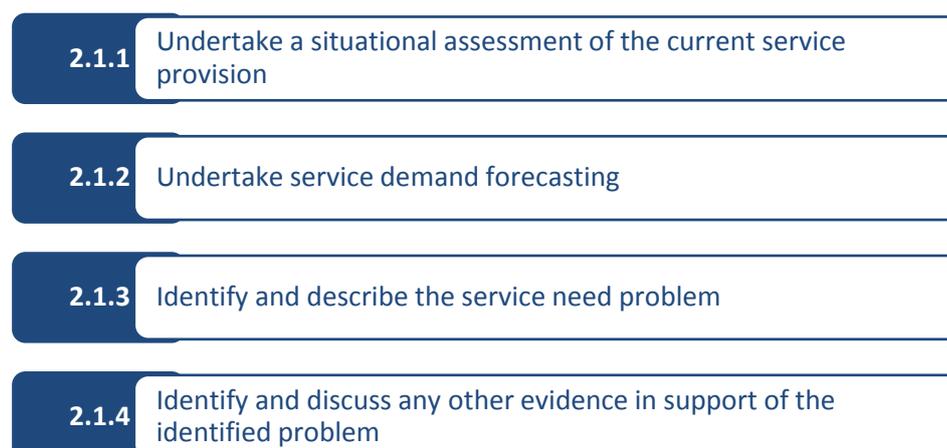


Step 2.1 *The service need problem*

A service need problem (“the problem”) exists when the current service provision is insufficient to meet the government’s targets and objectives, and the lead agency’s outcomes and outputs in terms of quantity and/or quality. The problem may exist either in the present or in the future, based on forecasted service demand requirements.

The tasks involved in demonstrating the existence of the problem are detailed below in figure 5.

Figure 5: Tasks involved in identifying the service need problem



2.1.1 — situational assessment of the current service provision

A situational assessment focuses on the demand drivers for the service, current service provision capacity (volume) and levels (quality) and the current operating and investing expenses and revenues associated with the current service provision.

The demand drivers are those factors that influence current service demand. Most service provisions will have common and specific demand drivers. Common demand drivers may include population growth and demographic factors. Specific demand drivers depend on the particular service provision being analysed.

The assessment should include a description of the current demand drivers and provide measurable data of them over time in order to assess their relationship to the actual service provision demand.

The current service levels and capacity needs to be identified and evaluated in both volume and quality terms.

With respect to the capacity of existing physical assets used in meeting service demands, this data should be readily available to agencies from their compliance with DPC circular 114 — *Government Real Property Management*, which requires that agencies establish and maintain a minimum property dataset for all their physical property assets. This dataset includes a suite of performance measures that inform on the assets' capability to support business service delivery strategy, for example, location, utilization, condition, suitability and compliance with regulatory standards. In addition, the asset's estimated useful life, ongoing suitability and valuation (written down value and current market disposal valuation) should be identified in the situational assessment.

The operating and investing expenses and revenue impacts involved in providing the service provision should be identified over a significant time period (at least one year). The current expenses should include all direct and indirect costs.

The outcome of the situational assessment is to provide an understanding of the current service level provision, drivers of service demand, service capacity and related expenses and revenues.

2.1.2 — *service demand forecasting*

In order to demonstrate that the problem exists, future service demand, in terms of quantity and quality, should be forecasted and then compared to the current service level capacity.

The scope and depth of the demand forecasting analysis will depend on the scale and nature of the proposal. It may be appropriate and necessary to engage expert assistance in undertaking demand forecasting.

Wherever possible, generally accepted methodologies and approaches for forecasting service demand should be adopted.

Service demand forecasting requires an assessment of the potential external and internal factors impacting upon the identified demand drivers going forward. For example, changing client demands, new government policies or regulations, socio-demographic forecasts, economic trends, energy prices, technological developments and potential future service alternatives should be considered.

Service demand forecasting should also reference to national and international statutory standards, technical standards, legislation and policies that are applicable to the service provision⁴.

Forecasting service demand will always include an element of uncertainty and subjective judgement. It may be useful to generate different scenarios when forecasting service demand in order to ascertain the extent of the problem for each scenario and in determining the most likely

⁴ The sustainability and/or relevance of these requirements should be discussed in the South Australian context.

projected service demand. The most likely projected service demand levels should be determined together with a pessimistic and optimistic forecast based on the scenario analysis for later reference in the investment evaluation process.

The forecasted service demand for each scenario should be expressed within the time horizon that is relevant for meeting the government's policy targets, objectives, outcomes and outputs.

The assumptions made and level of uncertainty inherent in forecasting service demand should be documented within an appendix for later reference in the investment evaluation process. The rationale used in determining the most likely forecasts should be explained in the investment proposal and business case.

In forecasting service demand, care should be taken to be objective. Allowing bias to influence the selection of demand drivers and application of assumptions may undermine the case for change, as well as potentially mislead decision makers.

2.1.3 — identify and describe the service need problem

In order to ascertain whether a service need problem exists, the most likely forecasted demand scenario needs to be compared to the existing service provision capacity over the time horizon that is relevant for meeting the government's policy targets, objectives, outcomes and outputs.

Where the problem is not evident given this comparison, further development of a proposal should be delayed until a service need becomes apparent.

Where the problem is projected to exist, the investment proposal and business case should include a clear description of the problem in terms of cause and effect, with specific reference to:

- the government's policy targets and objectives
- the lead agency's targeted service delivery outcomes and outputs
- the current service provision capacity and quality levels
- demand drivers and other external and internal factors impacting on service demand
- forecasted service need demand.

The key questions to be answered concern the causes of the problem and *"to what extent does (or will) the problem impact upon the government's policy targets and objectives and lead agency's targeted service delivery outcomes and outputs"*?

Understanding why the problem has or will occur is important when identifying options (step 2.3) for addressing the problem later in the investment evaluation process.

The consequences of the government not addressing this problem should also be discussed in the investment proposal and business case.

The investment proposal and business case should also discuss the timing for addressing the problem. In most cases, this will align with the identified gap between current and forecasted service demand levels, but it may be more complicated if there are other operational actions that can be taken to manage the problem in the short to medium term. It may be appropriate to discuss a range of timing options available to the government in addressing the problem.

2.1.4 — *identify and discuss any other evidence of the problem*

There may be other evidence for the problem that further supports the case for change. Such evidence may consist of:

- benchmarked performance of other service providers in the sector, in other jurisdictions, countries etc.
- documented expert opinion
- results of key stakeholder consultation, government and peer reviewed academic reports
- other social, environmental, economic and technical data.

Identifying occurrences of the problem inside or outside the lead agency may be useful in assessing options for addressing the problem (step.2.3). For example, there may be an opportunity to collaborate with local government, the Commonwealth, other government agencies and/or private and industry sectors in developing a solution.

Step 2.2 *The solution specification — objectives, outcomes and outputs*

It is essential to specify the solution requirements in term of the government's policy targets and objectives, and the lead agency's targeted service delivery outcomes and outputs before any consideration is given to options for resolving the problem.

Once developed, the solution specification should be central for developing and assessing options for addressing the problem (step 2.3), and selecting the preferred solution (step 3.5) in the investment evaluation process.

A common cause of project failures, for example, failure to deliver the desired outcomes, is due to the solution requirements note being adequately identified in the beginning of the investment planning process.

The primary policy objective for the government addressing the problem should be identified as the priority reason for investing in the service provision. There may be a number of secondary objectives for the government and lead agency in addressing the problem which should also be stated in the solution specification.

In addition, the lead agency's targeted service delivery outcomes and outputs should be identified in the solution specification. The outcomes are the broader service delivery impacts, for example, investment in a new hospital may improve access to health care by reducing waiting lists. The outputs are the direct results, that is, the goods and services produced. For example, investment in a new hospital theatre suite may enable an additional 3 000 theatre cases per annum. This will involve translating the targeted outcomes into outputs, which should be expressed in quantity and quality terms.

In addition to specific government policy targets and objectives in addressing the problem, there may be other relevant social, economic and environmental impacts associated with the proposal. Reference should be made to those who will benefit from the government addressing the problem as part of the solution specification.

Any prescribed national and international statutory standards, technical standards, legislation and policies that are applicable to the service provision should also be reflected in the solution specification. Appropriate references should be provided where applicable.

The solution specification should cover all functional and performance requirements required for addressing the problem without reference to any particular investment proposal. In other words, the targets, objectives, outcomes and outputs used in the service specification should not be based

on any pre-conceived proposal. For example, if the problem concerns overcrowded prisons, the service specification should not be based on a particular option constructing a new prison.

Key performance indicators should also be identified as part of the solution specification for later reference when developing a post-implementation review plan (step 3.8) in the investment evaluation process. The measurement of these indicators should inform whether the government's policy targets and objectives and the lead agency's targeted outcomes and outputs were achieved post implementation.

As with the service need, the solution specification once established should not change over the life of the investment (project).

Step 2.3 Options analysis

In most cases, there will be more than one possible option for addressing the problem. The scoping of a range of options is an essential part of the investment evaluation process.

A range or long list of options to solve the problem should be considered. An explanation should be provided when an investment evaluation does not include consideration of a broad range of options.

The options analysis should include consideration of any associated commercial funding opportunities. Commercial funding opportunities are further discussed in appendix 3. An assessment of the beneficiaries of a proposal, and their capacity to fund (in part or whole) the cost of the proposal should be discussed in the business case.

The options analysis should also consider co-location and/or co-use of equipment and facilities opportunities with other related service providers and/or government agencies. There may be scope to cost effectively combine different service delivery requirements within an option.

In accordance with the government's Industry Participation Policy, local business participation should be considered as part of the options analysis. The Office of the Industry Advocate may be of assistance.

For a significant public sector initiative investment proposal, a targeted stakeholder consultation, including other government agencies where applicable, should be undertaken in identifying a long list of options for addressing the problem. A targeted public consultation process is useful for testing the strategic fit of such options with the community (refer Part A, section 5).

Approval to proceed with any public consultation process should be obtained from Cabinet. Care should be taken not to create any expectation that the government is committed to a proposal when undertaking a targeted public consultation process.

For proposals with an ICT component, where the business need is not unique to the agency, the lead agency should investigate options that use a preferred ICT business solution or provide a common approach business solution across more than one agency (refer Part A, section 7.2).

It is important that the options analysis is not undertaken with a proposed solution already determined. Allowing bias to influence the options analysis will undermine the final selection of the preferred solution, as well as potentially mislead decision makers.

The tasks involved in undertaking options analysis for addressing the problem is detailed below in figure 6.

Figure 6: Options analysis tasks

2.3.1

Specify and determine the costs and service delivery targets and objectives associated with the base case

2.3.2

Identify, describe and specify a long list of realistic alternative service delivery options for addressing the service need problem

2.3.3

Undertake a preliminary impact assessment of all long-listed options including the base case

The scope and depth of analysis depends on the scale and nature of the proposal.

2.3.1 — the base case option

The base case option represents the current situation or ‘no policy change’ position against which other options can be compared. This option reflects continuing with the current service capacity with regard to the most likely forecasted service demand and other identified external and internal impacts. In other words, the base case represents what is likely to happen if no change is made given the most likely forecasted demand scenario.

The base case is not a ‘spend nothing’ option; however, in most cases it will represent the minimum essential expenditure option. For example, it may include an increase in maintenance⁵ and other operating costs associated with servicing ageing infrastructure. It may include costs to refurbish and replace existing assets in order to maintain the current service provision.

With respect to asset replacement, the base case should assume continued maintenance of an asset until it has no further service benefit potential and must be replaced in order to maintain the current service provision. Only in this situation should the base case include the costs associated with replacing an asset.

The base case should not include costs associated with expanding the scope of the service provision in response to forecasted service demand unless currently approved. In this situation, consideration should be made of possible actions to manage projected excess service demand within the ‘no policy change’ scenario. For example, such actions may include transporting clients to other service providers when current capacity at a particular service location is exceeded. The most likely set of actions (and associated costs) for managing excess service demand should be assumed in the base case analysis within existing policy.

It is important that the base case is carefully specified and its costs and benefits fully quantified over the evaluation period⁶. The base case description and specification is important as it may prove to be the preferred solution when compared to alternatives for addressing the problem.

⁵ The base case should not include a totalled backlogged maintenance in any one year where it is unrealistic that this maintenance work would actually be performed. The estimate for maintenance should reflect the current programmed maintenance levels unless it is apparent that additional maintenance is required to maintain the current service provision.

⁶ Determining the evaluation period is discussed in step 3.1.

2.3.2 — *long list of realistic service delivery options*

It is necessary to consider the widest possible range of realistic solutions or options (the long list) that may achieve the solution specification and their impacts in terms addressing the problem, costs, benefits and timeframes. From this analysis, a short list of options will be selected.

The primary focus in analysing options is the achievement of the solution specification and future client needs. The options analysis should not be limited to current service arrangements and expectations. Different service models and the potential for client needs to change over time should be considered. For example, administrative changes to current processes and technological advances may enable new and more cost effective ways of delivering the required services. In addition, new substitute products and services may be employed to manage future service demand.

The long list may include a 'spend nothing' option and even a 'stop doing' option. This is appropriate where it is unclear whether the service provision is or will continue to be a strategic priority to the government, and/or it is deemed that the problem cannot be adequately addressed by the actions of government and/or the lead agency. It may also be appropriate where there are other service providers that could manage the service demand and meet the solution specification. In such circumstances, an option may be that the government/lead agency discontinue with the service provision.

The use of planning or review workshop with key stakeholders and advisors and techniques⁷ that consider both the external and internal environment in which the service provision is made may be of assistance in identifying the long list of potential options.

For complex and significant proposed public sector building and other infrastructure initiatives, a lead agency may consider private sector involvement when developing the long list of options. This is where it is deemed that alternative delivery models, such as public private partnerships and project alliance, may offer advantages over traditional government procurement. Indicators that the private sector may add such value include the size and complexity of the proposal, and the need for innovative solutions, concepts and/or delivery approaches. In such cases, there may be apparent operating efficiencies and benefits to the government from private sector involvement. A preliminary procurement options analysis may be required in such circumstances as part of the options analysis. Further detail regarding a procurement options analysis is provided in step 3.7 in the investment evaluation process and appendix 4 in these guidelines.

In many circumstances, the government will be the only or most significant purchaser in the market for a particular service delivery option or capital infrastructure requirement. This may provide enormous potential for the lead agency to drive innovative responses from market participants in the construction of a long-list of service delivery options which should be exploited.

When engaging with the private sector at this stage, it should be made clear that there is no government commitment to proceed with a proposal. No unrealistic expectation should be created that the government will proceed with the proposal.

Where an option involves constructing a new building or other type of infrastructure, each long listed option should be described with reference to a preliminary concept design, specifications, construction method and procurement method⁸. It is acknowledged that meeting these requirements may be resource and time intensive; however, this detail is necessary for undertaking a proper assessment of the option.

⁷ For example, SWOT analysis (strengths, weaknesses, opportunities and threats).

⁸ Refer appendix 4.

The investment proposal and business case should detail evidence that the widest possible range of realistic options was considered in developing the long list of potential options for addressing the problem. Such evidence may be demonstrated by consideration of:

- improved management of existing assets, which may include the application of new or other technologies
- modifying, enhancing, re-engineering or re-developing existing assets
- demand management strategies and non-build (non-asset) solutions, which may include early intervention and prevention strategies, consolidating or disaggregating service delivery locations, utilising the private sector, contracting out services, adjusting price structures, making legislative changes, use of third party assets for service delivery and operating leases etc.
- disposal of assets opportunities (release of capital)
- new asset acquisition or build (infrastructure) solutions.

2.3.3 — undertake a preliminary impact assessment of all long listed options

Each long listed option should be assessed in terms of the solution specification, delivery timeframe, preliminary cost and benefit estimates (including commercial opportunities) and risks.

The estimated cost and benefit impacts to the government may be preliminary at this stage, but they should be realistic. It may be appropriate to refer to a range of estimated cost and benefit impacts associated with each option at this stage. Wherever possible, the cost and benefit estimates should be monetised. Non-monetised or quantified costs and benefits should also be detailed and, where possible, explained in terms of measurable outputs, for example, the number of clients serviced.

The impact of an option on other areas of the lead agency and/or another government agency's activities should also be considered as part of this assessment. If an option involves expansion, it may result in additional expenditure/revenue impacts outside of the lead agency. For example, expansion of public housing in a greenfields area would most likely impact on the requirement for other services including water, electricity and public transport.

Discounted cash flow analysis⁹ should be undertaken to determine the net present value and cost-benefit ratio¹⁰ associated with each option based on the preliminary cost and benefit monetised estimates.

The assessment of the preliminary scope (in terms of the solution specification), costs, benefits, implementation timelines, risks and impacts on related government services and assets for each long listed option should be undertaken prior to the selection of short listed options.

Step 2.4 Selection of short listed options

From the long list of options, a short list of options need to be determined to be subject to further evaluation with a view of selecting the preferred solution for addressing the service need problem.

The rationale for selecting the short list of options should be explained in the investment proposal and business case. In other words, the reason(s) for eliminating an option from further

⁹ Discounted cash flow is discussed further in these guidelines — refer step 3.3.2.

