



Australian Government

Department of Infrastructure and Regional Development

National Public Private Partnership Guidelines

Volume 1: Procurement Options Analysis



December 2008



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Components of the Guidelines

National PPP Policy Framework

National PPP Guidelines Overview

National PPP Detailed Guidance Material

Volume 1: Procurement Options Analysis

Volume 2: Practitioners' Guide

Volume 3: Commercial Principles for Social Infrastructure

Volume 4: Public Sector Comparator Guidance

Volume 5: Discount Rate Methodology Guidance

Volume 6: Jurisdictional Requirements

Volume 7: Commercial Principles for Economic Infrastructure

Roadmap for applying the Commercial Principles

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Director - Publishing and Communications, Communications Branch

Department of Infrastructure and Regional Development

GPO Box 594, Canberra ACT 2601 Australia

Email: publishing@infrastructure.gov.au

Website: www.infrastructure.gov.au

Acknowledgement

This Procurement Options Analysis Guideline is based on the Victorian Government's *Gateway Initiative Project Lifecycle Guidelines – Procurement Strategy Guideline*.

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1 Introduction

Determining the procurement method is a critical step in the project delivery process. It is important to consider which method will best balance the control of project cost and risk against achieving project objectives and outcomes. The key issue is which form of project delivery provides the best value for money in meeting the government's service objectives.

The vast majority of investment in Australian public services has been, and will continue to be, procured through traditional means. However, other innovative approaches, PPPs in particular, have been used to deliver some of Australia's most complex and significant public sector infrastructure projects.

This Guideline explains how to consider and select a suitable procurement method for a public infrastructure project where project characteristics indicate that PPP delivery should be considered. It provides a framework to assess the viability of PPP delivery against other procurement methods.

Governments have no ideological preference between traditional procurement, PPP or any of the other procurement approaches outlined in this document. Major infrastructure projects require detailed and careful planning and it is important that a robust, value for money assessment is made when choosing the procurement option.

A business case is commonly used across jurisdictions to support the investment decision. A Procurement Options Analysis as part of a Procurement Strategy, will inform the government's procurement decision.

The investment and procurement decisions are separate (although from a timing perspective they can occur concurrently or separately). While individual governments will have specific processes, generally there is a staged decision-making process:

- governments will consider the investment decision based on the business case (or scoping study or feasibility study as the case may be); and
- following the investment decision, Government will consider the procurement method decision based on the Procurement Options Analysis (which may or may not be part of the business case).

The investment decision is required before a decision on the procurement method can be approved. Generally for PPP projects and many other projects, the Procurement Options Analysis should be fully developed as part of the business case. This approach may vary across jurisdictions. In all cases the full Procurement Options Analysis is to be finished well before preparation for tendering begins.

The Procurement Options Analysis should also provide details of the preliminary public sector comparator based on the financial analysis from the business case where PPP delivery is an option.

The individual project circumstances must be considered in applying this Guideline. The advantages and disadvantages of the various delivery methods described in this Guideline may not apply to individual projects and other delivery models may also be considered.

1.1 Purpose

The purpose of a Procurement Options Analysis is to shortlist and select the appropriate procurement methodology that best achieves the procurement objectives. A Procurement Options Analysis will include the decision-making rationale for selecting the procurement method.

The Options Analysis may be part of, or followed by, a Procurement Strategy that deals with further procurement matters such as timetable and other related competitive tendering issues. Individual jurisdictions may have specific guidance on developing a procurement strategy.

For the purposes of this Guideline, the following terms are used:

Procurement Options Analysis	The analysis undertaken to determine the delivery methodology.
Procurement Strategy	<p>The high-level plan to achieve procurement objectives through a structured program of activity. It usually includes:</p> <ul style="list-style-type: none">• a statement of objectives;• a description of the requirement;• an analysis of project and procurement risks;• an analysis of market and agency capability;• an analysis of the procurement method options which identifies the preferred methodology;• contract management arrangements; and• other elements.

1.2 Benefits and challenges

A Procurement Options Analysis that takes account of project characteristics will:

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

The procurement methodology must be appropriate for the types of risks and issues the project is likely to face in practice. Optimal project outcomes are more likely to be achieved where an objective assessment of the most suitable procurement option is made based on the characteristics of the project.

A well-developed Procurement Options Analysis is one way to reduce problems such as:

- selection of an inappropriate or sub-optimal delivery model (overlooking a model that would better meet project objectives or critical success factors);
- cost underestimation or optimism bias at the outset;
- unforeseen risks materialising; and/or
- poor project management during delivery.

Some key challenges in determining the procurement method include:

- **ensuring proper planning and risk assessment.** In some instances, poor project planning and/or risk assessment has resulted in inadequate consideration of key points required to ensure optimal project outcomes;

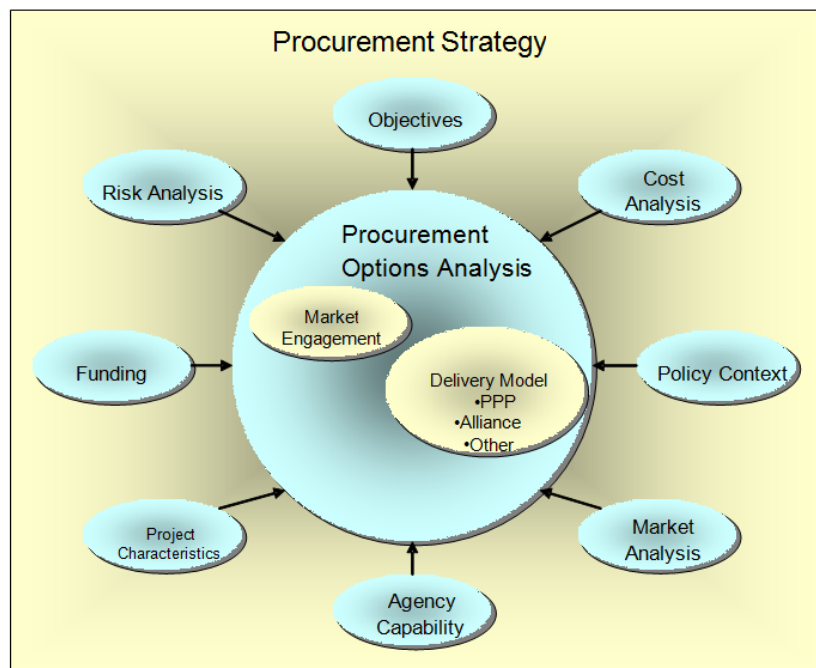
- **managing timeframe pressures emerging for projects.** Sometimes time pressures lead to premature procurement decisions being made by government. Even where adequate consideration is given to procurement analysis, sometimes delivery timeframes can unduly influence procurement decisions;
- **managing market sentiment.** At various times, a certain method may be the current preference either in the public or private sector. Procurement methodology should be selected based on the necessary up-front analysis and planning to ensure that the project is successful; and
- **focusing on value-for-money drivers.** Individual projects should be objectively assessed against all the feasible procurement options, and a decision should be made based on the option that is likely to deliver the best overall project outcomes, rather than one which contractors prefer, or the department or agency can proceed with simply or quickly.

1.3 Key elements of analysis

The data gathered for the procurement analysis is the basis and justification for the procurement methodology decisions. **Error! Reference source not found.** shows the elements of the procurement analysis. Much of the procurement analysis data come from information prepared for the business case (or feasibility study/scoping study).

**Figure 1:
Procurement
Analysis
Elements**

*Information
already prepared
for the business
case flows into the
procurement
analysis*



2 The Procurement Decision Methodology

The focus of this guideline is on the primary procurement decision, what delivery model and contract type will be used.

To manage properly the risks presented to government, it is important that the procurement decision is justifiable based on facts and analysis. The procurement options analysis should demonstrate how the recommended approach is justified on a value for money basis. Justification should show how project or program outcomes can be optimised and how the methodology selected may facilitate certain aspects of risk management.

2.1 Delivery Models

Infrastructure projects are delivered through a variety of delivery models. These include:

- public-private partnerships;
- construct-only (lump sum or fixed price contract);
- design and construct;
- design, construct and maintain;
- construction management;
- alliance contracting; or
- managing contractor model.

Section 3 of this Guideline has a brief description of these models.

These delivery models are often combined to create a hybrid delivery model. On a large project, there may be a number of different contracts and delivery models, all of which will be reflected in the Procurement Options Analysis.

Where appropriate, departments are encouraged to consider other models in addition to those described in this Guideline.

The following five-step process is recommended for selecting a delivery model. Section 4 of this Guideline explains in detail how to select the most appropriate delivery model for the project using these five steps.

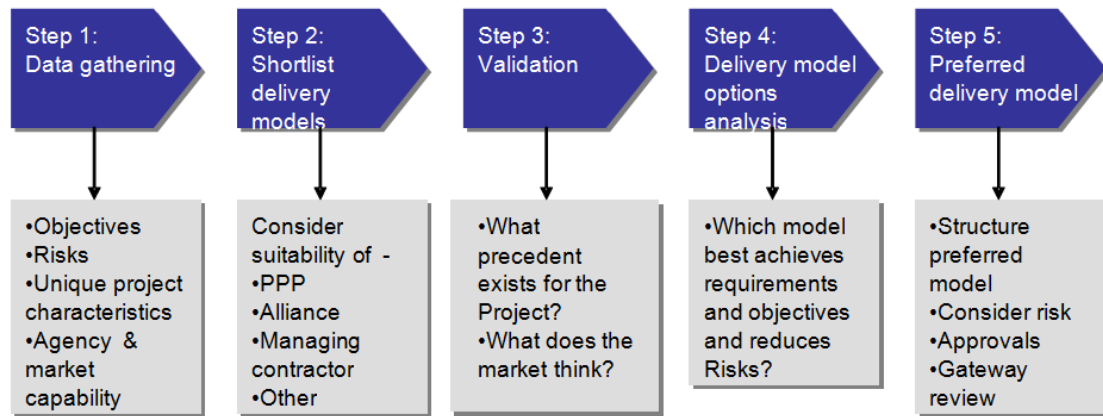


Figure 2: Stages of Procurement Analysis

2.2 Private Sector Interface

Engaging in preliminary dialogue with private sector and market analysis is integral to the procurement decision process.

Market soundings in the early planning stages of a project can be beneficial to both government and the private sector. Government can learn about markets, trends and potential impacts of its intended procurement approach; the private sector can prepare to respond to Government's requirements.

It is important to have a sound understanding of relevant industry markets before making procurement strategy decisions. Engaging with the private sector is normally subject to probity considerations relevant in each jurisdiction.

There are a range of issues that may be discussed at this point based on the specifics of the project. Some examples include:

- scope of the project;
- project timelines;
- project-specific issues and requirements; and
- market interest and capability.

It may be appropriate to seek advice about strategies to influence or develop the market.

3 Delivery Model Options

3.1 PPP Models

A PPP is a service contract between the public and private sectors where the Government pays the private sector (typically a consortium) to deliver infrastructure and related services over the long term. The private provider will build the facility and operate or maintain it to specified standards over a long period. The private provider usually finances the project.

PPPs typically make the private sector parties who build public infrastructure financially responsible for its condition and performance throughout the asset's lifetime.

In a typical PPP project, the Government –

- prepares an output-based specification rather than a prescriptive specification;
- engages a provider to deliver services over a long term, e.g. 20 to 35 years or more;
- requires the provider to design, finance, construct, maintain and operate the facility. The private party provides ancillary services including cleaning, security, facilities management, catering etc. (or some combination) and takes the risk for those functions;
- makes no payments to the provider before the facility is commissioned;
- provides payments over the term of the contract based on services delivered against the achievement of key performance indicators, ensuring the infrastructure is maintained over its lifetime; and
- eventually takes back ownership of the asset at a specified handover quality/standard.

The government is typically seeking the whole-of-life innovation and efficiencies that the private sector can deliver in the design, construction and operating phases of the project.

3.1.1 PPP Suitability

Projects with a total capital value exceeding \$50 million have the potential to result in value for money through PPP delivery. Such capital expenditure should trigger evaluation of PPP as a potential procurement method for the relevant project. The value could include bundling together a small number of similar projects. Projects of less than \$50M may also be suitable for PPP delivery if they exhibit sufficient value for money drivers. Projects below the capital expenditure threshold may also have a significant service component and therefore as significant net present value.

Always consider if there could be merit in bundling into the construction contract asset-related services that will be needed post-construction e.g. cleaning, catering, facilities management, service delivery, operations, maintenance etc. If so, determine if the value for money drivers are present to support PPP delivery.

The following are the key value for money drivers for PPP delivery:

- **complex risk profile and opportunity for risk transfer.** More rigorous risk evaluation and transfer to the private sector of those risks it is best able to manage, including those associated with providing the specified services, asset ownership and whole-of-life asset management;

- **whole-of-life costing.** Full integration, under the responsibility of one party, of up-front design and construction costs with ongoing service delivery, operational, maintenance and refurbishment costs. This delivers improved efficiency through whole-of-life costing as design and construction become fully integrated up-front with operations and asset management;
- **innovation.** As the PPP approach focuses on output specifications, this provides a wider opportunity to use competition as an incentive for private parties to develop innovative solutions in meeting these service specifications;
- **measurable outputs.** The nature of the services enables output specifications and a performance-based contract;
- **asset utilisation.** Reducing costs to government through potential third-party utilisation and through more efficient design to meet performance (e.g. service delivery) specifications;
- **better integration of design, construction and operational requirements.** Ongoing operational, maintenance and refurbishment requirements become a single private party's responsibility for the contract period; and
- **competitive process.** A competitive market exists and the use of a competitive process helps to encourage the private party to develop innovative means of service delivery while meeting government cost objectives.