¹⁰ The net present value and cost-benefit ratio are discussed in step 3.3.2.

consideration should be documented. For example the methodology for short listing options should at the minimum refer to:

- the key criterion (based on the solution specification) applied in assessing the long list of options
- the most likely preliminary cost, benefit, implementation timeframes (where applicable) and risks associated with each option
- summary of each option against the key criterion, and preliminary financial and socioeconomic evaluation outcomes¹¹
- other relevant matters including outcomes from key stakeholders and advisors consultations, and opportunities for commercial funding, co-location and/or co-use of equipment and facilities with other related service providers and/or government agencies.

A table within the investment proposal and business case may assist in communicating the basis for ranking the long-listed options into a short list. Such a table may refer to the outcomes of an option's analysis with reference to:

- the option's title
- the option's preliminary investing and operating costs and revenues
- the option's NPV (based on a preliminary financial evaluation)
- an option's other socioeconomic costs and benefits
- an assessment of the extent to which an option meets the solution specification requirements
- an assessment of service delivery and implementation risks associated with an option.

The investment proposal and business case should recommend at least three short listed options, including the base case.

¹¹ Financial evaluation and socioeconomic evaluation techniques are detailed in steps 3.3 and 3.4.

Step 3: Project planning and substantiation of the preferred solution

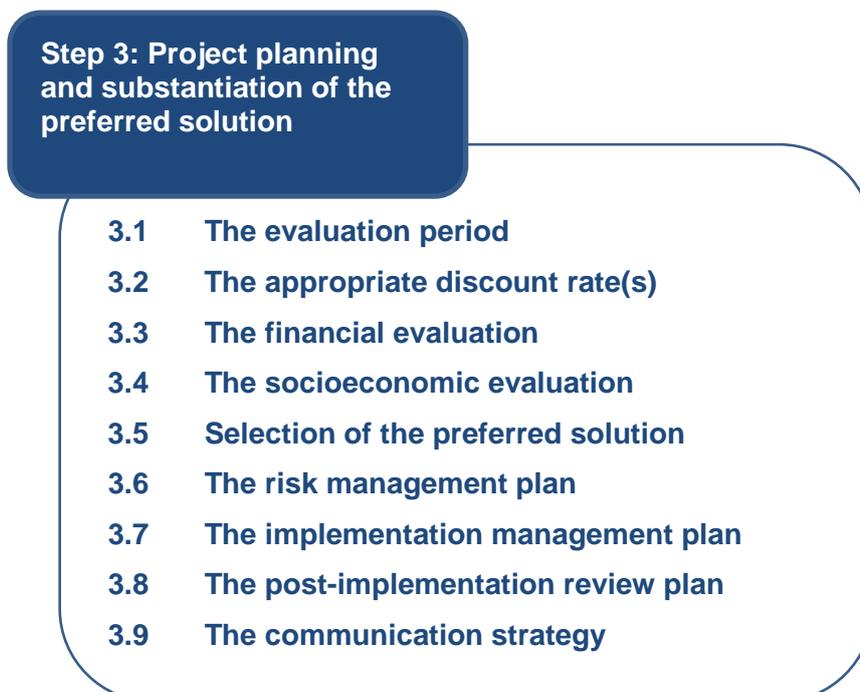
The project planning and substantiation evaluation involves the comprehensive analysis of the short listed options in order to select a preferred solution for addressing the service need problem. The focus here is on whether the preferred solution represents a sound investment, not on how this investment will be funded.

The project planning and substantiation evaluation is required in both the initial investment proposal and business case; however, only a preliminary assessment is required in an initial investment proposal. In the business case, a comprehensive and detailed evaluation is required. The following content refers to the project planning and substantiation requirements for a final business case.

It is essential that the merits of all short listed options (including the base case) are considered objectively and compared without bias in order to ensure that an investment decision is based on a reasoned and robust judgement. Allowing bias to influence this analysis may undermine the final business case recommendations as well as potentially mislead decision makers.

The project planning and substantiation evaluation process is provided below in figure 7.

Figure 7: Project planning and substantiation process of the preferred solution



Each short listed option (including the base case) should be assessed as a discrete project, given the various options may involve different scope, costs and benefits, cash flow timings, implementation schedules, risk allocations and other characteristics. Once independently assessed, options can then be compared against other short listed options (including the base case) in order to select the preferred solution.

It is a generally accepted and often recommended practice in the development of business cases to compare each option to the base case and detail and discuss only the incremental differences in the business case. While this is acceptable, it is important that the assumptions and calculations underlying the estimates for each option are transparent to users of the business case. For this reason, it is suggested that each short listed option be assessed as a discrete project and that the business case include discussion on the variations between individual options and the base case.

The scope and depth of this analysis depends on the scale and nature of the proposal. Lead agencies, perhaps in consultation with DTF, will need to make a judgement with reference to the size, risk and complexity of the project when planning to develop a business case. Generally, the required level of detail is less in lower value proposals than that required for higher value complex projects.

The detailed analysis involved in undertaking these tasks should be presented in appendices within the business case with a view to facilitating a clear understanding of the assumptions and calculations used in assessing the short listed options (including the base case) for a wide range of potential users of the business case. Technical terminology/jargon should be kept to a minimum. This information and calculations should be presented in a logical order and be self-contained. For example, there should not be references to external documents and spreadsheets that are overly complex and make it difficult for users to understand the basis of the calculated outcomes and assumptions applied.

Step 3.1 The evaluation period

The evaluation period is the period of time necessary for achieving the solution specification in addressing the problem.

This evaluation period is to be applied when undertaking the financial and socioeconomic evaluations (steps 3.3 and 3.4 in the investment evaluation process).

In general, the evaluation period should be no greater than 30 years, and is generally less than:

- 10 years for equipment proposals
- 5 years for information technology and telecommunication initiatives
- 30 years for major construction proposals.

For many infrastructure initiatives that have a long life, it is impractical to evaluate the investment over the full life cycle of those assets. Limiting the evaluation period ensures the integrity of the cost and benefit estimates. The analysis or discounting of cash flows means that longer term cost and benefit estimates become less impacting in the evaluation.

Where an evaluation period for a major infrastructure proposal is limited to 30 years, the benefits associated with the remaining asset useful life ('residual value') is reflected in the analysis as a cash inflow in the final year of the evaluation period. In this way, such benefits are included in the comparison of alternative options.

The costs and benefits of alternative options can most easily be compared if they cover the same evaluation period. In the event that alternative options have varied timeframes for meeting the solution specification, different evaluation periods may need to be applied. In such circumstances, the following approaches may be adopted to enable a comparison of options:

- focus on the life of the most critical items and include replacement costs for other items as they fall due
- assume each option with a shorter lifetime will be repeated at the end of its life until a common ending date is achieved
- assume the asset would be succeeded by a similar asset and calculate an equivalent annual cost for the capital values of each option. The calculation of an equivalent annual cost is detailed in appendix 5 'comparing options with different lives'.

The investment proposal and business case should include details of the evaluation period(s) used in assessing the short listed options.

Step 3.2 The appropriate discount rate(s)

The financial and socioeconomic evaluations require the discounting of the cost and benefit cash flow estimates in order to calculate the net present value (NPV) from which options (including the base case) can be easily compared.

The discounting of future cash flows reflects the fact that people generally attribute a higher value to consumption today than consumption in the future. A discount rate needs to be selected to discount future costs and benefits to a single 'present value' and calculate the NPV from a range of cost and benefit cash flows.

Selection of a discount rate for the discounting of future cash flows is a matter of judgement. The Capital Asset Pricing Model (CAPM) provides a framework for selecting an appropriate discount rate¹².

The selected discount rate should reflect the opportunity cost of capital, that is, the return on capital foregone if invested in an alternative use. The selected discount rate should also reflect the return required by investors in response to the market risk associated with the investment proposal.

An appropriate discount rate consists of a risk free rate, a market risk premium, and an estimate of inflation (if a nominal discount rate is to be used)¹³.

Australian fixed coupon Treasury Bonds are often considered to be a suitable proxy for a risk free investment, that is, the risk free rate. They are considered to be risk free in that the Commonwealth Government will pay the promised nominal sum at the time of maturity. It is recommended that the Australian Bond fixed coupon 10 year yield be used in calculating the risk free rate.

The market risk premium reflects the return sought by investors in addition to the risk free rate for the proposal. Market risk is the volatility of the net benefits in response to changes in economy-wide (or market) factors. Most investors are risk adverse; therefore, they will require a higher return for investing in proposals that have higher market risks.

Generally, most public sector initiatives will have lower market risk than projects undertaken by the private or commercial sector. General government activities are often characterised as bearing low market risk as their returns or benefits are not significantly affected by changes in economy-wide factors. On the other hand, the more commercial the proposal, that is the more the proposal relies on revenues for market traded outputs, the greater the sensitivity to market returns and the higher the market risk premium.

It follows that most non-revenue generating proposals will have low risk and most revenue generating commercial proposals will have a higher risk profile.

The degree to which an investment is sensitive to market volatility or risk is known as an investment's beta. The higher the beta, the more investors will expect in compensation for the added market risk. Recommended beta to be applied is as follows:

¹² The CAPM does have some limitations with respect to its estimation and application; nevertheless, it is a widely used methodology by industry and government.

¹³ Technically speaking, the discount rate used in a financial evaluation should represent the weighted average cost of debt and equity capital, and for a socioeconomic evaluation, it should represent the estimated social opportunity cost of capital. It is suggested here that only one discount rate is determined to keep it as simple as possible. Adjustment to the discount rate can be made later if required by the investor.

Market Risk	Beta	Description
Very Low	0.3	Proposals not significantly affected by market volatility, that is, little if any dependence on external revenues correlated to market conditions. For example, government funded school, hospital and road developments.
Low	0.5	Proposals mainly dependent on government funding with only a small dependence on external revenues correlated to market conditions. For example, government funded proposal with a small commercialised component.
Medium	0.7	Proposals with a larger degree of dependence on external revenues correlated to market conditions. For example, government funded proposal with a larger commercialised component.
High	1.0	Proposals entirely dependent on external revenues correlated to market conditions. For example, commercial developments.

A proposal's estimated costs and benefits may be measured in constant price or real terms, that is, excluding the impacts of inflation over the evaluation period. It is recommended to value the costs and benefits in real terms so that real changes in values can be clearly reflected in the analysis, that is, they are not confused with inflationary increases. This is particularly appropriate where the initiative may generate revenue and/or savings or other expected cost or benefits may not accrue for some time.

The Australian Bond fixed coupon 10 year yield is a nominal rate. This nominal rate can be converted to a real rate using Fisher's equation as shown below.

$$(1+r_n) = (1+r_r)(1+\pi)$$

where r_n is the expected nominal return, r_r is the expected real return and π is the expected rate of inflation; therefore,

$$r_r = [(1+r_n) / (1+\pi)] - 1$$

Where nominal costs and benefits values have been used in the cash flows, that is, inclusive of estimated inflation, the discount rate must also provide compensation to the investor for the expected decrease in purchasing power of the initial principal involved.

3.2.1 — calculating the discount rate

The CAPM methodology for determining an appropriate discount rate is recommended.

The CAPM calculation of a discount rate is:

$$E(r) = \text{risk free rate} + \text{Beta} * \text{Australian historical market risk premium}$$

For the purposed of these guidelines:

- the risk free rate is the Australian Bond fixed coupon 10 year yield (nominal), which can be found at <http://www.bloomberg.com/markets/rates-bonds/government-bonds/australia/>. At the time of publication, this rate was 3.42 per cent.
- beta is dependent on the assessment of market risk as discussed above.
- the Australian historical market risk premium is estimated to be 6 per cent nominal
- an inflation expectation of 2.5% has been used being the middle of the Reserve Bank's target of 2–3 per cent per annum).

Examples of the application of the CAPM calculation for determining an appropriate discount rate in both nominal and real terms is detailed below in table 3.

Table 3: Calculating nominal and real discount rates

Market Risk	CAPM Calculation	Discount Rate (Nominal)	CAPM Nominal Rate converted to Real using Fisher's Equation	Discount Rate (Real)
Very Low	3.4% + (0.3 * 6.0%)	5.2%	$(1+5.2%) / (1+2.5%) - 1$	2.7%
Low	3.4% + (0.5 * 6.0%)	6.4%	$(1+6.4%) / (1+2.5%) - 1$	3.8%
Medium	3.4% + (0.7 * 6.0%)	7.6%	$(1+7.6%) / (1+2.5%) - 1$	5.0%
High	3.4% + (1.0 * 6.0%)	9.4%	$(1+9.4%) / (1+2.5%) - 1$	6.7%

Where it can be justified, the lead agency may select a different methodology for determining the appropriate discount rate but the rationale for this choice should be outlined in the business case. For example, discount rates recommended by Infrastructure Australia for infrastructure proposals may be more applicable.

Where it is clear that there are multiple cash flow streams of costs and benefits within an option that has inherently different risk levels, it may be necessary to apply a different discount rate to those streams based on their risk profile. The present values of the separate streams can then be summed to determine the NPV of the option's net cash flows.

The investment proposal and business case should include details of the discount rate(s) applied in assessing the short listed options.

Step 3.3 *The financial evaluation*

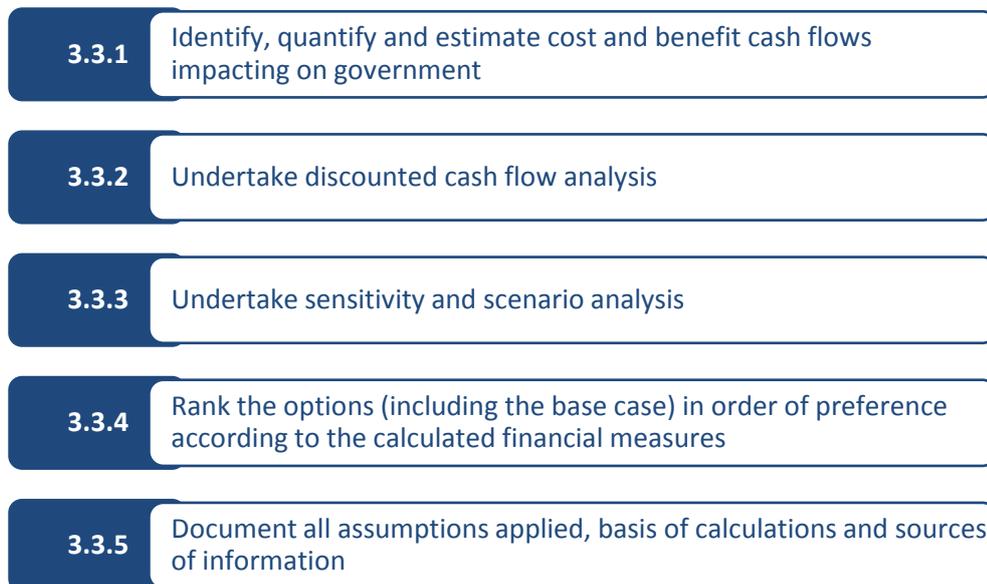
The financial evaluation requires an assessment of the cost and benefit cash flows impacting on the government that have an observed price or monetary value over the evaluation period for each option. Other cash flow impacts that cannot be quantified in monetary terms or involve non-government organisations and individuals are to be excluded from this evaluation.

A financial evaluation is most useful in evaluating revenue-generating investment proposals. The main reason for undertaking a financial evaluation is to answer the question — “is it a good investment for the agency and the government?”

A financial evaluation is required for all proposals to be considered by the government.

The tasks involved in undertaking a financial evaluation is detailed below in figure 8.

Figure 8: Financial evaluation tasks



The following general principles should be applied when conducting the financial evaluation.

- Only cost and benefit cash flows that impact directly on the government and can be valued in monetary terms should be included in a financial evaluation.
- Each option, including the base case, should be considered as a discrete project, that is, the cost and benefit cash flow impacts should be independently assessed.
- The current market price should be used in quantifying the identified cost and benefit cash flow impacts, not the historical price or measures such as willingness to pay and shadow prices.
- Opportunity costs and benefits should be identified and included in the financial evaluation where they can be quantified in current market prices. The opportunity cost reflects the value or price for using resources against their best alternative use, which may be above or below the actual costs being incurred.
- The financial evaluation is concerned with the timing of identified cash outflows and cash inflows, which will most likely differ from associated revenues and expenses. The financial evaluation requires the impacts to be estimated when the cash payments and cash receipts are likely to occur. Revenues and expenses are often recognised earlier for accounting purposes than when the cash impacts occur.

- All cost and benefit impacts to government should be included in the financial evaluation. An option may have cash flow implications for public authorities other than the lead agency which should be incorporated into the financial evaluation. For example, the construction of a new hospital by the Department for Health and Ageing may also result in additional costs for the provision of new roads and pedestrian walkways which will be incurred by DPTI. It may be useful to show these cash flow impacts separately by agency in the analysis as part of determining the final outcome.

The estimated cash flow impacts should reflect the ‘most likely’ outcomes. In deciding upon the most likely outcomes, consideration of conservative and optimistic estimates should also be made, given that the determination of the most likely outcomes will most likely involve a degree of uncertainty. In cases of questionable reliability, ranges of possible outcomes should be detailed between the upper and lower potential outcomes before deciding upon the most likely outcome.

3.3.1 — identify, quantify and estimate the timing of cash outflows (costs) and inflows (benefits)

The types of costs (cash outflows) that **should** be considered in assessing an option under a financial evaluation are detailed in below in table 4.