3.1.2 PPP Models

PPPs can be delivered through various delivery models where the provider takes on responsibility for non-construction functions in addition to the construction role. In each model, the provider undertakes a different combination of roles, for example;

- Design Build Finance Operate (DBFO); and
- Design Build Finance Maintain (DBFM).

The following figure 3 illustrates one type of PPP. The government engages a private sector entity responsible for construction, financing, operations and maintenance. The government has certain “step-in” rights in the event of default by the private party.

The government's responsibilities for managing the project are therefore different from all the other delivery models. The government becomes a purchaser of asset-based services that are paid for according to performance. The government allocates certain risks to the private party, locks in whole-of-life budgets and quality standards and focuses on its core business.

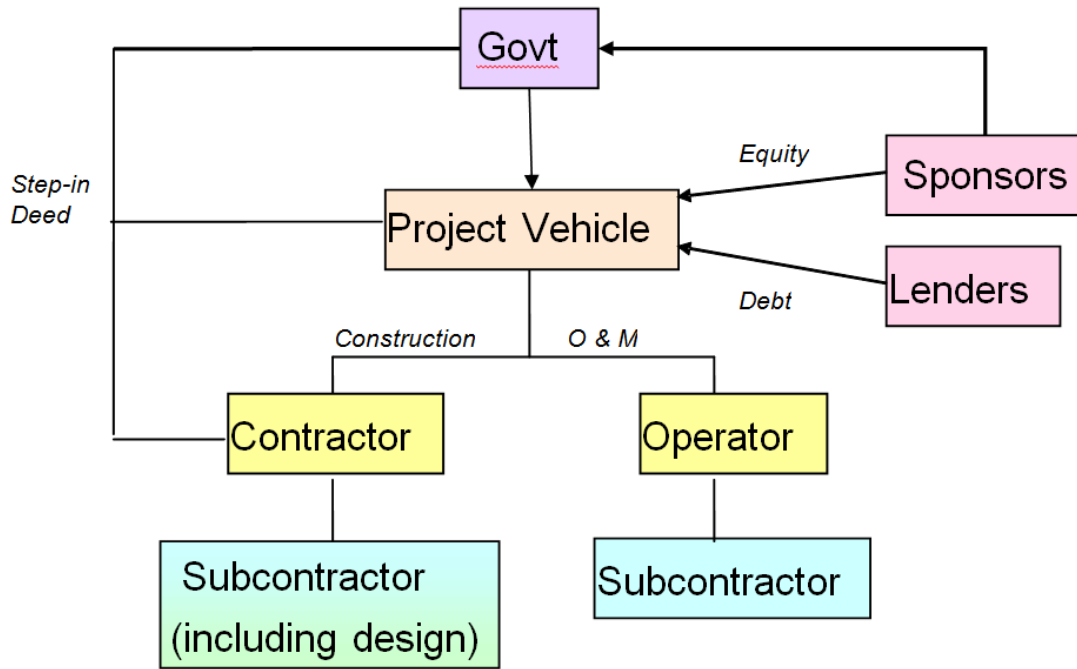


Figure 3: Example of PPP Structure

3.1.3 PPP Features

The following table lists features of PPPs –

Advantages	Disadvantages (and issues that may need managing)
<ul style="list-style-type: none"> • Full integration of design, construction, financing, operational, maintenance and refurbishment responsibilities • Greater transfer of risk (including price risk) to the private sector at each phase • Opportunity to develop innovative solutions • Transfer of lifecycle cost risk encourages efficient design and quality construction and finishes – therefore certainty of maintenance standards as agreed and cost certainty as approved for a long term e.g. 25 years • Overall design and fit-for-purpose risk lies with the private sector party • Potential for lower cost of asset development and service provision • Less demand on departmental resources long term • Payments commence following successful commissioning • Performance standards are in place 	<ul style="list-style-type: none"> • Success relies on well-defined functional and service specifications • Where there are multiple concept designs being developed simultaneously during the bid phase, this can require significant stakeholder resources • Changes to design may require contract negotiations • The ability to make a variation needs to be addressed in the contract • Potential for higher departmental tendering costs (this higher cost should be considered against savings in asset development and service provision through PPP delivery) • Requires departmental skills (or consultants) for financial and technical assessment, tendering and management • Need to educate stakeholders who are likely to be unfamiliar with this procurement method to ensure that other project success factors are not compromised

3.2 Construct Only (Lump Sum or Fixed Price)

This is a commonly used form of contract. The government has full responsibility for the design and documentation and engages a design team to develop the design documentation that forms part of the tender for the works.¹ The works are for the construction component only.

The following figure illustrates the contractual relationship of the principal with the design team and the contractor in a construct-only model.

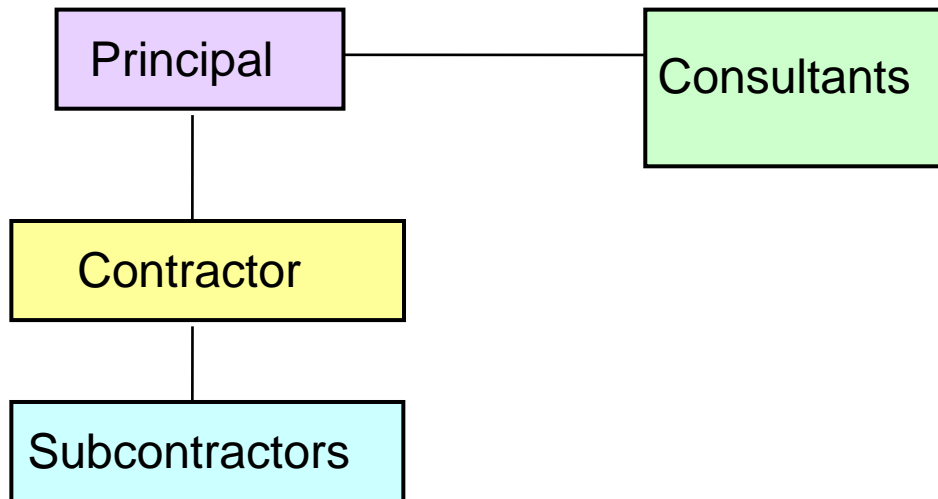


Figure 4: Construct-Only Structure

The contractor tenders a price for the works subject to adjustments provided for in the contract e.g. if there are variations. Irrespective of the actual cost of the works, the contractor will be entitled to be paid the contract sum, as agreed between the parties prior to commencing the works. However, in practice, the construct-only contract can exceed the original contract sum if not properly planned and managed.

Some examples of where construct-only contracts may be appropriate are:

- the scope is well-defined and there is little likelihood of scope creep or wholesale changes to requirements;
- there is little incentive or need for innovation from the contractor; and/or
- it is desirable and there is sufficient time to complete design documentation prior to tendering.

¹ Consultant engagement contracts for design services for major works may already be in place when the procurement strategy is being developed. With some of the delivery models, there is a design services contract separate from and/or preliminary to a construction works contract.

The following table lists features of the construct-only model –

Advantages	Disadvantages (and issues that may need managing)
<ul style="list-style-type: none"> • Highest level of departmental control and certainty re. scope because principal engages design consultants and scope is well defined prior to works commencing • Contract value is known before construction commences because: <ul style="list-style-type: none"> - the full design is prepared and endorsed prior to tendering - design complexities are resolved before contract award • Potential for lower cost of tendering for tenderers and departments (although design costs borne by departments) • Larger pool of potential tenderers, increasing competition • Greater scope for competitive prices because of design certainty • Government can manage stakeholder management process 	<ul style="list-style-type: none"> • Separate design and construction contracts mean no single point of responsibility for the project • Potential claims and delays due to design deficiencies and separation of design from construction • Minimal opportunity for cost value management or “buildability” input from contractor into design • The Government retains the risk of constructability of design, design-construction coordination, fitness for purpose and design generally • Inability to fast-track - long lead times to prepare design documentation – longer overall project duration • Little incentive for innovation • Government acts as project manager requiring skills and resources • Adversarial contract environment - potentially higher costs from claims • Potential lack of focus on lifecycle costs and considerations

3.3 Design and Construct

For a design and construct contract, the government prepares a design brief which outlines the functional and key user requirements (in performance terms) for the works but is less fully developed than the design documentation required for a construct-only contract. The government then seeks tenders for completion of the detailed design, consistent with the design brief and construction of the works described in the design brief.

The following figure illustrates the contractual relationships in a design and construct contract i.e. the principal enters into a single contract with the construction contractor who is required to provide design expertise.

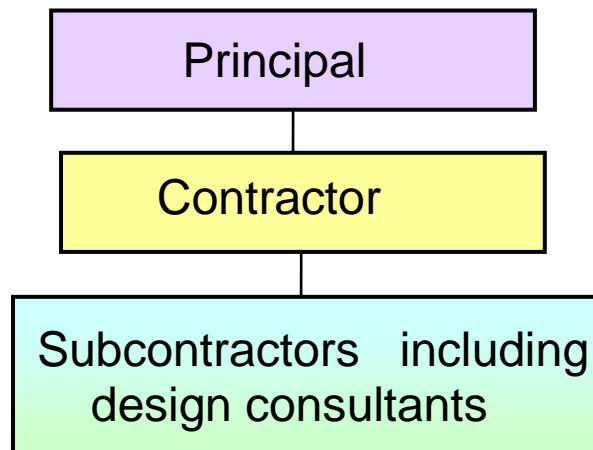


Figure 5: Design and Construct Structure

The following table lists features of the design and construct model –

Advantages	Disadvantages (and issues that may need managing)
<ul style="list-style-type: none"> • Single point of accountability for design and construction • Administrative efficiency • Fast track - time saving because construction can commence ahead of full design documentation (provided there is adequate control over design quality) • Contractor has the opportunity to contribute construction experience into the design, resulting in innovation and efficiencies • Contractor normally warrants design including 'fitness for purpose' • Lump sum for design and construction 	<ul style="list-style-type: none"> • Limited input by contractor into early design • Longer tender period needed to allow tenderers to assess design risk • Principal may pay a premium to transfer design risks • Lack of focus on lifecycle costs and considerations • Government retains whole-of-life asset risk • Government may be liable for time and cost overruns

3.3.1 Variations on the Design and Construct Model

There are some common variations to the design and construct model, e.g. –

- Design, novate and construct
- Design, develop and construct
- Design, construct and maintain

Design, Novate and Construct

In this type of contractual arrangement, the Principal initially engages a designer to prepare a schematic design or a more developed design. On the basis of that design, the Principal then engages a construction contractor who in turn enters into a subcontract with the same designer.

This model ensures the continuity of the designer's input from project inception to completion. By novation of the client-designer contract to the D&C contractor, the client's designer is taken on by the D&C contractor at the time of construction contract award. At this stage, either the schematic design or design development is completed. The contractor takes on full responsibility for the design including payment of the designer's fees.

The following figure illustrates this type of contractual arrangement –

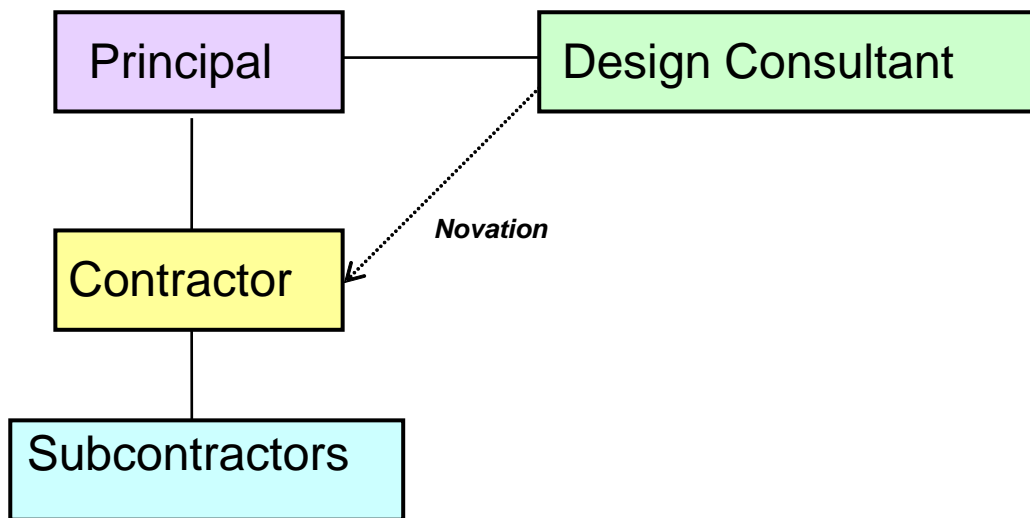


Figure 6: Design, Novate and Construct Structure

Design, Develop and Construct

The client prepares a schematic design in addition to performance specifications, thereby giving a degree of control over the design output, while still transferring some of the design risk to the construction contractor.

Design, Construct and Maintain

In this model, the contractor has ongoing maintenance obligations in addition to design and construction. Lifecycle costs can be reduced if the contractor takes into account ongoing maintenance obligations when designing and constructing the facility.

3.4 Construction Management

In construction management, the principal engages a construction manager (contractor or consultant) to manage construction works on its behalf. The principal manages the scoping and engages the designer directly. The principal also engages the trade contractors directly, although these contracts are entered into by the construction manager as the principal's agent. The construction manager performs a purely management and co-ordination role (without delivery risk) and is generally paid a fee based on a percentage of the value of the works.