Table 4: Types of costs (cash outflows) to be considered in a financial evaluation

Type	Description
Capital	The capital expenditure associated with an option both at the outset and, as a result of required additions and/or planned refurbishment throughout the evaluation period, should be included as cash outflows.
Operating	All ongoing operating costs associated with an option including labour, materials used, utilities, security, planned maintenance and overheads should be included as cash outflows. Note lifecycle costs of maintaining the asset over its useful life, although in reality often lumpy are typically calculated as a percentage of the replacement value of the asset and applied evenly across the evaluation period.
One-off (including redundancy payments)	All one-off costs associated with an option such as redundancy payments to employees or the costs of terminating existing service delivery contracts should be included as cash outflows.
Opportunity costs of resources used	In the event that assets currently not used under the ‘do nothing’ or current situation will form part of an option, the market value cost of those assets should be included as a cash outflow. For example, if land owned by the government will be utilised under an option, the market value of the land should be included as an acquisition cost. This reflects the opportunity cost to government in providing the land for use under the option rather than using the land for an alternative purpose or selling it.
Taxes and other government charges	Commonwealth and local government taxes and charges should, where applicable, be included in the cash flow analysis as cash outflows, like any other cost that the government may incur if proceeding with an option.

The types of costs (cash outflows) that **should not** be considered in assessing an option under a financial evaluation are detailed in below in table 5.

Table 5: Types of costs (cash outflows) to be excluded in a financial evaluation

Type	Description
Depreciation	The depreciation of an asset over its useful life is a non-cash (accounting) expense that should not be included as a cash outflow. The depreciation of the asset is reflected in the analysis by the projected residual value. Furthermore, depreciation may not directly reflect the opportunity cost of using the asset.
Financing	Financing costs (including government finance charges and interest charges) should not be included as a cash outflow as the investment decision is fundamentally different to the financing decision. Financing costs are indirectly reflected in the discount rate which is applied in calculating the NPV.
Sunk	In a financial evaluation, all costs must relate to future payments only. All past or 'sunk' costs should not be included as cash outflows as these have already been incurred. Therefore, they are not relevant in deciding to proceed with an option. For example, costs incurred in undertaking a feasibility study and/or preparing a business case, which will not be recouped if the proposal does not proceed, should not be included as a cash outflow.
State taxes or levies	State Government taxes or charges should only be included as cash outflows if there is likely to be a net impact from a whole of government perspective. In most cases, state government taxes or charges should be excluded from the analysis. It may be relevant to discuss in the business case the impact of tax payments to the government associated with a particular option. For example, in the event that there are two options with identical NPV outcomes, scope and benefits but different tax payments to state, Commonwealth and local government authorities, the option with the greater payments to the government would provide a better outcome to the state.

The types of benefits (cash inflows) that **should** be considered in assessing an option under a financial evaluation are detailed in below in table 6.

Table 6: Types of benefits (cash inflows) to be considered in a financial evaluation

Type	Description
Revenue	<p>Any income stream associated with the option (for example, current user charging and any other sale of products or services) should be included as a cash inflow.</p> <p>The potential to increase current user charges/selling prices should be considered, where applicable.</p> <p>The initial options analysis should have identified the potential for commercial funding opportunities, other than current user charging and asset disposals. Commercial funding opportunities are further discussed in appendix 3. It is important that an assessment of the beneficiaries of a proposal and their capacity to fund the cost of the proposal are discussed in the business case.</p> <p>Note in the case of a socioeconomic evaluation, consideration of both sides of a transaction is necessary. For example, revenue to government will often be offset by the cost to the community.</p>
Subsidies and grants	<p>Financial subsidies and grants from outside parties, for example contributions made by the Commonwealth Government in support of an option should be treated as a cash inflow as they are a 'benefit' to the state resulting from the proposal.</p>
Release of capital (surplus asset disposals)	<p>The implementation of an option may enable the sale or release of an asset currently being used by the government under the base case. The estimated value of the sale proceeds less selling costs of such an asset should be included as a cash inflow.</p> <p>In addition, the sale of any other surplus assets within the government that could offset the costs associated with the proposal should be included as a cash inflow where identified.</p> <p>Note DPC Circular 114 — Government Real Property Management provides incentives for agencies to comply with the requirement to identify surplus assets. Agencies should only hold property where it contributes directly to its existing core business. Otherwise, property may be held for commercial purposes where the financial performance meets or exceeds industry measures. Where property does not satisfy this criteria, it should be identified as surplus by the lead agency with the net sales proceeds included as a cash inflow in the financial evaluation.</p>
Residual asset values	<p>The residual asset values (for assets acquired as part of an option) need to be estimated whenever the evaluation period is shorter than the asset's useful life.</p> <p>There are several approaches used in practice for the calculation of residual value. The residual value can be calculated as the proportion of written down value/replacement cost of the asset based on the remaining asset life at the end of the evaluation period. Under this approach, assets acquired under an option should be depreciated with reference to their useful life. The residual value is typically the written down value of the asset remaining at the expiry of the evaluation period. Alternatively, the residual value may be based on an observed market price (for similar assets traded in an active second hand market) or be based on a professional appraisal. Any asset residual value should be included as a benefit (cash inflow) in the final year of the evaluation period.</p> <p>Note the calculation of the residual value should be compatible with the likely future use of the asset. For example, if the asset is to continue in its present use, the residual value may be the written down value reflecting its remaining economic life as stated above. If the asset is to be disposed, the residual value would be the estimated sale proceeds less any associated selling costs.</p> <p>An alternative approach known as the Terminal Value is to calculate the present value of all remaining cost and benefit cash flows, and any single year reinvestment costs (where a shorter life second or third asset is involved) beyond the evaluation period. Normally this covers the period beyond the evaluation period up to the end of the longest asset life. There are different methods for calculating the Terminal Value which are not covered in these Guidelines. DTF assistance may be required.</p>

The types of benefits (cash inflows) that **should not** be considered in assessing an option under a financial evaluation are detailed in below in table 7.

Table 7: Types of benefits (cash inflows) to be excluded in a financial evaluation

Type	Description
State taxes or levies	<p>Additional tax or levy contributions associated with an option should only be considered as a cash inflow if they represent a new source of revenue to the government. In most cases, they should not be included as a cash inflow as it is difficult to assess whether total taxation or revenue inflows to the government will be adjusted as a result of a particular proposal.</p> <p>In the case of a socioeconomic evaluation, both a cost and benefit may be realised, nullifying the impact.</p>

3.3.2 — undertake discounted cash flow analysis and calculate relevant financial measures

Following the estimation of cash flows across the evaluation period and with reference to the selected discount rate(s), the next task is to undertake discounted cash flow analysis in order to calculate the NPV and other relevant financial measures (or decision rules) for use in comparing and ranking alternative options.

It is recommended to value the identified costs and benefits in real terms and discounted by a real discount rate to calculate present values. Any real changes in values can be clearly reflected in the analysis.

An example of a discounted cash flow analysis is provided in appendix 8.

There are a number of financial measures that can be used to assess, compare and rank the options based on discounted cash flow estimates in a financial evaluation as detailed on the following page in table 8.

Table 8: Types of financial evaluation measures

Measure	Description
Net Present Value (NPV)	<p>The NPV calculation allows the cash flows over the evaluation period to be converted to a single figure. This enables the comparison of alternative options where costs and benefits may differ in terms of values, size and timing.</p> <p>The NPV is the sum of the discounted present values of the costs (cash outflows) and benefits (cash inflows).</p> <p>A NPV greater than zero implies a return greater than the required rate of return (discount rate) which, considered alone in a commercial context, would indicate that a particular option is worthwhile.</p> <p>A negative NPV, that is a NPV less than zero, is referred to as a Net Present Cost (NPC). Often public sector non-revenue generating proposals have costs in excess of quantified benefits.</p> <p>Options, including the base case, should be ranked according to the highest NPV outcomes or lowest NPC outcomes.</p>
Benefit Cost Ratio (BCR)	<p>The BCR is the ratio of the present value of benefits (cash inflows) to the present value of costs (cash outflows).</p> <p>A project with a BCR greater than one indicates that the value of benefits exceeds those of costs over the evaluation period which, considered alone, would indicate that a particular option is worthwhile.</p> <p>The BCR is only applicable where there are identified and quantified benefits. In many public sector non-revenue generating proposals, where the costs are significantly greater than the benefits, the BCR may not be a useful measure.</p> <p>The BCR can also be used to assist in the ranking of competing options.</p>
Net Present Value per Unit of Capital Invested (NPVI)	<p>The NPVI measures the net present value of an investment per dollar of capital invested.</p> <p>The NPVI emphasises the return per dollar of capital invested and assesses large and small proposals on comparable terms. It can be used to determine which option maximises the total NPV obtained from a limited capital works budget.</p> <p>The NPVI is useful for the ranking of competing options in the context of a limited capital works budget. Generally, the NPV and BCR are better measures for the ranking options.</p>
Internal Rate of Return (IRR)	<p>The IRR is the discount rate at which the NPV is equal to zero, that is, discounted benefits equal discounted costs. It represents the rate of return on the investment over the evaluation period.</p> <p>A project is potentially worthwhile if the IRR is greater than the benchmark discount rate. If projects are mutually exclusive, this rule would suggest that the project with the highest IRR should be chosen.</p> <p>The IRR generally is more suited to commercial revenue generating proposals where a financial return is sought from the investment relative to alternative commercial proposals.</p> <p>Care should be taken in the use of the IRR. For example, in cases of non-conventional cost and benefit cash flows where a proposal incurs net costs initially, followed by net benefits over a number of years and then net costs again, more than one IRR may be calculated.</p>
Payback Period	<p>The payback period measures the period of time required for the cash flows from an investment to repay the original capital outlay.</p> <p>Payback period is not applicable for non-asset proposals which do not involve any initial capital outlay. Nor is this measure applicable where there are minimal (if any) quantified benefits associated with the proposal. For most public sector non-revenue generating proposals, the payback period measure is not useful for ranking competing options.</p>

3.3.3 — *conduct sensitivity/switching and scenario analysis to confirm most likely cost and benefit cash flow estimates*

The expected cash flow impacts included in the financial (and socioeconomic) evaluation should be the 'most likely' estimates. Implicit in the determination of these estimates are assumptions regarding risks and uncertainties. Caution should be exercised to ensure that they are not conservative, pessimistic or optimistic estimates.

Sensitivity and scenario analysis are procedures for identifying the effect of risks and uncertainties associated with these estimated impacts. They provide information about how changes in different variable(s) and assumption(s) will affect the overall financial outcome of the particular option, relative to other options. They also test whether the uncertainty over the value of particular variables and assumptions is important, which may provide guidance as whether further analysis is required before finalising the cash flow estimates.

Sensitivity and scenario analysis addresses the following two questions.

1. Is progressing with the particular public sector initiative option still viable if one or more of the key assumptions proves incorrect?
2. Are there actions that can be taken to reduce the risks associated with a particular option given the significance of a key variable/assumption and would these actions change the cash flow estimates?

Sensitivity analysis involves changing one key variable or assumption at a time and observing the resulting effect (for example, movement in NPV) for a particular option relative to other alternative options within both the financial and socioeconomic evaluations. This should be undertaken for all key variables and assumptions. Key variables are likely to be those that involve the greatest uncertainty and the greatest effect on the ranking of alternative options.

A project would be deemed sensitive to a particular assumption if, for example, the NPV moves from positive to negative when applying a worse case assumption, or if it drops by at least 50 per cent when changing one key assumption.

By changing one key assumption at a time, project specific risks may be identified with reference to the sensitivity of an option's outcome to a particular variable and/or assumption. In this way, sensitivity analysis may assist in the development of a risk management plan for the preferred solution as required later in the investment evaluation process (step 3.6).

Sensitivity analysis may also necessitate the changing of a particular option's cost and benefit estimates in order to reduce the risks involved. For an option that is shown to be sensitive to an applied assumption, it is important that the assumption is re-assessed to see whether changes to the design and scope of the option are warranted. A change to the design or scope of the option may have cost and benefit implications, requiring the re-working of the cash flow impacts.

Scenario analysis is a form of sensitivity analysis that considers the consequences of changing multiple key assumptions and variables at the same time. This allows for any interdependencies and influences that may exist between factors impacting on key variables.

Typically, this involves undertaking a 'best case' and 'worst case' scenario whereby all key assumptions (and variables) are changed accordingly.

Where the ranking of options under the financial evaluation change when applying the 'best case' or 'worst case' scenario from the 'most likely' scenario, further re-assessment of the assumptions made underlying the 'most likely' outcomes may be required.

A final sensitivity test concerns market risks and the discount rate(s) applied. By varying the selected discount rate by +/- 2 per cent, the sensitivity of financial measure outcomes for a

particular option to market risks can be assessed.

A project would be deemed sensitive to market risk if the NPV moves from positive to negative when increasing the discount rate, or if it drops by at least 50 per cent when increasing the discount rate.

For an option that is shown to be sensitive to a change in the discount rate, it is important that the risk category applied in determining the discount rate be re-assessed to see whether a change is required.

Ideally changes in key assumptions and discount rates will give similar results regarding the ranking of options in the financial evaluation. Where this is not the case, more explanation justifying the credibility of the selected 'most likely' impact estimates may be required.

Demonstrating within the business case documentation in an appendix the occurrence and outcomes of sensitivity and scenario analysis may provide confidence to users of the business case in the findings of the financial evaluation.

3.3.4 — rank the options (including the base case) in order of preference according to the calculated financial measures

A rationale should be developed for determining an overall ranking of the options based on the outcomes of the financial evaluation.

This rationale, which may involve judgement concerning the relative importance of different financial measures, should be explained in the business case.

The NPV and BCR are generally considered the most appropriate measures for ranking competing options.

Other considerations including productivity improvements and avoided costs may also be relevant to decision makers in comparing alternatives under a financial evaluation.

Where incremental differences between an option and the base case is being presented in the business case, any cost savings arising from productivity improvements and avoided costs may be presented as "benefits" and described as "productivity improvements" and "avoided costs".

Where an option is presented as a discrete project in the business case as previously suggested, productivity improvements and avoided costs will simply be included within the cash flow cost estimates of that option, which can then be separately compared to the base case and other options. In this case, the business case should include discussion on these items as they may be relevant to decision makers in comparing the relative merits of the option to alternatives.

The following points regarding productivity improvements and avoided costs should be noted. .

- Productivity improvements — an option may have lower operating costs or produce greater service delivery outcomes and outputs than the base case because of production efficiencies. For example, less labour is required to deliver the same or more service outcomes..

Note any additional costs associated with achieving productivity improvements should be discussed and included as cash outflows of the particular option. For example, achieving labour productivity savings may result in additional once-off redundancy payments.

Care should be taken to avoid the double counting of any productivity or efficiency gains. For example, a productivity benefit should not be included as benefit where it is also included in the cash flow cost estimates of an option.

- Avoided costs — for example, the base case may include an asset replacement cost within the evaluation period which is not required under an alternative option..

The investment proposal and business case should state the preferred option according to the outcomes of the financial evaluation.

3.3.5 — *document assumptions applied, basis of calculations and sources of information*

The assumptions, sources of information and the basis of calculations underlying all aspects of the financial evaluation should be documented for inclusion in an appendix of the business case.

This should include the outcomes and contributions made by stakeholders.

The inclusion and clear presentation of this information is an important way of demonstrating the credibility and rigour applied in undertaking the financial evaluation.

An example of a financial evaluation is provided in appendix 8.

Instructions regarding the presentation of financial model(s) used in a financial evaluation are provided in appendix 9.

Step 3.4 *The socioeconomic evaluation*

The socioeconomic evaluation requires an assessment of the broader costs and benefits impacting upon the state economy and community over the evaluation period for each option. This will include impacts that can and cannot be quantified in monetary terms and both direct and indirect impacts to the government, non-government organisations and individuals.

A socioeconomic evaluation is most useful in evaluating non-revenue investment proposals, for example, proposals concerning road infrastructure, health and educational facilities. The main reason for undertaking a socioeconomic evaluation is to answer the question — “is it a good investment for the state economy or for society?”

A socioeconomic evaluation is required where a proposal results in significant costs and benefits to the state economy and broader community.

Many proposals forwarded by public authorities are non-revenue generating and will often result in negative NPV or NPC outcomes on the basis of their cash flows alone. Such proposals are undertaken to bring significant other benefits to the state community. These other benefits are often significant but not able to be assigned a monetary value. A socioeconomic evaluation enables these other benefits to be considered in the evaluation of options (including the base case) and selection of the preferred solution (refer step 3.5).

A socioeconomic evaluation may include assessing identified impacts to the state community that are:

- measurable in monetary terms
- measurable in non-monetary terms
- non-measurable.