The following figure illustrates the contractual relationships involved in a typical construction management arrangement –

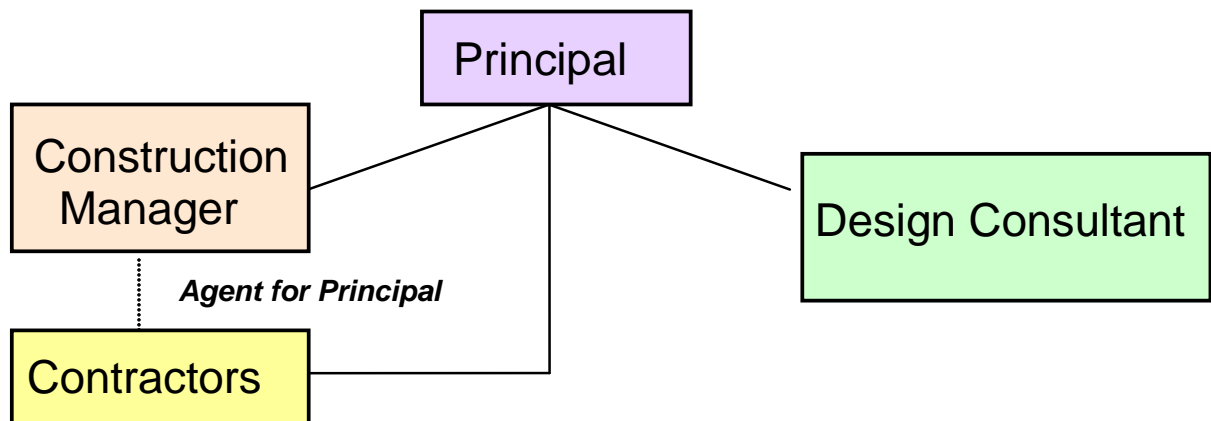


Figure 7: Construction Management Structure

The construction manager typically:

- provides advice, coordination, planning, cost management, supervision;
- is paid a fee based on time or a percentage of the value of the works;
- engages trade contractors as agent for the client;
- is responsible for preliminaries for those trade contractors (e.g. crane hire, site sheds etc); and
- does not take any cost risk or design risk although the construction manager may be paid to assist the client with cost control and design advice.

Construction management sometimes appears similar to the managing contractor model. Some key differences between the models are shown in the following table –

Element	Construction Management	Managing Contractor
Cost risk	The construction manager does not typically assume cost risk	The managing contractor <ul style="list-style-type: none"> • assumes cost risk • typically guarantees a maximum price for the works and • receives incentive payments for achieving cost targets
Cost certainty	The principal has little cost certainty until all of the trade contracts are in place and will need to closely manage those contracts to control costs	The principal usually has cost certainty through the guaranteed maximum price
Remuneration	The construction manager is usually paid a fee based on time or a percentage of the value of the works	A fixed lump sum management fee is usually negotiated. The managing contractor may also receive incentive payments for achieving cost and schedule targets.
Design risk	The construction manager may provide some design advice but does not accept overall design risk	The managing contractor accepts design risk

The construction management model can be suitable for major construction in particular situations e.g.:

- If a contractor collapsed mid-project, it may be more efficient to complete the project through construction management than to fully document and tender the balance of the works as a single package;
- where government needs to retain direct control over works e.g. in an operating hospital or rail corridor; and/or
- complex projects where it is not possible for design of some elements to be started before work is undertaken on others.

The following table lists features of the construction management model –

Advantages	Disadvantages (and issues that may need managing)
<ul style="list-style-type: none"> • Construction manager administers contractors on principal's behalf • The principal selects its own architect/design consultants • The principal can shift management risk to the construction manager • The principal can retain a high degree of control over works while engaging an expert professional to administer and coordinate the project • Parts of a project can proceed while other aspects are still being documented 	<ul style="list-style-type: none"> • No single line of responsibility • The principal must claim directly against the contractors & consultants if things go wrong • Can be administratively complicated • Extra cost of construction manager • Limited ability of principal to control costs • No cost certainty • Lack of focus on lifecycle costs and considerations

3.5 Project Alliancing

In project alliancing government collaborates with one or more non-owner parties (e.g. a designer and constructor) to share the risks and responsibilities in delivering the construction phase of a project. All project delivery risks are shared by the alliance participants. The alliance contract and supporting structures promote a positive culture based on “no-fault, no-blame” and unanimous decision-making, and requiring all participants to find “best for project” solutions. Because the behavioural culture is crucial to the success of alliancing, the selection of the right participants is paramount.



Figure 8: Simplified Alliance Structure

Under an alliance model, the non-owner parties are typically guaranteed reimbursement of their direct project costs and payment of corporate project overheads in an open-book arrangement. Targets for cost, schedule and other key parameters are developed jointly during the pre-construction phase. If actual delivery is better than the agreed targets, all parties share the reward (“gain-share”). Conversely, if delivery does not meet agreed targets, the pre-agreed “pain share” formula applies.

The following table lists features of an alliance –

Advantages	Disadvantages (and issues that may need managing)
<ul style="list-style-type: none"> • All parties have shared responsibility for ensuring design is appropriate • Provides flexibility to modify design and allows on-going changes to be incorporated during construction • Provides incentives to all parties to complete the project on time and within budget under the “gain-share, pain-share” philosophy • Cost of adversarial conduct, claims and disputes is eliminated, in the “no-blame” culture • Can deliver highly complex projects with uncertain risks which would otherwise be extremely difficult or impossible to deliver • Culture promotes innovation e.g. technical, safety, environmental • Project management efficiencies through integrated management and elimination of all claims 	<ul style="list-style-type: none"> • Less tender price competition and related certainty demonstrating value for money (unless multiple Target Out-turn Cost approach is used) • Requires all parties to be genuinely committed to openness and collaboration – relies on success of relationships, teamwork and individuals’ performance • Requires on-going involvement of appropriately senior staff with authority to resolve issues – may require extra departmental input • Cost to establish and maintain relationships can be high • Limited alliance experience to date for building projects in the public sector (though commonly used for civil engineering, road, rail and water projects) • The government bears the cost risk and other unspecified risks

Advantages	Disadvantages (and issues that may need managing)
<ul style="list-style-type: none"> Stakeholder issues can be well managed through an alliance There is an integrated planning, design and construction process with early contractor & consultant involvement All parties commit to finding “best for project” solutions Potential for greater job satisfaction and skill enhancement for personnel involved Ability to attract greater number of tenderers for complex projects 	<ul style="list-style-type: none"> Overall design and fit-for-purpose risk lies with the government Government’s recourse in the event of catastrophic failure is limited Lack of focus on lifecycle costs and considerations

Project alliancing should generally be considered only:

- in the delivery of complex and high-risk infrastructure projects;
- where the solution is unclear;
- where a high level of innovation is required;
- where risks are unpredictable and best managed collectively; and
- if the owner can be closely involved and add value.

Generally alliancing is not appropriate where risks can be identified and understood.

3.6 Managing Contractor

This form of contracting involves the principal appointing a head contractor (the managing contractor) who engages subcontractors to deliver the works. The managing contractor is responsible for administering these subcontracts and accepts some delivery risk. The principal and the managing contractor generally negotiate a fixed lump sum management fee. The managing contractor may also receive incentive payments for achieving cost and schedule targets. The managing contractor is engaged early in the process to manage the scope definition, design documentation and construction of the works. The managing contractor sometimes performs elements of the design and/or construction and is paid for that in addition to the management fee.

The managing contractor typically:

- is paid a management fee and incentive payments for achieving target price, schedule and other key parameters;
- undertakes some or all of the design activities;
- may perform some of the construction works but does not necessarily do so;
- is responsible for preliminaries (e.g. crane hire, site sheds, supervision services etc), general project requirements (e.g. security, insurances etc) and project management (e.g. scheduling, coordinating, liaising, monitoring, reporting etc.);
- prepares the trade packages and conducts the tenders, selects suppliers in close collaboration with the client;

- warrants the quality of all works; and
- warrants the completion of the works by the date for Practical Completion. In general, this model is considered only:
- for complex or high-risk projects with uncertain scope, risks or technology;
- where a high degree of expert government input is available; and
- where early contractor involvement is beneficial.

Sometimes the managing contractor engages suppliers as subcontractors and is responsible for paying them. This variation of the managing contractor model is more like a construct only or design and construct arrangement and may be preferred depending on the risk allocation, payment and incentive structure considered to be most appropriate. Variants to the generic model have been developed by some jurisdictions to overcome the main disadvantages of the generic model described in these guidelines. An example of such a variant currently in use is the two-stage design, novate and construct, guaranteed maximum price approach.

The following table lists features of the managing contractor model –

Advantages	Disadvantages (and issues that may need managing)
<ul style="list-style-type: none"> • Potential for shorter design and construction program as construction can commence during design development • Allows government to retain control of the design development stage which means the government's requirements can be accommodated within specific designs rather than a functional specification • The managing contractor can advise the design team on building issues during the design development process which facilitates integrated planning of construction and operations • Allows early involvement of all project participants and stakeholders • Reduces demand on departmental project management resources • Risk of documentation lies with contractor • Often has mechanisms for resolving issues and sharing benefits 	<ul style="list-style-type: none"> • The fixed lump sum is typically negotiated not competitively tendered • The government and the contractor share the risk of time and cost until the end of design development • More risk to department for cost, time, design and not achieving best value-for-money outcome • Difficulty setting cost targets with limited design details • Time and cost overruns can be expensive where the design is not fully agreed and documented prior to construction commencement (construction holding costs can be expensive). • Overall design and fit-for-purpose risk lies with the government • Limited number of potential suitable tenderers may lead to higher cost in management margins • Lack of focus on lifecycle costs and considerations

4 Selecting a Delivery Model

4.1 The Choice

The choice of delivery model is a critical step in the project and in the development of the procurement strategy.

The delivery model decision requires:

- sound understanding of project or program strategic outcomes and their relationships to the various aspects of different delivery models;
- sound understanding of the project risks and characteristics (identified through the risk assessment and the data-gathering step);
- detailed analysis to identify which option best optimises project or program strategic outcomes/objectives, which includes achieving value for money;
- detailed analysis facilitating the alignment of key project risks with relevant characteristics of suitable delivery models to optimise risk management opportunities; and
- risk assessment of the selected delivery model within the project context.

In determining the appropriate model, departments need to consider which model will:

- facilitate achievement or optimisation of project objectives and outcomes;
- achieve the most suitable balance between the level of control the department requires and the degree of risk that is optimal to bear;
- optimise the schedule, cost and quality outcomes for the project;
- best suit the characteristics of the project;
- provide best value for money;
- achieve the risk management objectives for the organisation and the project; and
- provide the most appropriate risk allocation between parties.

Factors that may influence the choice of delivery model include –

Design	<ul style="list-style-type: none"> • complexity of the design solution • need for and ability to achieve complete design prior to tendering or construction commencing • desire for design flexibility during construction • obsolescence of the design and the ability to upgrade • scope for innovation and benefits of having competing design solutions
Capacity and capability	<ul style="list-style-type: none"> • availability of suitable contractors • the in-house resources and skills of the principal
Whole of life ²	<ul style="list-style-type: none"> • merits of bundling capital and ongoing maintenance responsibilities • how whole-of-life costs will be assessed under each model • maintenance and disposal responsibilities
Political	<ul style="list-style-type: none"> • Government policy and other political considerations
Scale	<ul style="list-style-type: none"> • likely cost of the project • thresholds e.g. for consideration of PPP policy or project alliancing
Cost	<ul style="list-style-type: none"> • the need for strict cost control and/or certainty
Certainty	<ul style="list-style-type: none"> • what degree of certainty is there about design and achievement of KPIs? • what is the need for cost certainty?
Project characteristics	<ul style="list-style-type: none"> • risk factors particular to a project • unique or unusual circumstances or factors
Timing constraints	<ul style="list-style-type: none"> • what model is likely to best accommodate time constraints? • are there critical deadlines?

When making the delivery model decision, the department should keep an open mind and, at least initially, consider a range of potentially suitable models.

It is important not to presume that a particular model would be the most appropriate or to bias analysis of the available options.

The chosen delivery model may be a hybrid of several models to optimise project or program outcomes while concurrently managing risks that arise from the project or procurement activities.

² Although PPPs and some other models explicitly take account of various whole-of-life costs, it is prudent to consider whole-of-life cost implications of all procurement decisions irrespective of the delivery model. Relevant whole-of-life costs may include the operations, maintenance, upgrades, energy and environmental costs.

4.2 Taking Account of Risk during Delivery Model Selection

From a procurement perspective, the aim of risk management³ is to optimise project or program objectives and outcomes. The first consideration in selecting a delivery model is the ability of the model to deliver the requirements and achieve project objectives. One consideration is the ability of a delivery model to promote efficient and effective management of project risks.

Risk management occurs in parallel with project management and the procurement process. It is important to ensure that the procurement strategy is reviewed regularly and updated to reflect project circumstances and risk management.

When making the delivery model decision, consider the following approaches to risk –

- identify the model that optimises project or program outcomes (not necessarily the model that has lowest risk);
- conduct a detailed risk assessment incorporating the proposed delivery model;
- identify risk treatments where appropriate. Treatments may include the development of costed contingency plans, risk transfer/sharing, inclusion of specific contract clauses etc. The cost of risk treatment needs to be built explicitly into project cost estimates (and where relevant also consider impact on quality and schedule);
- give careful consideration to the risk treatment strategy, risk ownership and risk allocation under the project delivery model. Risks should be allocated to the party most capable of managing the risk.

Consider whether the private sector can reasonably be expected to take responsibility for particular risks. If a contractor has not adequately allowed for a risk that is later realised, this may result in claims, disputes and reduced quality to the government.

By shifting responsibility for a risk to the party best able to manage that risk (and assuming the risk has been appropriately priced), the government may lower the overall project cost;

- consider another delivery model if, in the planning process, unusually high risks are identified or possible consequences lie outside the organisation's tolerance for risk, and
 - either a management strategy is not available, or
 - the costs outweigh the benefits.