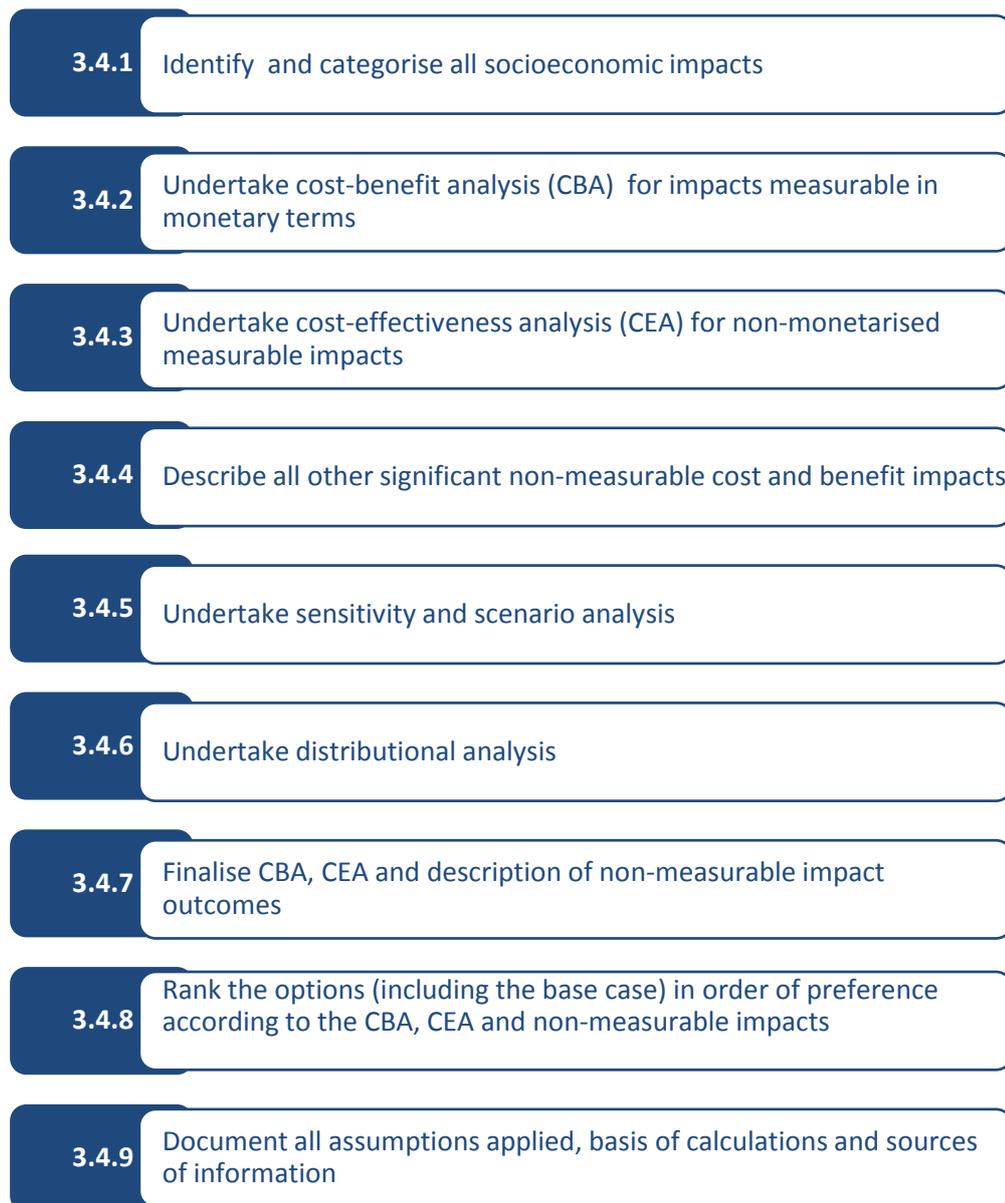
A socioeconomic evaluation employs different analysis techniques depending on type of impact. These analysis techniques are detailed below in table 9.

Table 9: Socioeconomic evaluation techniques

Technique	Description
Cost benefit analysis (CBA)	<p>The CBA is commonly used where the major costs and benefits impacting on the broader community can be valued (monetised) for each option over the evaluation period.</p> <p>CBA is not limited to the direct financial impacts (like a financial evaluation) but also includes other socioeconomic factors that can be measured in monetary terms even where no market price exists. A CBA seeks to include all the cost and benefits associated with an option that impact on the community.</p> <p>From this assessment, discounted cash flow analysis can be undertaken in order to determine financial measures such as the NPV as a basis for comparing and ranking options.</p> <p>A CBA assesses whether the economic, social and environmental benefits of a proposal to the community outweigh the costs imposed on the community. It seeks to assess if there is an aggregate 'net benefit'.</p>
Cost effectiveness analysis (CEA)	<p>The CEA is used where the major benefits are not measurable in monetary terms but in physical units, while the costs are still expressed in monetary units. It is a technique for comparing the monetary costs of different options which achieve the same or similar physical outputs.</p> <p>CEA often best suits most non-revenue generating proposals in areas such as health and education, where it is often easier to quantify the benefits in physical terms (for example, number of patients or students) than it is to value them.</p> <p>Where alternative options generate differing quantities of outputs of the same or similar quality, CEA can be used to measure the differential cost per unit of output between the options. The preferable option will be that which delivers the required outputs at the lowest cost per unit.</p> <p>Alternatively, a cost effectiveness ratio (CER) can be calculated for each option as follows: $CER = C/E$ where C is the cost (measured in dollars) and E is the effectiveness or benefit (measured in physical units).</p> <p>The option with the lowest cost effectiveness ratio would be preferred, representing the least costly way of achieving the same or similar outcome.</p> <p>CEA is limited in that it cannot, on its own, determine whether a particular option delivers an aggregate net benefit to the community like an NPV calculation, because the costs and benefits are not measured comparably.</p> <p>Where benefits can be measured in monetary terms, a CBA is preferred to a CEA.</p>

A CBA should be undertaken where the costs and benefits can be measured in monetary terms. A CEA should be undertaken where the benefit impacts can only be measured in physical terms. Other non-measurable cost and benefit impacts should also be discussed and incorporated within the socioeconomic evaluation, as these may be significant in deciding whether an option is worthwhile.

The tasks involved in undertaking a socioeconomic evaluation is detailed below in figure 9.

Figure 9: Socioeconomic evaluation tasks

The following general principles should be applied when conducting the socioeconomic evaluation.

- All significant cost and benefit impacts on the state economy and broader community should be identified and included in a socioeconomic evaluation, regardless of how difficult they may be to measure.
- The scope of the socioeconomic evaluation will depend upon the nature of the public sector initiative, the likely impact and the level of expenditure involved. The extent of analysis should be greater for proposals involving significant expenditure or with significant economic and/or social impacts.
- Each option, including the base case, should be considered as a discrete project.
- A socioeconomic evaluation attempts to identify and quantify costs and benefit impacts that are not necessarily measurable by market prices. In many cases it will not be sensible or practical to assign monetary values to such impacts.

- Only genuine cost and benefit impacts to the state economy and community should be considered in the socioeconomic evaluation. Genuine socioeconomic impacts are those that are a direct result of investing in a particular option.
- Opportunity costs and benefits should be identified and included in the socioeconomic evaluation. Where there is no observable market price or the resources are not freely traded, then alternative measures may need to be applied, for example, shadow prices (a price which replaces the observed market price).
- The distributional impacts throughout the state economy and broader community should be considered in the socioeconomic evaluation.
- As with a financial evaluation, depreciation, financing costs, sunk costs, state taxes or levies and subsidies and grants should not be included in the socioeconomic evaluation.
- The socioeconomic evaluation is concerned with the timing of identified impacts.

The estimated impacts should reflect the 'most likely' outcomes. In deciding upon the most likely outcomes, consideration of conservative and optimistic estimates should also be made, given that the determination of the most likely outcomes will most likely involve a degree of uncertainty. In cases of questionable reliability, ranges of possible outcomes should be detailed between the upper and lower potential outcomes before deciding upon the most likely outcome.

3.4.1 — identify and categorise all socioeconomic impacts

It is important that all likely significant socioeconomic impacts are identified including those which cannot be valued or quantified. This is often a complex and demanding task, which should involve consultation with key stakeholders. The lead agency may require the use of an external consultant for this purpose.

The groups within the community and other categories that **should** be considered in assessing the likely socioeconomic impacts are detailed below in table 10.

Table 10: Range of socioeconomic impacts

Group	Description
Households	<p>Will the option impact on household incomes, costs, asset values, travel times, recreational opportunities and public amenities etc.?</p> <p>For example, the construction of a new road may increase the market value of properties located near the road, which can be identified as a monetary benefit.</p> <p>Note any potential financial costs to the government for compensation to households adversely affected by the proposal should be included in the financial evaluation.</p>
Business/Industry	<p>Will the option impact on existing revenues, costs and profits of private businesses and/or industries?</p> <p>Will the option enable business operational efficiencies and/or opportunities for the development of export income and/or for the transfer of new skills or technology?</p> <p>Note any potential financial costs to the government for compensation to businesses adversely affected by the proposal should be included in the financial evaluation.</p>
Natural environment	<p>Are there environmental costs, benefits and risks associated with the investment proposal?</p> <p>Environmental impacts may include effects on air quality, flora and fauna, waterways and land quality as well as other issues such as traffic flows, waste/recycling, land use, ecotourism etc.</p>
Non-government organisations	<p>Will the option impact on non-government organisations that currently deliver services in the community?</p> <p>Such organisations include sporting clubs and special interest groups, who may be impacted upon in terms of demand for their services, costs of delivering services, effectiveness and the efficiency in meeting their objectives etc.</p>
Government	<p>The identified costs and benefits included in the financial evaluation should be considered for inclusion in the socioeconomic evaluation; however, some will be excluded. Any impact needs to be considered from both the government and community perspective.</p> <p>For example, a benefit to government from additional income from user charges or taxes associated with an option as shown in the financial evaluation would be offset in a socioeconomic evaluation by the additional cost to the state community. Cash inflows arising in a financial evaluation generally should not be included in the socioeconomic evaluation.</p> <p>Note the costs and benefits identified to be excluded from a financial evaluation should also be excluded from the socioeconomic evaluation.</p> <p>There may be other measurable or non-measurable impacts to the government arising from the increased use of an existing assets or infrastructure and/or indirect benefits to other government service delivery providers. For example, increased investment in roads may have a positive impact on health care costs.</p>

Group	Description
Opportunity Costs	<p>As with a financial evaluation, a socioeconomic evaluation should include opportunity costs. The following examples of the opportunity cost principle being applied in a CBA illustrate the need to consider alternative uses of resources.</p> <p>If under the base case, there is currently no market rent being paid for use of a government owned building, a market-based rental or lease cost should be determined and included as a cost (cash outflow) in the CBA. This opportunity cost reflects the cost of using this building (which could be sold or used by the government for something else) and ensures a more reliable comparison to an option which may include current market costs for suitable accommodation.</p> <p>If land owned by the government is available for sale under the base case but will be used under a particular option, the market value or potential net sales price of the land should be determined and included as a benefit (cash inflow) under the base case and an acquisition cost (cash outflow) under the particular option. This reflects that there is both an opportunity benefit and opportunity cost that should be recognised when comparing the alternative options.</p>
Externalities	<p>Externalities are the cost and benefits incurred by a third party external to the transaction. For example, the impact on property values of noise from a neighbouring airport and flight path.</p>
Key economic and social objectives	<p>The impact on key economic and social objectives such as health care, education outcomes, law and order etc.</p>

Care should be taken to avoid double counting. For example the construction of new road may increase adjacent land values as a result of reduced travelling time for users of the road. The increased value of the land merely reflects the market's capitalisation of this reduced travelling time. Identification of the reduced travelling time benefit and increased land values for householders would count the same benefit twice.

Only genuine cost and benefit impacts to the state economy and community should be considered in the socioeconomic evaluation. Genuine socioeconomic impacts are those that are a direct result of investing in a particular option. Examples of impacts that are generally **not included** in a socioeconomic evaluation are detailed in below in table 11.

Table 11: Range of non-genuine impacts generally excluded from a socioeconomic evaluation

Type	Discussion
Business/Industry	<p>For example, private sector business accommodation and retail sale gains associated with a public sector infrastructure proposal would only be included as a benefit if these proceeds originated from new interstate or overseas patrons visiting the state because of the infrastructure proposal. Additional business income following a public sector infrastructure proposal derived from other South Australian businesses or individuals would not be a net benefit to the State but rather represent the reallocation of existing resources.</p>
Economic - Employment and Income Impacts or multiplier effects	<p>A common issue is whether jobs supported or increased incomes within the state economy from an investment proposal actually represents additions to what would have occurred without the proposal.</p> <p>Often the investment proposal will attract labour and other resources away from alternative productive uses within the state economy with little or no gain to net employment and incomes. In other words, the jobs supported by the investment may simply represent a transfer from other parts of the state economy.</p> <p>Estimates of the gross impacts can be made by DTF if required; however, even where such modelling is used, which takes into account the displacement of other jobs in the state economy, employment impacts are not the appropriate measure of the economic welfare effects for use in a CBA. The key measure of economic benefit would be an increase in income or household consumption per capita.</p> <p>Furthermore, economic impacts should only be included in the CBA if they result from estimation techniques which take into account the opportunity costs of government spending.</p> <p>If this requires computable general equilibrium modelling, agencies should only undertake it if the project is large and the economic benefits are central to the decision making process. DTF should be consulted if this is the case.</p> <p>It is likely that inclusion of economic estimates will overstate the net benefits unless sophisticated modelling is undertaken. It is important not to exaggerate the benefits associated with an investment proposal.</p> <p>Although employment outcomes generally should not be included as benefits in the analysis, they are often important to the government in communicating the merits of a public sector initiative to the community. Appendix 6 outlines the protocols for considering the employment impacts, which may be relevant later in the investment evaluation process under communication strategy.</p>

As with a financial evaluation, depreciation, financing costs, sunk costs, state taxes or levies and subsidies and grants should not be included in the socioeconomic evaluation.

Having identified the socioeconomic impacts, the next task is to categorise them as either:

- measurable in monetary terms — impacts that can be readily identified and valued in monetary terms including non-traded items which can be measured in monetary terms
- measurable in non-monetary terms — impacts that can only be measured in physical units
- non-measurable — impacts that are significant and relevant in ranking options (including the base case).

3.4.2 — undertake cost-benefit analysis (CBA) for impacts measurable in monetary terms

Having identified the socioeconomic impacts that can be measured in monetary terms, the next task is to estimate the cash flow impacts across the evaluation period and undertake CBA (discounted cash flow analysis).

There is a considerable amount of literature available on determining the monetary value of socioeconomic impacts. However the measurement of these impacts, where possible, will still involve a significant degree of judgement.

The key valuation principles/techniques applicable in a CBA are detailed below in table 12.

Table 12: Valuation techniques applied in a cost-benefit analysis

Technique	Discussion
Opportunity Cost	The opportunity cost reflects the value or price for using resources against their best alternative use for the state community, which may be above or below the actual costs being incurred. Commonly, the current market price or cost of the resource will reflect the opportunity cost as with a financial evaluation.
Marginal Cost	<p>The marginal cost (based on a market price) should be used in valuing the opportunity cost to be applied. The marginal cost is the extent to which the cost varies as the output is adjusted by one unit.</p> <p>Note financial accounting systems often record the average cost. Care should be taken to ensure that there is no significant difference between the marginal and average cost if information is used from accounting systems in estimating cost impacts.</p>
Shadow Prices	Where it is considered that the current market price does not reflect the marginal or opportunity cost, shadow prices — a price replacing the current market price — may be used for quantifying the opportunity cost. Their calculation is problematic and they should be used with caution.
<p>Willingness to pay/forego</p> <p>Consumer Surplus and Producer Surplus</p>	<p>Monetary values often represent not cash transactions but people's preferences. Monetary values can be obtained from the outcomes of attitudinal surveys or questionnaires where, for example, consumers or producers are asked to indicate the cash value they would accept for a particular service or supply.</p> <p>Consumer Surplus refers to the possibility that a consumer may be willing to pay more for a service than the market price due to the investment in a particular option. In other words, the investment provides additional value to the consumer than reflected in the market price. If identified, this should be included as a benefit in the analysis.</p> <p>Producer surplus refers to the possibility that a supplier may be willing to accept less than the market price for their product due to the investment in a particular option. If identified, this should be included as a benefit in the analysis.</p> <p>Common examples of measures used to assign proxy monetary values to impacts include:</p> <ul style="list-style-type: none"> – the value of travel time measured in terms of people's salaries (i.e. productivity) – the value of reduced road accidents and fatalities – the value of national parks based on the price people are prepared to pay to visit them – property value movements – property price value differences between houses near a major road network and those closer to the road network – costs associated with remedial actions (e.g., the value assigned for the impact of additional noise based on the cost of double glazing the affected houses) <p>Such techniques are appropriate for quantifying consumer and producer surplus benefits, in which case monetary values do not represent actual market transactions but dollar valuations attached to perceived value.</p>

Reference should be made to existing research and other related business cases to ensure techniques applied in valuing socioeconomic impacts are supported by empirical evidence and a high degree of consensus from within their sector.

The lead agency may require external assistance in quantifying cost and benefit impacts where no direct market price is observable. The basis of such calculations should be clearly explained and detailed in an appendix of the business case.

As with the financial evaluation, the quantification and timing of an impact will most likely involve a degree of uncertainty. The estimated cash flows should be the 'most likely' estimates. In deciding upon the most likely estimates, consideration of conservative and optimistic estimates should be made.

Following the estimation of cash flows across the evaluation period for socioeconomic impacts measured in monetary terms, the next task is to undertake discounted cash flow analysis in order to calculate the NPV and any other relevant financial measure as with the financial evaluation (refer step 3.3.2).

3.4.3 — undertake cost-effectiveness analysis (CEA) for non-monetised measurable impacts

Having identified the socioeconomic impacts that cannot be measured in monetary terms, the next task is to undertake CEA.

For some identified impacts, only the costs can be measured reliably in monetary terms. The benefits cannot be measured in monetary terms because of the absence of market prices and/or disagreement on the rate of valuation. Where possible, the benefits in these cases should be measured in terms of physical units, for example, number of clients serviced.

The physical measure chosen should be the most appropriate for the particular characteristics of the impact in question. Such measures should be established or accepted, that is, supported by empirical evidence and/or applied consistently within the sector.

In accordance with the CEA, where alternative options generate similar quantities and qualities of outputs, the main basis for comparing and ranking competing options will be the cost per unit of output. The preferable option will be that which delivers the required outputs at the lowest cost per unit.

Where alternative options generate differing quantities of outputs of the same or similar quality, the main basis for comparing and ranking the competing options will be the cost effectiveness ratio (refer table 9).

Where competing options generate outputs that are not comparable, for example, there are quality and quantity variations, a rationale should be developed in order to rank the options. Such a rationale will require subjective judgement as to the relative merit of the outputs, which should be clearly explained within the business case.

3.4.4 — describe all other significant non-measurable cost and benefit impacts

Having identified the socioeconomic impacts that cannot be measured, the next task is to describe them.

The significant non-measurable socioeconomic impacts should be described in as much detail as necessary to adequately inform users of the business case of their merit for decision making purposes.

When considering costs and benefits which either cannot be valued or cannot be quantified, there can be a tendency to concentrate on the benefits and ignore the costs. Costs which cannot be valued may be just as important as benefits which cannot be valued, and should be accorded equal treatment.

3.4.5 — undertake sensitivity and scenario analysis

Having undertaken CBA, CEA and described the significant non-measurable socioeconomic impacts, the next task is to undertake sensitivity and scenario analysis as with the financial evaluation (refer to step 3.3.3).

The purpose of the sensitivity and scenario analysis is to confirm that the ‘most likely’ impact estimates have been applied before the ranking of options. This analysis is applicable with respect to both the cash flows estimates used in the CBA and physical unit estimates used in the CEA.

Demonstrating within the business case in an appendix the occurrence and outcomes of sensitivity and scenario analysis may provide confidence to users of the business case in the findings of the socioeconomic evaluation.

3.4.6 — undertake distributional analysis

The costs and benefit impacts of an option may affect groups in the community differently. It is important to assess the distributional or equity impacts across the community before finalising the ‘most likely’ impact estimates in a socioeconomic evaluation for the following reasons:

- the distribution of impacts may be as important as the aggregate net benefit for making judgements regarding the ranking of options
- there may be major conflicts of interest in the communities involved
- some options may be aimed specifically at assisting one or more targeted groups. Information regarding distributional impacts will be necessary to confirm their effectiveness.

Undertaking the distributional impacts assessment involves the following tasks.

1. Identify the distributional impacts associated with the cost and benefits of each option.

If the information is available, an analysis of the distributional impacts will identify the potential winners and losers and the scale of their gains and losses. A decision needs to be made regarding whether the distributional impacts are important and need addressing.

In most cases, distributional impacts should be reflected in the socioeconomic analysis. For example, where the impacts can be monetised, they should be included in the CBA. Note that where distributional impacts have been identified within the CBA, it is vital that any transfers between community parties are netted out. In other words, if one group in the community benefit at the expense of another community group, there is no net cost or benefit to the community overall.

2. Identify measures to address any adverse distributional impacts within the design and scope of a particular option.

Where distributional impacts are considered important, consideration of measures to address these issues within the design and scope of an option should be undertaken. This may require adjusting the estimated cost and benefits impacts within the CBA, CEA and amending the description of non-measurable impacts for a particular option within the socioeconomic evaluation.

3. Detail how distributional impacts will be managed should a particular option proceed.

Where distributional impacts exist that cannot be addressed within the design and scope of an option, consideration should be given in the business case to how they will be managed should a particular option proceed. This may be an important component of a communication strategy for the preferred solution (refer to step 3.9 in the investment evaluation process).

4. Finalising the 'most likely' cost and benefit impact estimates for each option following the assessment of distributional impacts and updating the CBA and CEA outcomes within the socioeconomic analysis.

3.4.7 — finalise the CBA, CEA and description of non-measurable impact outcomes

Having undertaken sensitivity and scenario analysis and distributional analysis, the next task is to finalise the CBA, CEA and description of significant non-measurable socioeconomic impacts based on the confirmed 'most likely' estimates.

3.4.8 — rank the options (including the base case) in order of preference according to the CBA, CEA and non-measurable impacts

A rationale should be developed for determining an overall ranking of the options based on all the identified socioeconomic impacts, that is, the outcomes of the CBA, CEA and assessment of non-measurable impacts.

This rationale will involve judgement concerning the relative importance of the category of impacts which should be explained in the business case.

For commercial or revenue generating proposals, the monetary items, and subsequently the NPV outcomes, will generally be seen as more important than the non-measurable identified benefits and weighted accordingly. For other non-revenue generating proposals concerning social infrastructure, the non-monetary impacts may be regarded as more important and weighted accordingly. For example, the cost effectiveness ratio may be regarded as more important in ranking such options than the NPV outcomes in a non-revenue generating proposal.

The information should be presented in such a way that enables users of the business case to determine the preferred solution based on their own judgement of the relative importance of the socioeconomic impacts or categories of impacts.

A multi-criteria analysis is one approach for selecting a preferred solution and communicating the basis for such a decision in a transparent manner. It is particularly useful where both financial and non-financial information is being assessed as part of the decision making process. Further details of a multi-criteria approach are provided in appendix 7.

The investment proposal and business case should state the preferred option according to the outcomes of the socioeconomic evaluation.

3.4.9 — document assumptions applied, basis of calculations and sources of information

The assumptions, sources of information and the basis of calculations underlying all aspects of the socioeconomic evaluation should be documented for inclusion in an appendix of the business case. This should include the outcomes and contributions made by stakeholders.

The inclusion and clear presentation of this information is an important way of demonstrating the credibility and rigour applied in undertaking the socioeconomic evaluation. Instructions regarding the presentation of financial model(s) used in a socioeconomic evaluation are provided in appendix 9.

Step 3.5 ***Selection of the preferred solution***

The process for selecting the overall preferred solution is similar to that discussed in step 3.4.8 with respect to ranking the options within a socioeconomic evaluation.

The selection of the preferred solution involves the integration of the outcomes of the financial and socioeconomic evaluations.

The rationale for selecting the preferred solution should be explained in the business case, demonstrating that the decision incorporated the outcomes of the financial and socioeconomic evaluations and was free from bias and any other influence.

The relative importance or weightings assigned to the financial and socioeconomic impacts should be based on the solution specification for addressing the problem.

For public authorities delivering community services such as health and education that do not have a focus on revenue generation, the socioeconomic impacts may be more important than the financial impacts. Alternatively, public authorities delivering services that do have a focus on revenue generation may consider the financial impacts as more important. Commercial proposals should only be selected where the financial impacts are favourable to the government.

The risks inherent in the assumptions applied within the financial and socioeconomic evaluations may also be relevant in selecting the preferred solution.

The rationale should be presented in a way that enables users of the business case to determine the preferred solution based on their own judgement should they differ with respect to the relative importance of the financial and socioeconomic impacts from those presented in the business case.

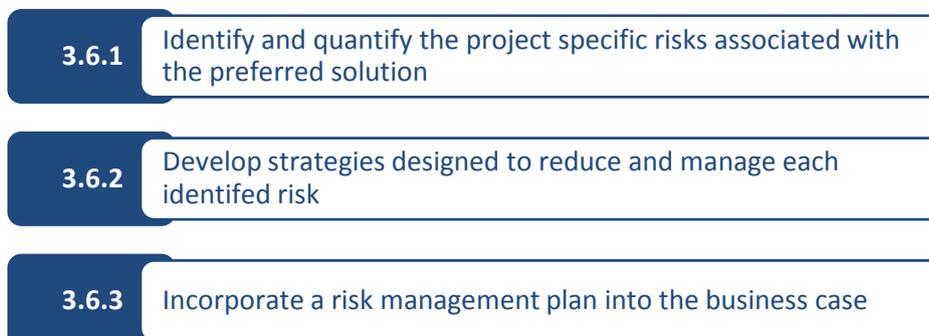
A multi-criteria analysis is one approach for selecting a preferred solution and communicating, in a transparent manner, the basis for such a decision. It is particularly useful where both financial and non-financial information is being assessed as part of the decision making process. Details of a multi-criteria approach are provided in appendix 7.

Step 3.6 ***The risk management plan***

The purpose of the risk management plan is to provide assurance to decision makers that the preferred solution can be implemented within the cost and time estimates and deliver the benefits as stated.

The tasks involved in developing a risk management plan are detailed in figure 10.

Figure 10: Risk management plan process



Each investment proposal will involve some element of risk and uncertainty. Market risk has already been considered in the discount rate applied and sensitivity analysis; the focus here is on project specific risks.

In part, project specific risks should have been considered as part of the sensitivity and scenario analysis conducted as part of the financial and socioeconomic evaluations (refer steps 3.3.3 and 3.4.5).

The level of detail included in this plan will depend upon the size of the proposal and the degree of associated risk.

3.6.1 — identify and quantify project specific risks associated with the preferred solution

A project risk is an event for which the probability of occurrence and corresponding financial/budget impact can be reasonably estimated.

The key project specific risks that should at a minimum be considered are detailed below in table 13.

Table 13: Project specific risks

Type	Discussion
Planning risks	The risk that critical issues have been overlooked and costs, benefits and projected outcomes are overstated or understated. Examples include the risk that projected outcomes will not adequately address the service need problem, and the risk that technological changes will make the proposed mode of service delivery out-dated early in the life cycle of the proposal.
Technical specification risks	The risk that individual characteristics of the project do not meet the solution specification.
Completion risks	The risk that design, construction and completion issues including supply side constraints, site availability, contamination and remediation issues, and industrial action will delay or even prevent the project from being implemented.
Demand risks	The risk that the forecasted service need demand projections are inaccurate.
Implementation risks	The risk that the preferred solution will not deliver the targeted outcomes and outputs as projected.
Management risks	The risk that the lead agency will fail to deliver on the expected outcomes of the preferred solution due to lack of expertise, resources and/or other factors.
Operations risks	The risk that implementation of the preferred solution will not occur as planned due to issues such as the inability to source labour and materials as required and interruptions to operations as a result of failure of equipment.
Cost overrun risks	The risk that during design and construction, the actual project cost will exceed the estimated costs.
Environmental risks	The risk that adverse impacts on the natural environment will be identified that extend the project time with potential consequence and delays in implementation and the provision of services, resulting in additional costs and loss of user support and, subsequently, demand for services.
Private sector risks	Where a proposal involves participation by the private sector, major risks include the ability of the private entity to obtain finance and provide the other expected outcomes regarding implementation, management and operations.

For each risk, the probability of the risk occurring and its potential cost impacts should be assessed and quantified. Note the project budget (step 4 in the investment evaluation process) requires the determination of a monetary amount to be held as a contingency to cover the potential costs incurred should an identified risk eventuate.

Determining risk estimates is best based on a combination of professional judgement and previous project data where available. A number of different risk estimate techniques are well documented ranging from simple scenario analysis to Monte Carlo simulation technique. The extent to which risk analysis is undertaken and the potential contingency amounts required depend on the complexity of the proposed solution. Generally:

- for most routine public sector projects such as school buildings and simple road developments, reference can be made to corporate history and the contingency amount for project risks would typically be between 5-10 per cent of the total project budget estimates
- for more complex or larger projects that are not regularly undertaken by agencies, expert advice may be required for assessing the project risks which would typically be between 15-20 per cent of the total project budget estimates
- for other one-off and high risk projects, the project risks may be greater than 20 per cent of the total project budget estimates.

Agencies should ensure that they do not over-identify and over-estimate the risks associated with delivering the preferred solution. An informed and experienced view should be taken of the construction and design industry's capability and expertise in delivering such projects and advice within the time and cost estimates should be sought accordingly.

Consideration of which party, that is, the investor (government), client (lead agency) or supplier, is best able to manage the risk may also be required for developing strategies designed to reduce and manage each risk and determining the potential budget impacts should the identified risk eventuate.

3.6.2 — develop strategies designed to reduce and manage each identified risk

In most cases, risks and uncertainties are not able to be removed but are able to be managed. The second task involves identifying strategies designed to reduce and manage each identified risk both during implementation and post-implementation.

Where a proposal involves a sharing of risk between the government and the private sector, the plan should identify how this risk will most likely be allocated and comment upon how the sharing arrangements will be managed.

3.6.3 — incorporate a risk management plan into the business case

All risks identified with the preferred solution and the means by which the lead agency plans to manage them should be outlined in a risk management plan within the business case, proportionate to the size of the proposal.

Step 3.7 *The implementation management plan*

The purpose of the implementation management plan is to provide assurance to decision makers that the preferred solution can be implemented as planned as well as informing decision makers of the critical phases of implementation.

For most proposals, it is appropriate to assume a traditional procurement whereby the government will both finance and fund the implementation of the preferred solution in determining the implementation management plan. For more complex proposals that may be procured through other innovative approaches such as public private partnerships (PPP), a procurement options analysis may be required.

It is important to note that the investment and procurement decisions are separate. The focus of the investment evaluation process detailed in these guidelines and the business case supports the investment decision. The investment decision is required before a decision on the procurement method can be approved.

Nonetheless, for more complex and significant infrastructure proposals where alternative delivery models may offer advantages over traditional government procurement, a procurement options analysis may be undertaken as part of the investment evaluation process. Initially, a preliminary procurement options analysis may be carried out during the options analysis where applicable (refer step 2.3.2). A more detailed procurement options analysis regarding the preferred solution should be detailed in the implementation management plan if applicable.

The lead agencies should refer to volume 1 of the *Infrastructure Australia National PPP Guidelines* when conducting a procurement options analysis. These guidelines explain how to consider a suitable procurement method for a public infrastructure project where project characteristics indicate that PPP delivery should be considered. These guidelines provide a framework to assess the viability of PPP delivery against other procurement methods. Further details concerning a procurement options analysis are provided in appendix 4. DTF should be consulted where a procurement options analysis is required.

In developing an implementation management plan, consideration should be given to the time required in obtaining any approvals that may be required in implementing the proposal. For example, approvals may be required under legislative requirements including the *Development Act 1993*, the *Occupational Health, Safety & Welfare Act 1986*, the *Environmental Protection Act 1993*, the *Public Health Act 2011*, the *Disability Discrimination Act 1992* and the *Heritage Act 1993*.

In accordance with the government's Industry Participation Policy, local business participation should be considered as part of the implementation management plan. The Office of the Industry Advocate may be of assistance.

As stated in Part A, section 6.2, the IPRC may undertake a deliverability assessment with reference to the implementation management plan, outcomes of past post-implementation review reports and the risk management plan. An indicate deliverability assessment template that may be used for this purpose is provided in appendix 2.

The implementation management plan as included in the business case should:

- provide details of the identified procurement method for implementing the preferred solution
- provide details of the stages associated with implementation of the preferred solution and the order in which they will proceed
- detail the preliminary target dates for completion of each stage and final delivery of the preferred solution

- details the skills/resources and services required for implementation and how they will be obtained
- identify the key officers responsible for managing the implementation of the preferred solution and their past experience in managing like projects
- detail a monitoring plan to be used to assess implementation performance, based on critical factors like design and/or construction milestones, expenditure and cash flow variations etc.

Step 3.8 The post-implementation review plan

The purpose of the post-implementation review plan is to provide the basis for the post-implementation review to be undertaken following implementation of the preferred solution, which aims to identify:

- whether the stated benefits of the preferred solution and requirements as detailed in the solution specification have been realised
- whether the preferred solution was delivered as planned, for a cost that represents 'value for money' and that provided for the sound management of risks
- whether lessons can be learned from the actual implementation that can be applied in future investment evaluation processes for new proposals.

In most cases the lead agency would be responsible for undertaking a post-implementation review.

As discussed in Part A, section 6.2, the IPRC may request from the lead agency a post-implementation review report for use in assessing future proposals.

It is recommended that the lead agency conduct a post-implementation review of major public sector initiatives on at least two occasions.

1. Upon becoming operative, focussing on the implementation, financial and functional targets as stated in the business case and/or agreed upon during the approval stages.
2. At an agreed later date, possibly one or two years later, focussing on the solution specifications in addressing the problem.

A post-implementation review plan should clearly identify how the outputs and outcomes of the proposal will be assessed against the solution specification.

A formal post-implementation review process may encourage parties proposing a public sector initiative to be disciplined in the investment evaluation process. This is due to the knowledge that the performance of the public sector initiative, in terms of implementation timeframe, cost, service provision outcomes and outputs will be reviewed and reported upon.

Step 3.9 The communication strategy

For major proposals, the business case should outline a formal communication strategy for use by the government in both informing the community and addressing any specific community and stakeholder concerns associated with the implementation of the preferred solution.

The communication strategy may include proposed public communication to be delivered by the responsible minister.