³ Risk management is applied at all stages of the project lifecycle. It commences with the identification of strategic or higher-level areas of risk at the strategic assessment stage and becomes more detailed as the project progresses through options analysis and business case development stages. The approach to risk management is based on the *Australian and New Zealand Standard for Risk Management AS/NZ 4360*. It is an iterative process that recognises both the potential for adverse outcomes from risk events, and the potential to realise opportunities from the same risk event. The purpose of risk management in procurement is to maximise opportunities whilst minimising adverse consequences.

- stress test the delivery model. Check the delivery model's sensitivity to circumstances when certain risks materialise. Examine the risks identified in the risk assessment process and consider the consequences of these under the preferred delivery model, including if modification to the models will result in more effective risk management. The model may also be modified, or changed, should an unmanageable or intolerable risk appear;
- a pro-active risk management process will make a positive contribution to cost management, schedule and quality outcomes. This approach supports the value-for-money objectives; and
- ensure that risk allocation is clearly and explicitly stated in tender and contract documentation to avoid confusion as to who owns which risks.

4.3 The Decision Making Process

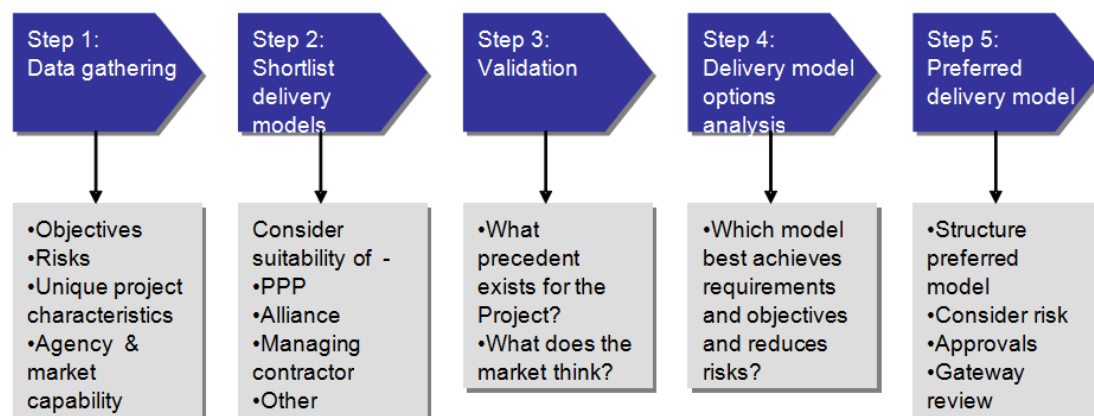


Figure 9: Stages of Procurement Analysis

Step 1: Data Gathering

Selecting the most appropriate delivery model for the project requires a sound understanding of the context. Gather necessary data and ensure it is reflected in the procurement strategy. Much of the necessary data can be derived from information used in preparation of the business case. The procurement strategy should refer to or outline all relevant data from which the delivery model decision is made. For example, consider –

- **Project Objectives** – What are the objectives of the project?
- **The Requirement** - What are the **core** services or requirements to be delivered? Are there any associated **post-construction** services that could be delivered by the private sector? If applicable, how are post-construction services currently provided: in-house or outsourced?
- **Project Risks** – Consider the risks and strategies outlined in the risk management plan. The risk management process is usually run in parallel with project management and procurement processes. The risk management plan will have identified project-specific risks. This information can be used to highlight specific risks that might be better managed by the public or private sector or through a particular delivery model.
- **Project Characteristics** – The project management plan outlines the specific characteristics of the project or business (timelines, design readiness, stakeholder

issues). What size is the project likely to be (in cost terms)? What is unique about the project? What features of the project make it different from other projects in the department (e.g. specialist nature of the service offering)?

- **Agency Capability** – What skills and resources are available and/or required for delivery of the project?
- **Market Analysis** – What market characteristics might affect the delivery model decision?

Step 2: Shortlisting Suitable Delivery Models

This step involves shortlisting delivery models based on a consideration of the scale, scope, risk and whole-of-life service opportunities. Consider –

- To what extent services can be bundled as part of the project (e.g. operational and maintenance services) –
 - What services are core or non-core?
 - Are there any potential constraints on packaging of services?
 - What are the expected efficiencies from packaging construction, operational and maintenance components, compared with other service delivery options?
 - Can the service need be contracted over the longer term?
- What is the scale of the project, including lifecycle costs?
- What is the project scope?
 - Can the scope and outputs of the project be defined?
 - Is the construction straightforward and established, or complex with untested challenges?
 - Is the required technology proven and understood?
 - Are there potential issues that may materially impact the scope during the project (complex stakeholders relations, dependence on third-party input, unknown or unquantifiable risks)?
- What are the key risks facing the project? What is government's capability to manage these risks versus a private party? Is the cost of transferring responsibility for this risk prohibitive?

The following table illustrates a shortlisting approach based on these questions, in the context of the project characteristics.

Table 1 Shortlisting of Suitable Delivery Methods

Category	PPP	Project Alliance, Managing Contractor	Other
Scale			
Project value over [\$100] million?	✓	✓	✓
If not, can services be bundled to exceed this threshold?	✓	n/a	n/a
Scope and Outputs			
Scope and outputs can be defined clearly	✓	x	✓
Scope likely to change significantly prior to project completion and the potential change cannot be satisfactorily provided for in the specification	x	✓	✓ ⁴
Whole-of-Life Opportunities			
Services can be bundled together to create a long-term operational/ maintenance opportunity	✓	x	x
Risk⁵			
A significant proportion of the material risks can be defined, allocated and potentially transferred to a private party	✓	x	✓
Unquantifiable risk that could have a material impact on project cost and objectives	x	✓	x
Government is best-placed to manage material risks, with the cost of transferring this risk prohibitive	x	✓	✓

✓ denotes that the characteristics are suited to the delivery model

⁴ While traditional models are typically used where significant scope changes are not expected, some methods may be appropriate in these circumstances depending on the nature and timing of the expected changes.

⁵ While traditional models are best suited to known and quantifiable risks, depending on the nature of the risk, some forms of traditional procurement may allow government to manage material or unknown risks more effectively (i.e. design risk through the use of construct-only contracts).

Step 2(a) Consider PPP Models

This issue may already have been considered in the data gathering step. It involves determining whether there are any post-construction services that could be bundled with the construction contract and procured as one package. This decision requires an objective analysis of the following:

- **Efficiency** - Are there efficiency gains from bundling such post-construction services together? What are they?
- **Quality** - Can the post-construction services be adequately defined (in terms of quality) and articulated in a contract?
- **Cost** - What are the transaction costs involved in bundling?

Bundling means that the contractor has responsibility for all the bundled services (e.g. designing, building, maintaining, financing and operating the asset). The contractor may be permitted to subcontract elements but will retain ultimate responsibility for the delivery of all the services. The contract defines the quality of these services.

By contrast, the unbundled approach means that the government would contract for the building of the asset and make separate contractual or in-house arrangements for the post-construction services.