The detailed communication strategy should include:

- details of the range of stakeholders that have an interest or are affected by the proposal (preferred solution), and potential issues that may arise
- specification of the objectives for communicating with these stakeholders
- an outline of the information needs and appropriate methods for communicating with these stakeholders
- a discussion of the extent of communication and timing of communication with these stakeholders
- a consideration of the skills and resources required for communicating with these stakeholders and how this is planned to be funded
- an appraisal of possible issues that will be raised including stakeholder 'fear of the unknown' and whether any community members will be disadvantaged (distributional impact issues) and/or inconvenienced by the implementation of the preferred solution
- suggested responses to these potential issues
- details of how issues raised through the communication process will be captured, responded to, monitored and reported as part of the implementation governance arrangements
- employment and other state economy benefits arising from the implementation of the preferred solution (refer to appendix 6).

It is recommended that consultation with the DPC Government Communications Advice Unit be undertaken in developing a communications strategy for major proposals.

Step 4: Project funding and budget impacts

The strategic assessment of the service need (step 1), establishing the case for change and project scoping (step 2) and project planning and substantiation of the preferred solution (step 3) of the investment evaluation process focused on the investment decision.

The next decision to be made by the government concerns how the proposal will be procured and funded if the decision is made to proceed with the proposal.

The decision to proceed with a proposal will be influenced by budget capacity, the quality of the business case and other factors including the 'value for money' and 'net benefits' of the proposal compared to other investment proposals being considered by the government.

It follows that poor budget estimates, as with inaccurate estimates included in the financial and socioeconomic evaluations, can lead to erroneous judgements on the relative merits of competing proposals and thereby undermine the investment decision making process. The wrong investment decision may be made by the government if a poor budget estimate is included in the business case.

The required level of confidence associated with the estimated budget impacts is +/- 5 per cent within a final business case.

The tasks involved in determining the project funding and budget impacts associated with the preferred solution are detailed below in figure 11.

Figure 11: Project funding and budget impacts analysis tasks

Step 4: Project funding and budget impacts

- 4.1 The operating, investing and revenue requirements
- 4.2 The existing operating, investing, revenue and FTE budgets
- 4.3 The net operating balance, net lending, net debt and FTE impacts

Step 4.1 *The operating, investing, revenue and FTE requirements*

The operating and investing budget impacts to the government for the preferred solution are required to be estimated at least over the forward estimate period, that is, four years, but may be estimated for a longer time period depending on the number of years until ongoing budget impacts are achieved.

The financial evaluation detailed the cash impacts of the preferred solution to government. These may be referred to in determining the operating, investing, revenue and full-time equivalent (FTE) employee budget impacts; however, the budget impacts will differ from the financial evaluation cash impacts for a number of reasons. For example, there most likely will be timing differences as the budget impacts are determined on an accrual accounting basis; the budget impacts should include the impacts of estimated inflation (if not already included); and the budget impacts will most likely include non-cash items such as depreciation.

The detail associated with determining the budget impacts should be included in the business case in an appendix. For example, typical cost elements that should be sufficiently detailed (including contingency amounts) are shown below in table 14.

Table 14: Budget cost elements

Type	Discussion
Direct costs	The estimated cost of labour, plant, materials and specialist subcontract work required to deliver the asset based on calculated quantities derived from proposed design solutions and construction methodologies.
Indirect costs	Other estimated costs necessary to support the direct costs such as site facilities, project insurance, professional fees etc.
Contingency amounts – project risks	Amounts to be included in the budget estimate to accommodate various project risks (refer step 3.6), for example, they should not be incorporated into estimated construction or equipment costs. Note it is bad practice to 'load up' the project risk estimate to compensate for absent or poor project planning. The practice of 'budget padding' should be avoided.
Contingency amounts - escalation	An escalation allowance that provides adequate compensation for potential cost increases beyond the estimate for inflation already included in the cost estimates. Construction costs typically are highly sensitive to market conditions. While various measures for cost movements in construction cost components such as concrete, cement and steel are available from industry publications and the Australian Bureau of Statistics, these are only based on observed historical data. Any future cost estimate requires the use of judgement regarding future market volatility and the supply and demand for construction input costs.

With respect to the revenue estimates, sources of revenue should be detailed separately in the business case. For example, commercial revenue sources (refer appendix 3) should not be incorporated into estimated current user charges.

The full time equivalent (FTE) impacts associated with the preferred solution's operating and investing expenditure requirements should also be calculated with reference to any estimated labour costs incurred by government. The FTE impacts associated with works undertaken by the private sector should not be included.

Where more than one agency is impacted upon, the impacts by agency should be shown separately and then totalled.

Given the importance of the budget estimate for decision makers, such details should demonstrate sufficient time and expertise has been employed in working through the preferred solution specifications and associated estimated budget impacts.

Step 4.2 The existing operating, investing, revenue and FTE budgets

There may be existing operating and/or investing expenditure authority within the government that has been specifically set aside for this or a similar proposals that can be directed towards implementing the preferred solution.

Such expenditure authority may exist within the lead agency, or within another agency including DTF's central contingency. Any central contingency amounts should be confirmed with the lead agency's DTF account manager before being included in this analysis.

The existing expenditure and revenue authority associated with the base case should also offset the budget impacts of the preferred solution (where the preferred solution is not the base case).

Similarly, the existing approved FTE cap provided under the base case should also offset the FTE requirements associated with the preferred solution (where the preferred solution is not the base case).

Step 4.3 The net operating balance, net lending, net debt and FTE impacts

The net budget impacts to the government of the preferred solution should be presented in the business case, with supporting details and calculations provided in an appendix. The format for presenting the net budget impacts is provided below in table 15 and table 16.

Table 15: Budget impacts table

		2013–14	2014–15	2015–16	2016–17	Ongoing
		\$000	\$000	\$000	\$000	\$000
Operating expenses ^{a,b}	A					
Operating contingency	A					
Operating revenue ^a	B					
Net operating balance impact ^c	A+B					
Investing Receipts ^a	C					
Investing Payments ^a	C					
Investing Contingency ^a	C					
Less depreciation ^a	D					
Net lending impact ^c	A+B+C-D					
Net debt impact (cumulative)						
Memorandum item GST impacts						

^a Negatives indicate increases in agency spending or reductions in revenues (deterioration in net lending). Positives indicate savings or increases in revenue (improvement to net lending).

^b Including depreciation.

^c Impact on net operating balance and net lending does not reflect the offsetting impact of payroll tax at the whole of government level.

Table 16: FTE impacts — increase/decrease

	30 June 2014	30 June 2015	30 June 2016	30 June 2017	Ongoing
Agency A ^a					
Agency B ^a					
Total					

^a Positives indicate increases in staff numbers. Negatives indicate decreases in staff numbers.

The calculation of the budget impacts should be undertaken in consultation with the lead agency's DTF account manager.

Although only the forward estimate period is shown in Tables 13 and 14, it may be necessary to show additional years (columns), particularly where the full impacts associated with the preferred solution do not occur until post the forward estimate period. The business case details are not limited to a four year period.

Agency sign off

The investment evaluation process requires that accountability for the contents of the investment proposal and business case should be clearly assigned. The investment proposal and business case should be signed off by:

- the lead agency person responsible for its preparation
- the lead agency senior finance officer
- the lead agency chief executive, who will be ultimately accountable for its implementation.

Appendix 1: Investment proposal and business case outline

It is suggested that the investment evaluation analyst follow this outline in developing an investment proposal and business case and refer to the relevant steps in Part B of these guidelines as required.

Executive summary

The executive summary is a stand-alone part of the report. It should be a clear and concise outline of the whole proposal.

While it is the first part of the business case, it is often the last area completed.

For a business case, the executive summary should summarise:

- the selection of the preferred solution
- the risk management plan for implementing the preferred solution
- the implementation management plan for delivering the preferred solution
- the post-implementation review plan for the preferred solution
- a communication strategy (if applicable) for the preferred solution
- the budget impacts associated with the preferred solution.

For an investment proposal, the executive summary should summarise the rationale for proceeding with further analysis of a proposal and the development of a business case.

1: Strategic assessment of the service provision

	Investment Proposal	Business Case	Guideline Reference
A description of the type, scope, outcomes, outputs, and timing of services currently being provided (where applicable)	Yes	Yes	Step 1
Evidence that the current service provision is consistent with the government's policy targets and objectives, and lead agency's targeted service delivery outcomes (results sought) and outputs.	Yes	Yes	Step 1
A description of key stakeholders and beneficiaries and any key relationships and/or interdependencies associated with the service provision.	Yes	Yes	Step 1
A description of any other public and private service providers and the market in which these services are provided.	Yes	Yes	Step 1
A discussion concerning the implication(s) of the lead agency continuing, discontinuing, expanding or retracting the service provision.	Yes	Yes	Step 1
Justification that the lead agency is the most appropriate agency to continue providing the service provision going forward.	Yes	Yes	Step 1

2: The service need problem and case for change

This step is included in both an investment proposal and business case.

	Investment Proposal	Business Case	Guideline Reference
<u>Situational assessment of the current service provision</u>			
A description of the common and specific demand drivers that impact on current service provision demand.	Yes	Yes	Step 2.1.1
Details of the current service levels and capacity in volume and quality terms.	Yes	Yes	Step 2.1.1
Details of existing physical assets used in meeting service demands.	Yes	Yes	Step 2.1.1
Details of the operating and investing expenses and revenue impacts involved in providing the service provision over time.	Yes	Yes	Step 2.1.1

	Investment Proposal	Business Case	Guideline Reference
<u>Service demand forecasting</u>			
An assessment of the potential external and internal factors impacting upon the identified demand drivers going forward.	Yes	Yes	Step 2.1.2
Details of national and international statutory standards, technical standards, legislation and policies that may impact on the service provision going forward.	Yes	Yes	Step 2.1.2
A description of the methodology employed in forecasting future service demand.	Yes	Yes	Step 2.1.2
Details of different service demand forecast scenarios and the determination of the 'most likely' projected service demand over a relevant time horizon.	Yes	Yes	Step 2.1.2
Details of assumptions made and level of uncertainty inherent in forecasting service demand.	Yes	Yes	Step 2.1.2
<u>Identification of the service need problem</u>			
A clear description of the service need problem in terms of cause and effect, and with reference to the forecasted service demand, existing service provision capacity, government's policy targets and outputs, and the lead agency's targeted service delivery outcomes and outputs.	Yes	Yes	Step 2.1.3
A discussion of the consequences of the government not addressing this problem.	Yes	Yes	Step 2.1.3
Details for the appropriate timing for addressing the problem.	Yes	Yes	Step 2.1.3
Details of any other evidence for the problem that further supports the case for change.	Yes	Yes	Step 2.1.4
<u>The solution specification</u>			
A detailed solution specification for addressing the problem that identifies the primary and secondary objectives to the government, and specific lead agency outcomes and outputs requirements and any other relevant social, economic and environmental impacts.	Yes	Yes	Step 2.2
A description of key performance indicators to be used in the post-implementation review plan.	Yes	Yes	Step 2.2
<u>Options analysis</u>			
A specification of the base case option with reference to the solution specification.	Yes	Yes	Step 2.3.1
Details and specification of a long list of realistic service delivery options with reference to the solution specification.	Yes, preliminary	Yes, finalised	Step 2.3.2

	Investment Proposal	Business Case	Guideline Reference
An impact assessment of all long listed options (including the base case).	Yes, preliminary	Yes, finalised	Step 2.3.3
<u>Selection of short listed options</u>			
Explanation and description of the rationale for selecting the short list of options.	Yes, preliminary	Yes, finalised	Step 2.4
Recommendation of at least three short listed options (including the base case).	Yes, preliminary	Yes, finalised	Step 2.4

Associated detailed analysis underlying the above should be provided in appendices of the investment proposal and business case. This may include the extent of consultation undertaken with stakeholders, and other government agencies including DPTI and OCIO (where applicable).

3: Project planning and substantiation of the preferred solution

	Investment Proposal	Business Case	Guideline Reference
<u>The evaluation period(s).</u>			
Details of the evaluation period(s) used in assessing the short listed options.	Yes, preliminary ¹⁴	Yes, finalised	Step 3.1
<u>The discount rate(s).</u>			
Details of the discount rate(s) applied in assessing the short listed options	Yes, preliminary	Yes, finalised	Step 3.2
<u>The financial evaluation</u>			
Detail the cost and benefit cash flows impacting on government for each short listed option.	Yes, preliminary	Yes, finalised	Step 3.3.1
Detail the sensitivity and scenario analysis undertaken and confirm 'most likely' cash flow estimates.	No	Yes	Step 3.3.3
Rank the options according to the outcomes of the discounted cash flow analysis and discuss the rationale (where multiple financial measures have been applied) in determining the relative merits of competing options according to the financial evaluation.	No	Yes	Step 3.3.4
State the preferred solution according to the financial evaluation.	No	Yes	Step 3.3.4

¹⁴ For the purpose of discounting preliminary cost and benefit cash flows in order to short list options only.

	Investment Proposal	Business Case	Guideline Reference
<u>The socioeconomic evaluation</u>			
Describe and categorise all socioeconomic impacts for each short listed option	Yes, preliminary ¹⁵	Yes	Step 3.4.1
Detail the basis for quantifying the identified cost and benefit impacts that can be monetised and the outcomes of a cost benefit analysis (CBA) for each short listed option.	Yes, preliminary	Yes	Step 3.4.2
Detail the basis for quantifying the cost and benefit impacts where the benefits can only be measured in physical units and the outcomes of the cost effectiveness analysis (CEA).	Yes, preliminary	Yes	Step 3.4.3
Describe all other significant non-measurable cost and benefit impacts.	Yes, preliminary	Yes	Step 3.4.4
Detail the sensitivity and scenario analysis undertaken and confirm 'most likely' cash flow estimates.	No	Yes	Step 3.4.5
Discuss the distributional impacts associated with each short listed option and whether the design and scope of each option has taken into account these distributional impacts (where applicable)	No	Yes	Step 3.4.6
Rank the options according to the outcomes of the CBA, CEA and consideration of the non-measurable impacts, and discuss the rationale applied in determining the relative merits of competing options according to the socioeconomic evaluation.	No	Yes	Step 3.4.8
State the preferred solution according to the socioeconomic evaluation.	No	Yes	Step 3.4.8
<u>The preferred solution</u>			
Describe and detail the rationale applied in integrating the outcomes of the financial and socioeconomic evaluations used to select the preferred solution.	No	Yes	Step 3.5

¹⁵ For the purpose of preliminary options analysis only and in particular short listing options.

	Investment Proposal	Business Case	Guideline Reference
<u>Other requirements</u>			
Detail a risk management plan for the preferred solution.	No	Yes	Step 3.6
Detail an implementation management plan for the preferred solution.	No	Yes	Step 3.7
Detail a post-implementation review plan for the preferred solution.	No	Yes	Step 3.8
Detail a communication strategy for the preferred solution (where applicable).	No	Yes	Step 3.9

Associated detailed analysis underlying the above should be provided in appendices of the investment proposal and business case. This may include the extent of consultation undertaken with stakeholders, and other government agencies including DPTI and OCIO (where applicable).

4: Project funding and budget impacts

	Investment Proposal	Business Case	Guideline Reference
Inclusion of the budget impacts table for the preferred solution.	No	Yes	Step 4.3
Inclusion of the FTE impacts table for the preferred solution.	No	Yes	Step 4.3

Note that the detailed calculations associated with the budget and FTE impacts should be prepared in consultation with DTF and included in an appendix of the business case.

5: Agency sign offs

	Investment Proposal	Business Case	Guideline Reference
Details of the name and position title of lead agency officers and their signature.	Yes	Yes	Agency sign off

Appendix 2: Deliverability assessment template

Criteria	Potential Questions
Risk Management	<p>Is there a risk management plan for implementing the preferred solution?</p> <p>Have key project specific risks associated with the preferred solution been adequately identified and assessed?</p> <p>Has there been an independent assessment of the project scoping and substantiation of the preferred solution to ensure that planning risks have been minimised?</p> <p>Is there any significant construction risks associated with the preferred solution due to its design, location, geology etc.?</p> <p>Is there sufficient supply side capacity (including workforce skills and expertise) to ensure delivery of the preferred solution and realisation of benefits as specified in the business case?</p> <p>Is delivery of the preferred solution dependent on other construction works?</p> <p>Is there an implementation management plan for the preferred solution?</p> <p>Has sufficient consideration been given regarding the most appropriate procurement method for implementation?</p> <p>With reference to historical delivery of similar capital projects and/or any other information, does the order of and proposed timing for each stage of implementation appear realistic?</p> <p>Has sufficient time been allocated for obtaining land use/environmental/planning approvals that may be required for implementing the preferred solution?</p> <p>What are the significant environmental risks associated with the preferred solution?</p> <p>Has community engagement/consultation been undertaken?</p> <p>Is there any other significant private sector, social and/or political risks associated with implementing the preferred solution?</p> <p>Are there any other significant risks for other levels of government associated with the preferred solution?</p> <p>Are there any other significant risks?</p> <p>Has consideration been given within the design of the preferred solution and/or stages of implementation to reducing the probability of these risks occurring and its potential impacts?</p> <p>Have sound strategies for reducing and managing the identified risks both during implementation and post-implementation been identified and established?</p> <p>Have these risks been adequately represented in the cost estimates for the preferred solution?</p>
Benefit Realisation	<p>Does the risk management plan and implementation management plan provide confidence that the preferred solution will be implemented as proposed and deliver the benefits as estimated in the business case?</p> <p>Is there a post-implementation review plan for the preferred solution?</p> <p>Has key performance indicators been identified that assist in determining post-implementation whether the preferred solution was delivered within the targeted cost and timeframes, and whether the preferred solution meets the solution specification?</p> <p>Is the number and timing of post-implementation reviews as proposed adequate for determining whether the preferred solution was delivered within the targeted cost and timeframes, and whether the preferred solution meets the solution specification?</p> <p>Who will conduct the post-implementation review(s) and when? Who will review such</p>

Criteria	Potential Questions
	assessments and take actions accordingly?
Governance	<p>What are the proposed governance arrangements for implementing the preferred solution?</p> <p>Does the lead agency and in particular, the key officers responsible for project delivery, possess sufficient experience and expertise?</p> <p>Is there a detailed monitoring plan to be used to assess implementation performance? Who will conduct such assessments and when? Who will review such assessments and take actions accordingly?</p>

Appendix 3: Commercial funding opportunities

It is essential that avenues to maximise any commercial opportunities arising from public sector initiatives, in addition to asset disposals, be considered as part of the investment evaluation process. Any revenue streams to the government from these opportunities may improve the viability of a particular proposal, as well as provide greater budget capacity going forward.

User charging

It is now generally accepted that the beneficiaries of proposal contribute funding to offset the costs of the investment. User charging results in users of the service contributing towards the cost of the proposal and/or ongoing service provision, reducing the costs to the government.

The ability to charge users will need to be considered in the context of the proposal. User charging approaches include tolls for new road developments, access fees, levies, special charges etc. The application of user charging within the business case analysis should be consistent with current government policy.

Where existing user charging mechanisms exist for the service provision, the business case should discuss the potential for passing on additional costs for the proposal to users of the service. For example, the costs associated with building a new desalination plant may be passed on to consumers through increased water rates.

In developing a user charging mechanism, care should be taken to ensure that the costs of development and ongoing administration do not exceed the revenues recovered.

Commercial developments

Government infrastructure developments often provide opportunities for commercial development. For example, provision for residential and retail facilities around and within public administration, transport, health and education facilities, and advertising and building naming rights are measures that can provide both once-off and ongoing revenue streams to the government that may offset the cost of the initial investment and ongoing operating costs.

The potential for commercial development opportunities should be explored when developing the business case for a proposal. This may involve reviewing the site/project characteristics and precedents in other states and jurisdictions. Advice from the private sector may also be warranted in order to increase the potential for the government capturing any additional value associated with a new infrastructure development.

Other

Other potential revenue generating opportunities should be discussed with DTF. Examples include the application of a special levy, tax incremental financing and user charging mechanisms such as road tolling.

Appendix 4: Procurement options analysis

The vast majority of investment in public services will continue to be procured through traditional government procurement means. In certain circumstances, other innovative approaches such as public private partnerships (PPP) have been used to deliver complex and significant public sector infrastructure projects. In such cases, a procurement options analysis may be warranted.

The contents of this appendix are taken from the *National PPP Guidelines, Procurement Options Analysis, Volume 1 (December 2008)*, as published by Infrastructure Australia. This appendix does not replace the national PPP guidelines. Agencies are advised to reference the full procurement options analysis document published by Infrastructure Australia when considering undertaking a procurement options analysis. The document can be accessed on line at www.infrastructureaustralia.gov.au

In accordance with the government's Industry Participation Policy, local business participation should be considered as part of the procurement options analysis. The Office of the Industry Advocate may be of assistance.

The purpose of the procurement options analysis is to short list and select an appropriate procurement (or delivery) methodology that best achieves the procurement objectives. The key issue is determining which form of project delivery best achieves the desired strategic objectives and outcomes, including providing the best value for money.

A well-developed procurement options analysis that incorporates project characteristics will:

- improve the management of risk and its consequences
- maximise the likelihood of achieving project objectives
- minimise the likelihood of problems occurring later.

The best project outcomes are more likely when an objective assessment is made based on the characteristics of the project, and not a subjective assessment of the delivery model in general.

A procurement options analysis will include the decision making rationale for selecting the procurement method.

The investment and procurement decisions are separate. A business case is developed to support the investment decision. Procurement options analysis forms part of a procurement strategy and is used to explain the government's procurement decision. Nonetheless the procurement options analysis may be fully developed as part of the business case for more complex infrastructure investment proposals.

Much of the procurement analysis data comes from information prepared for in the investment proposal and business case. This includes the solution specification, policy context, cost analysis, agency capability, project characteristics and risk analysis.

Infrastructure projects are delivered through a variety of delivery models. In addition to PPP's, these include:

- construct-only (lump sum or fixed price contract)
- design and construct
- design, construct and maintain

- alliance contracting
- managing contractor model.

These delivery models are often combined in large projects to create hybrid delivery models, all of which will be reflected in the procurement options analysis.

The choice of delivery model is a critical task in the project and in the development of the procurement strategy. Factors that may influence the choice of delivery model include design, capacity and capability, whole of life cost and other implications, political considerations, scale of the project, cost, degree of certainty concerning outcomes and cost, project risks and characteristics and timing constraints.

The first consideration in selecting a delivery model is the ability of the model to deliver the requirements and achieve project objectives. Another consideration is the ability of a delivery model to promote efficient and effective management of project risks. There are a number of approaches to risk that should be considered in making the delivery model decision.

The following tasks for selecting a delivery model are required.

1. *Data gathering.*

Selecting the most appropriate delivery model requires a sound understanding of the project context, objectives, risks, unique project characteristics, agency and market capability.

2. *Short list delivery models.*

This task involves consideration of the suitability of various delivery models based on the extent that service can be bundled as part of the project, the project's scale, scope, risk, complexity and whole of life service opportunities.

3. *Validation.*

Validation facilitates the short listing of options identified in task 2. Validation can be assisted by the processes of benchmarking and market sounding. Benchmarking involves the comparison of identified options to other similar projects, both locally and overseas. A market sounding process may assist in determining market interest in a particular delivery model and/or the market's ability to manage risks associated with the project. A market sounding exercise can also be used to refine the way in which a project is structured to achieve optimal results.

4. *Delivery model options analysis.*

This task seeks to identify the preferred model by evaluating each short listed model against project objectives, criterion and any rankings associated with the criterion. In analysing short listed delivery models, consideration may be given to:

- the data collected as part of task 1
- the capability of the market and the agency to successfully deliver the project
- how well each model is likely to achieve strategic outcomes and project objectives
- the implications of each model for the agency or market
- the extent to which the chosen delivery model will remain relevant if circumstances change
- unique or unusual project characteristics and risks identified as abnormal to the short-listed models

- significant risks associated with a project delivery model that cannot be effectively managed, or that exceeds organisational tolerance levels.

It is important to note that while there is no prescribed methodology for the selection of the delivery model, all assumptions made in the selection process should be explicitly stated.

5. *Preferred delivery model.*

Once a preferred delivery model is identified, it can be structured in detail and tailored to the project.

Appendix 5: Comparing options with different lives

In some situations, the comparison of options with different useful lives will be required. This should be completed with care.

Various approaches can be used to compare options with different lives including the following.

- Assume each option has a shorter lifetime that will be repeated at the end of its life until the end of the assessed project period for the evaluation.
- Focus on the life of the most critical items, and include replacement costs for other items as they fall due.
- Extend both options into the future as far as is necessary to find a common ending date. For example, a four year project and a six year project could be evaluated over a 12 year period.
- Assume the asset would be succeeded by a similar asset and calculate an annualised value or 'equivalent annual cost' for the capital values of each option.
- Predict an asset residual value where the evaluation period ceases short of the lifetime and include as a cash inflow. This would generally be the higher of its expected market value and value in use in the investment, which may be approximated by its accounting book value at that time.
- Make the options comparable by converting the net cost benefit streams of each option to an equivalent annual amount (that is, equivalent annual cost) as discussed below.

It is generally considered that assuming each option has a shorter lifetime (the first approach) is acceptable and provides a simpler form of analysis.

Equivalent annual cost technique

Evaluation results for most investment projects, especially those that involve comparison of options with different lifetimes, can be calculated and presented as annualised values or 'equivalent annual costs'.

Equivalent annual costs are calculated as follows: the annual payment, made for n years starting in year 1, with a present value at the beginning of year 0 of \$ Y is given by:

$$An = \frac{r}{1 - \frac{1}{(1+r)^n}} * \$Y$$

where:

An is the equivalent annual cost of \$ Y .

For example, a payment of \$1000 in year 0 is equivalent to 10 end-of-year annual payments, based on a rate of 7 per cent, starting in year 1, of:

$$\begin{aligned} & \$1,000 \frac{0.07}{1 - \frac{1}{(1.07)^{10}}} \\ & = \$1000 * 0.1424 = \$142.40 \end{aligned}$$

Appendix 6: Employment impacts protocols

There is considerable interest in estimating the impacts of public sector initiatives on employment. Estimates of employment impacts are often made for major public infrastructure projects or capital works programs, and also for other initiatives such as industry attraction and publicly supported major events.

Employment impacts arising from a public sector initiative should not be confused with benefits arising from the initiative.

While a cost benefits analysis (CBA) may include some key economic costs and benefits, employment impacts are generally not a measure of community benefit for a range of reasons:

- Many of the techniques used to measure employment impacts fail to take into account the extent to which employment associated with a government initiative displace other jobs in the local economy, and therefore, are not a benefit to the community.

There is an opportunity cost associated with government funds — for a given amount of government spending the jobs associated with an approved initiative are likely to displace jobs associated with an alternative initiative.

- Even where economic modelling techniques exist that take into account displacement of other jobs and the opportunity cost of government funds, employment impacts are not the appropriate measure of the economic welfare effects that should be used in a CBA.

In computable general equilibrium (CGE) modelling, for example, displacement effects are taken into account, and it is generally assumed that employment levels are fixed in the long run. Other than in a recession, it would be difficult to argue that an initiative would utilise unemployed resources to a significant degree; therefore, there may not be any net increase in employment.

Employment may shift from other states, but this in itself is not evidence of an economic benefit to existing residents. Economic benefits may accrue if there is a permanent shift from lower paying to higher paying jobs. This may leave employment unchanged but result in increased incomes in the state. This latter result is likely to provide a more convincing finding of increased economic benefit to the state than a movement of population from other regions of Australia. Thus the key measure of economic benefit most relevant to a CBA would be an increase in income per capita (or household consumption per capita can be a suitable proxy if income measures are not generated).

- A particularly inefficient program (for example, “make work” schemes), that is wasteful from a community perspective, may lead to larger (gross) employment impacts than a more efficient alternative.

Protocols

Cabinet submissions and other decision making documents should not contain any estimates of employment impacts arising from public sector initiatives in the context of recommending proceeding with a particular proposal.

Economic benefits should only be included in the CBA if they result from estimation techniques that take into account the opportunity costs of government spending. If this requires CGE modelling to be undertaken, the lead agency should only complete it if the project is large and the economic benefits are central to the decision making process. DTF should also be consulted in this case. Where undertaken, the existence of economic benefits should be determined on the basis of increased income per capita or consumption per capita in South Australia, not changes in employment levels.

For these reasons, employment impacts are generally not included as benefits in the socioeconomic evaluation.

Nonetheless, employment impacts are generally used by the government in communicating the impact within the community for infrastructure related public sector initiatives.

Techniques such as direct project estimation and multiplier analysis may be used to generate estimates of the extent to which public investments 'support' employment in the state economy, but only under the following conditions.

- Such estimates are only provided to ministers and other interested parties as part of a communication strategy after a proposal has been substantiated as the preferred solution.
- Such estimates should be clearly described as jobs 'supported by' or 'associated with' the relevant public sector initiative or program, and should not be described as net additional jobs to the South Australian economy.
- When multiplier analysis is used, flow on jobs can be included as well as direct jobs, but the flow on jobs should only include the 'first round' and 'industrial support' estimates (for example, when using input-output analysis the consumption induced effect should be ignored as it is very indirect).

The lead agency should consult with DTF regarding the methodology to be applied in calculating such employment impacts.

Appendix 7: Multi-criteria analysis

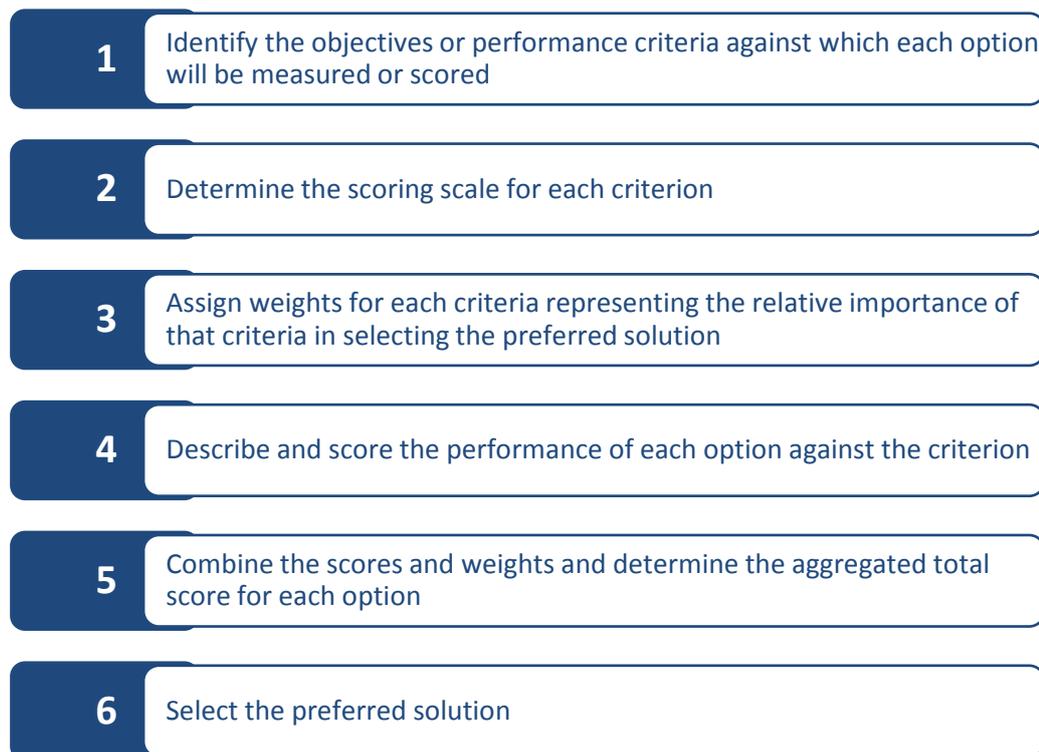
Multi-criteria analysis (MCA) provides a framework for overcoming the difficulties in handling financial and non-financial information in a consistent way in order to compare different public sector initiative options. MCA provides a rational approach in selecting the preferred solution that is transparent to users of the business case.

MCA enables comparison of alternative options by reference to the explicit set of objectives or performance criterion as identified in the business case for resolving the identified service need problem. Typically, an MCA will involve 'scoring' each competing option with regard to how well the option meets each objective. The total scores for each option can then be compared to other competing options scores. In this way, options can be ranked and the preferred solution selected.

An MCA approach can be applied in selecting the preferred solution with respect to the financial and socioeconomic evaluations, as well as selecting the preferred solution overall.

The tasks involved in undertaking a multi-criteria analysis is detailed in figure 12.

Figure 12: Multi-criteria analysis tasks



1 — identify the objectives or performance criteria against which each option will be measured or scored

The business case includes a solution specification. In addition, there may be other criterion relevant in selecting the preferred solution relating to specific financial measures and risks. For example, the listed criterion for use in comparing options may include:

- the expected net present value outcome based on the financial evaluation

- the expected NPV based on quantified socioeconomic impacts
- the expected increase in noise levels along a new road
- the expected improvement in travelling time along a new road.

2 — determine a scoring scale for each criteria

A scoring scale needs to be determined for use in measuring the expected performance outcome of each option relative to the other options. In addition to a scoring scale, the business case should also include discussion of the relative merits of each option with respect to each criterion.

The scoring scale applied could be as simple as a range starting with 1 for the strongly positive outcome and ending with 5 for the strongly negative outcome. Alternatively, a scoring scale may be established relative to the base case, where the total score for the base case is set at 0. For example:

Very much better (than the base case)	+ 4
Much better (than the base case)	+ 3
Moderately better (than the base case)	+ 2
Little better (than the base case)	+ 1
No change (on the base case)	0
Little worse (than the base case)	- 1
Moderately worse (than the base case)	- 2
Much worse (than the base case)	- 3
Very much worse (than the base case)	- 4

3 — assign weights for each criteria representing the relative importance of that criteria in selecting the preferred solution

To limit the opportunity for bias influencing the outcomes, it is recommended that the relative importance or weighting of each criterion is determined prior to scoring each option. It is important that the weighting applied for each criterion is not influenced by the measuring analysis.

It is likely that developers and users of the business case will assess some criteria as more relevant than other criteria in deciding upon the preferred solution. For public authorities delivering community services that do not have a focus on revenue generation, criterion associated with the non-measurable socioeconomic impacts may be more important than those associated with the measurable financial and socioeconomic impacts. Alternatively, public authorities delivering services that do have a focus on revenue generation may consider the measurable financial and socioeconomic impacts as more important. Commercial proposals should only be undertaken where the financial impacts are predominantly favourable to the government.

This task communicates to users of the business case the relative importance placed on each criterion by the investment evaluation analyst in selecting their preferred solution.

4 — describe and score the performance of each option against the criterion

The score applied against each criterion reflects a judgement of the expected relative performance outcome for each option. It may be necessary to also include a discussion regarding the comparison of options.

5 — combining the scores and weights and determining the aggregated total score for each option

This task requires the score obtained for each option under each criterion to be multiplied by the assigned weight and summated to deliver an overall score.

Table 1 provides an example of a process of scoring and determining the aggregated total score for a hypothetical investment process involving a new bridge connecting a country town to a regional centre that is currently being serviced by a ferry operation. The scoring scale established is relative to the base case.

Aggregated score of all impacts

Type of Impact	Criteria	Criteria Weighting	Option 1 Base Case	Option 2 Upgrade Ferry	Option 3 New Bridge	Option 4 Upgrade Road
Financial	Net Present Cost	20%	0	-1	-4	-3
Quantified	Net Present Value	40%	0	1	4	-3
Non-monetary terms	Decrease in overall pollution	20%	0	1	3	-2
Non-measurable	Aesthetic improvement to local area consistent	10%	0	1	4	1
	Government's regional access policy	10%	0	1	4	-1
Total Weighted Scores		100%	0	0.6	2.2	-2.2
Ranking			3	2	1	4

Option 1 Base case: maintain existing ferry service

Option 2 Upgrade and modernise the existing ferry, reducing repair downtime

Option 3 Build new bridge directly adjacent to regional centre, improving travelling time and reducing overall and in particular river system pollution

Option 4 Upgrade 10 kilometre road to an existing bridge and divert traffic accordingly

6 — select the preferred solution

The investment evaluation analyst should now examine the results and select the preferred option based on the total weighted score.

MCA strengths and weaknesses

The main strength of an MCA approach to selecting the preferred solution is that it clearly communicates to users of the business case the basis for which alternative options were compared and assessed. This is particularly useful where a diverse range of financial and non-financial information is being compared and contrasted. In this way, an MCA approach provides an audit trail of the decision making process.

There are documented weaknesses associated with an MCA approach. Subjective judgements are required in the assigning of weights and scoring, which in itself may be a difficult process and open to bias. For this reason, discussion outlining the basis for such judgement should be provided.

Appendix 8: Financial evaluation example

The financial evaluation example is based on a proposal to build a new Medical Education and Bio-Medical Research Centre. The proposal and numbers presented are fictional.

The medical education component will provide services on a fee for service basis to universities, TAFE colleges, hospitals etc., providing up to date training in various roles in the medical profession including nurses, general practitioners, bio hazard safety officers, some specialists and medical scientists. The research component will rely on external funding of bio-medical research activities.

There is no base case in this example, that is, the do nothing option, is the situation where there is no additional medical education and research centre in the State.

There are three short-listed options for the new Centre, namely, build in the CBD, build at Elizabeth and build at Glenelg.

The government owns land at Glenelg for this purpose. This land can be disposed of should the Centre be built elsewhere.

The evaluation period is the period of time necessary for achieving the objectives for the government addressing the service need problem and broad policy drivers. The evaluation period has been determined to be 25 years.

The medical education component is considered to be low risk as there is strong demand for these services, long term commitments from some core users and it replaces some services that have outgrown existing sites. The building is readily convertible to other uses. A real discount rate of 3.8 per cent has been applied to the costs and benefits relating to the core college.

The research centre component is considered to be medium risk as it is intended to perform research and development with revenue generated from unidentified grants and future commercialisation opportunities. Due to extensive wet lab and bio hazard control fit-out, alternative uses of this site are not available. A real discount rate of 5 per cent has been applied to the costs and benefits of the research centre.

The financial evaluation requires an assessment of the cost and benefit cash flows impacting on the state government that have an observed price or monetary value over the evaluation period for each option.

1 — identify, quantify and estimate the timing of cash outflows (costs) and inflows (benefits)

The following cash outflows (costs) were identified for both the Centre in real terms based on 2012-13 values.

Type	Option 1: CBD	Option 2: Elizabeth	Option 3: Glenelg
Capital	\$60.7 million	\$53.9 million	\$43.7 million
Operating – Lifecycle (maintenance, cleaning, waste, security, utilities)	\$14.4 million	\$14.4 million	\$14.4 million
Operating - Salaries	\$126.6 million	\$126.7 million	\$126.7 million
Operating - Other	\$42.3 million	\$42.3 million	\$42.3 million
Total	\$243.9 million	\$237.1 million	\$237.1 million

There were no identified one-off or taxes and other government charge type costs.

The following cash inflows (benefits) were identified for both the Centre in real terms based on 2012-13 values.

Type	Option 1: CBD	Option 2: Elizabeth	Option 3: Glenelg
Income - Fees	\$29.7 million	\$25.2 million	\$27.8 million
Income – Research grants	\$22.0 million	\$20.9 million	\$20.9 million
Income - SPP	\$17.2 million	\$14.6 million	\$15.4 million
Income – CW contribution	\$17.5 million	\$17.5 million	\$17.5 million
Income – Commercialisation Opportunities	\$106.0 million	\$79.5 million	\$90.1 million
Release of capital – land at Glenelg	\$9.6 million	\$9.6 million	n/a
Residual Value*	\$18.6 million	\$18.6 million	\$18.6 million
Total	\$220.5 million	\$185.9 million	\$190.2 million

* The residual value assumes an economic life of the buildings of 40 years; depreciation has been calculated on a straight-line basis. At the end of the evaluation period, the buildings are estimated to have 17 years remaining of their useful life.

2 — undertake discounted cash flow analysis and calculate relevant financial measures

The discounted cash flow analysis and calculation of the net present values, in this case, net present costs (NPC) are shown over the following pages.

3 — conduct sensitivity/switching and scenario analysis to confirm most likely cost and benefit cash flow estimates

The most likely cash flow impacts are those shown in the discounted cash flow analysis.

Sensitivity analysis concerning the discount rate is shown in the discounted cash flow analysis. As shown, changes to the discount did not change the ranking of the options.

4 — rank the options (including the base case) in order of preference according to the calculated financial measures

The options have been ranked as follows on the basis of the NPC outcomes.

Option	Option 1: CBD	Option 2: Elizabeth	Option 3: Glenelg
Benefits	\$125.8 million	\$106.4 million	\$105.0 million
Costs	\$153.6 million	\$147.1 million	\$147.2 million
Net Present Costs	\$27.8 million	\$40.8 million	\$42.2 million
Ranking	1	2	3

FINANCIAL EVALUATION - CBD OPTION (\$'000)

Discount Rate - Medical Education Discount Rate - Research Centre	Total (Real)	5.8%	3.8%	1.8%	2013-14	2014-15	2015-16	2016-17	2017-18	2037-38
		PV High	PV Mid	PV low						
Benefits										
Fees - Medical	29 703	13 648	17 521	22 923	—	—	390	624	858	1 403
Research Grants - Research	21 985	8 913	11 267	14 504	—	—	—	702	1 013	1 013
SPP - Medical	7 796	6 965	7 236	7 523	—	7 796	—	—	—	—
SPP - Research	9 355	7 637	8 081	8 561	—	—	9 355	—	—	—
CW Contribution - Medical	13 877	6 592	8 360	10 812	—	—	312	468	624	624
CW Contribution - Research	3 586	1 535	1 908	2 417	—	—	156	156	156	156
Commercialisation opportunities - Research	106 025	44 781	55 881	71 074	—	—	3 118	4 678	4 678	4 678
Release of Capital - Glenelg Land	9 600	9 074	9 249	9 430	9 600	—	—	—	—	—
Residual Value - Medical	8 615	2 104	3 391	5 515	—	—	—	—	—	8 615
Residual Value Research	9 940	1 831	2 935	4 747	—	—	—	—	—	9 940
Total Benefits	220 481	103 080	125 829	157 506	9 600	7 796	13 331	6 627	7 328	26 428
Costs										
Land - Medical	- 8 500	- 8 034	- 8 189	- 8 350	- 8 500	—	—	—	—	—
Capital - Medical	- 20 270	- 15 141	- 16 474	- 18 211	- 6 237	- 6 237	—	—	—	—
Land - Research	- 8 500	- 7 944	- 8 095	- 8 252	- 8 500	—	—	—	—	—
Capital - Research	- 23 388	- 20 173	- 21 018	- 21 920	- 3 118	- 12 474	- 7 796	—	—	—
Lifecycle - Medical	- 6 689	- 3 146	- 4 005	- 5 197	—	—	—	- 304	- 304	- 304
Lifecycle - Research	- 7 718	- 3 168	- 3 989	- 5 117	—	—	—	- 351	- 351	- 351
Salaries - Medical	- 20 581	- 9 708	- 12 343	- 16 003	—	—	- 468	- 624	- 780	- 936
Salaries - Research	- 106 025	- 44 781	- 55 881	- 71 074	—	—	- 3 118	- 4 678	- 4 678	- 4 678
Operating - Medical	- 17 463	- 8 337	- 10 553	- 13 625	—	—	- 468	- 624	- 780	- 780
Operating - Research	- 24 791	- 10 491	- 13 084	- 16 632	—	—	- 780	- 1 091	- 1 091	- 1 091
Total Costs	- 243 926	- 130 923	- 153 631	- 184 380	- 26 355	- 18 710	- 12 629	- 7 671	- 7 983	- 8 139
Total / NPC	- 23 444	- 27 843	- 27 803	- 26 874	- 16 755	- 10 914	702	- 1 045	- 655	18 289

Note: Years 2018–19 to 2036–37 have been hidden.

FINANCIAL EVALUATION - ELIZABETH OPTION (\$000)

Discount Rate - Medical Education Discount Rate - Research Centre	Total	5.8%	3.8%	1.8%	2013-14	2014-15	2015-16	2016-17	2017-18	2037-38
		PV High	PV Mid	PV low						
Benefits										
Fees - Medical	25 247	11 601	14 893	19 484	—	—	331	530	729	1 193
Research Grants - Research	20 885	8 467	10 704	13 779	—	—	—	667	963	963
SPP - Medical	6 627	5 920	6 150	6 394	—	6 627	—	—	—	—
SPP - Research	7 952	6 491	6 869	7 277	—	—	7 952	—	—	—
CW Contribution - Medical	13 877	6 592	8 360	10 812	—	—	312	468	624	624
CW Contribution - Research	3 586	1 535	1 908	2 417	—	—	156	156	156	156
Commercialisation opportunities - Research	79 519	33 586	41 911	53 306	—	—	2 339	3 508	3 508	3 508
Release of Capital - Glenelg Land	9 600	9 074	9 249	9 430	9 600	—	—	—	—	—
Residual Value - Medical	8 615	2 104	3 391	5 515	—	—	—	—	—	8 615
Residual Value Research	9 940	1 831	2 935	4 747	—	—	—	—	—	9 940
Total Benefits	185 848	87 202	106 369	133 161	9 600	6 627	11 090	5 329	5 980	24 998
Costs										
Land - Medical	- 5 100	- 4 820	- 4 913	- 5 010	- 5 100	—	—	—	—	—
Capital - Medical	- 20 270	- 15 141	- 16 474	- 18 211	- 6 237	- 6 237	—	—	—	—
Land - Research	- 5 100	- 4 766	- 4 857	- 4 951	- 5 100	—	—	—	—	—
Capital - Research	- 23 388	- 20 173	- 21 018	- 21 920	- 3 118	- 12 474	- 7 796	—	—	—
Lifecycle - Medical	- 6 689	- 3 146	- 4 005	- 5 197	—	—	—	- 304	- 304	- 304
Lifecycle - Research	- 7 718	- 3 168	- 3 989	- 5 117	—	—	—	- 351	- 351	- 351
Salaries - Medical	- 20 581	- 9 708	- 12 343	- 16 003	—	—	- 468	- 624	- 780	- 936
Salaries - Research	- 106 025	- 44 781	- 55 881	- 71 074	—	—	- 3 118	- 4 678	- 4 678	- 4 678
Operating - Medical	- 17 463	- 8 337	- 10 553	- 13 625	—	—	- 468	- 624	- 780	- 780
Operating - Research	- 24 791	- 10 491	- 13 084	- 16 632	—	—	- 780	- 1 091	- 1 091	- 1 091
Total Costs	- 237 126	- 124 532	- 147 118	- 177 739	- 19 555	- 18 710	- 12 629	- 7 671	- 7 983	- 8 139
Total / NPC	- 51 278	- 37 330	- 40 748	- 44 578	- 9 955	- 12 084	- 1 540	- 2 343	- 2 004	16 859

Note: Years 2018–19 to 2036–37 have been hidden.

FINANCIAL EVALUATION - GLENELG OPTION (\$'000)

Discount Rate - Medical Education Discount Rate - Research Centre	Total	5.8%	3.8%	1.8%	2013-14	2014-15	2015-16	2016-17	2017-18	2037-38
		PV High	PV Mid	PV low						
Benefits										
Fees - Medical	27 760	12 756	16 375	21 424	—	—	364	583	801	1 312
Research Grants - Research	20 885	8 467	10 704	13 779	—	—	—	667	963	963
SPP - Medical	7 016	6 268	6 512	6 770	—	7 016	—	—	—	—
SPP - Research	8 420	6 873	7 273	7 705	—	—	8 420	—	—	—
CW Contribution - Medical	13 877	6 592	8 360	10 812	—	—	312	468	624	624
CW Contribution - Research	3 586	1 535	1 908	2 417	—	—	156	156	156	156
Commercialisation opportunities - Research	90 122	38 064	47 499	60 413	—	—	2 651	3 976	3 976	3 976
Residual Value - Medical	8 615	2 104	3 391	5 515	—	—	—	—	—	8 615
Residual Value Research	9 940	1 831	2 935	4 747	—	—	—	—	—	9 940
Total Income	190 221	84 491	104 957	133 582	—	7 016	11 902	5 849	6 520	25 584
Costs										
Capital - Medical	- 20 270	- 15 141	- 16 474	- 18 211	- 6 237	- 6 237	—	—	—	—
Capital - Research	- 23 388	- 20 173	- 21 018	- 21 920	- 3 118	- 12 474	- 7 796	—	—	—
Opportunity Cost - use of land	- 10 200	- 9 641	- 9 827	- 10 020	- 10 200	—	—	—	—	—
Lifecycle - Medical	- 6 689	- 3 146	- 4 005	- 5 197	—	—	—	- 304	- 304	- 304
Lifecycle - Research	- 7 718	- 3 168	- 3 989	- 5 117	—	—	—	- 351	- 351	- 351
Salaries - Medical	- 20 581	- 9 708	- 12 343	- 16 003	—	—	- 468	- 624	- 780	- 936
Salaries - Research	- 106 025	- 44 781	- 55 881	- 71 074	—	—	- 3 118	- 4 678	- 4 678	- 4 678
Operating - Medical	- 17 463	- 8 337	- 10 553	- 13 625	—	—	- 468	- 624	- 780	- 780
Operating - Research	- 24 791	- 10 491	- 13 084	- 16 632	—	—	- 780	- 1 091	- 1 091	- 1 091
Total Costs	- 237 126	- 124 586	- 147 174	- 177 798	- 19 555	- 18 710	- 12 629	- 7 671	- 7 983	- 8 139
Total / NPC	- 46 905	- 40 095	- 42 217	- 44 215	- 19 555	- 11 694	- 727	- 1 822	- 1 463	17 445

Note: Years 2018–19 to 2036–37 have been hidden.

Appendix 9: Financial Model Instructions

The clear presentation of the assumptions, sources of information and basis of calculations underlying all aspects of the financial and socioeconomic evaluation is an important way of demonstrating the credibility and rigour applied in determining the preferred solution.

It is recommended that the financial model developed as part of the financial and socioeconomic evaluations comply with the following requirements when provided in support of a business case.

The Financial Model must be compatible with Microsoft Excel 2010.

The Financial Model functions, formulae and linkages should be operational and no part of the Financial Model should be password protected (unless the password is clearly provided for each level of protection), nor any cells or worksheets containing input or output data hidden away from view in any way, with no links to external workbooks or add-ins.

There are to be no hard coded figures in the Financial Model apart from the assumptions used and these should be clearly identified and located in a separate worksheets from the discounted cash flow analysis calculations and outputs in the Financial Model.

All Visual Basic macros must be fully documented to explain how the macro functions and specify the relevant part of the Financial Model that it relates to.

A construction inputs sheet (if applicable) should provide a complete breakdown of all of the costs incurred during the construction period by the major components excluding financing costs. All costs relating to the EDI Phase, contingency, and legal and other advisory costs should be identified separately.

An operating inputs sheet should provide a complete breakdown of all of the costs and revenues incurred during the construction and operating period excluding depreciation and financing costs.

Financial projections can be determined on an annual basis assuming a 30 June year end.

Financial projections must be prepared in accordance with Australian Accounting Standards.

All amounts should be exclusive of Goods and Services Tax.

A summary of outcomes should be inserted into the Financial Model and be dynamically populated.

All Financial Models are to be capable of running sensitivities, showing the resultant impact on the Net Present Value outcomes and other financial measures.

Instructions supporting the financial model must be provided detailing, in particular, how to adjust and recalculate the model's outcomes, for example, if additional sensitivity analysis is required.

References

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The Investment Evaluation Policy and Guidelines, Department of Treasury and Finance, State of Victoria, 1996.