The main rationale for bundling is that by putting one party in charge of all the services, cost savings can be made over the whole life cycle (including innovation, risk pricing and whole-of-life trade-offs). The government can extract the benefit of these savings by running a competitive process for the contract.

Consider the potential benefits in terms of lower lifecycle costs, if the provider has appropriate incentive to build quality that reduces maintenance and operating costs. Such efficiency savings can be significant.

For further information on these models and their suitability, see the National PPP Guidelines.

Step 2(b) Consider Project Alliancing and Managing Contractor Models

Consider suitability of project alliancing and managing contractor models.

For alliancing to be suitable, in general there must be -

- significant uncertainty about risks that are unquantifiable and would result in large risk premiums under traditional delivery models;
- risks that are best managed collectively with joint input from the Government and provider improving the effectiveness and reducing overall cost of the project; and
- organisational capability, resources and culture to deliver a project through an alliance.

For further information on suitability of project alliancing, see relevant jurisdictional guidance on project alliancing.

Step 2(c) Consider Other Delivery Models

Consider the suitability of other delivery models described in section 4 as well as others that may be appropriate.

Step 3: Validation

It is important to validate the analysis done in step 2 by reference to benchmark projects, both locally and overseas, and by conducting market sounding exercises.

This can help determine the market interest and/or ability in managing risks associated with the project and may inform how the project can be structured to ensure the best possible outcome. Such risks may include interface risks, particularly in instances where development may be occurring on sites involving existing operations.

Consider lessons learned from similar relevant projects.

Step 4: Delivery Model Options Analysis

The next step after shortlisting and validating a number of potentially suitable delivery models is to identify the preferred model. This is done by evaluating each shortlisted model against project objectives, criteria and any rankings associated with the criteria.

When analysing shortlisted delivery models, consider the following (whether or not a decision support tool is also used) –

- all of the data gathered in Step 1 (or documented in the procurement strategy)
- the capability of the market and the agency to deliver successfully the project under each shortlisted model
- how well each model is likely to achieve strategic outcomes and project objectives
- implications of each model for the agency or market
- to what extent the chosen delivery model would still be relevant if circumstances changed
- unique or unusual project characteristics and risks peculiar to the shortlisted models
- significant risks associated with a delivery model that could not be effectively managed, or that exceed organisational tolerance levels.

There is no prescribed approach or methodology for delivery model selection. A generic example is included in the appendix.

However, a number of tools are available for comparing models and identifying the most suitable for a particular project. A semi-quantitative assessment may assist in selecting the preferred delivery model. There are various quantitative methods available and new methods may be developed. The essence of quantitative analysis is to quantify the rationale behind delivery model selection decisions. No matter how solid mathematically, a model based on incorrect or illogical assumptions will be of little use.

Some departments have developed approaches (assessment matrices, weighted tables and other tools) which reflect their particular project requirements.

When using a decision support tool –

- Avoid formulae or methodologies that conceal their logic or fail to demonstrate the reasoning involved.
- Ensure sufficient intellectual expertise is available to analyse options from first principles.
- Ensure that the tool is appropriate - there is no decision support tool that fits all projects.
- Do not rely on the assessment of a single tool.
- Compare the result arrived at by applying the tool with an analysis from first principles – does the result withstand scrutiny from a first-principles analysis and a check against another analytical method?

Step 5: Preferred Delivery Model

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

Prior to commencing preparations for going to market, the completed procurement strategy, including the preferred delivery model, should be approved as required by government processes and if applicable, subject to Gateway Review.

It is important to communicate the delivery model to the market when public announcements about the project are made.

4.4 Contract Forms

Once the preferred delivery model is identified, it is likely that specialist legal advice will be needed to prepare the contract document which will implement the delivery model. Many jurisdictions have their own versions of contracts suitable for the delivery models they commonly use.

Appendix A Generic example Procurement Strategy Report – PPP as preferred delivery methodology

The following example is based on analysis of delivery methodologies for an infrastructure project. In this case the preferred delivery methodology was identified as a Public Private Partnership. This example is at a high level, an actual Procurement Strategy Report would be much more detailed.

A.1 Example Procurement Report Structure

Following is an example table of contents for a detailed procurement strategy report. A procurement strategy can either be a separate document or wrapped up into a business case report. The following represents the key elements for consideration.

Chapter 1	Executive summary	A high-level summary that should include a table outlining the procurement options and the assessment undertaken to reach a preferred procurement method.
Chapter 2	Introduction	Covers the purpose, background and scope of the report.
Chapter 3	Project description	Outlines the objectives, key characteristics and preferred technical solution.
Chapter 4	Approach to options assessment	Describes the evaluation framework, criteria, rankings and assessment ratings.
Chapter 5	Identification of the procurement options	An overview of the various options and potential for packaging.
Chapter 6	Assessment of operational flexibility evaluation criterion	Covers issues such as demand and operational flexibility under different procurement routes and an assessment against the criterion.
	Assessment of risk management evaluation criterion	Covers key project risks, potential allocation under each option and an assessment against the criterion.
	Assessment of delivery timelines evaluation	Outlines the expected delivery timeframes and assessment against the criterion
	Assessment of market interest evaluation criterion	Market-sounding outcomes and assessment against the criterion
	Assessment of value for money evaluation criterion	Discusses value for money, the cost of finance and assessment against the criterion
Chapter 7	Summary Evaluation of Procurement Options	High-level summary and recommended procurement option

Chapter 8	Summary Commercial Structure	Covers issues such as the contractual framework, proposed contract term, potential risk allocation, potential payment mechanism as well as addressing any legislative considerations.
Chapter 9	Pricing and Regulatory Implications	Discusses the regulatory framework and any issues regarding the procurement options
Chapter 10	Preliminary Accounting Treatment Guidance	Relevant accounting considerations
Chapter 11	Next Steps	Key issues highlighted such as: timeline, stakeholder engagements, governance arrangements, legislative requirements, further market engagement, further development of PSC and reference project.
	Appendices	Could cover matters such as: Indicative financial analysis, market analysis, precedent projects

A.2 Identification of the range of procurement options

The procurement options considered for the project include:

- traditional government-funded procurement (under a D&C contract, with public sector operation and maintenance, or separate short-term operating contracts with the private sector);
- government-funded alliance (with either public sector or an alliance for the operation and maintenance of the plant);
- government-funded procurement under the DBOM model (with private sector design, build, operation and maintenance of the plant); and
- privately-funded Public Private Partnership (PPP) option (with private sector design, finance, construction, operation and maintenance over an extended period).

These options were identified as they cover the spectrum of risk transfer to the private sector, and public / private sector participation in the delivery of the project. The selection of these options was also informed by the precedent procurement models adopted in the delivery of similar infrastructure elsewhere in Australia and internationally.

A.3 Scope of Procurement Options Analysis

The scope of the procurement options analysis was as follows:

- establishment of a framework for the comparative analysis of procurement options, including the identification and ranking of a set of evaluation criteria and a system for rating the options against each criterion. The evaluation criteria have been informed by the government's existing objectives for the project;
- identification of an agreed range of procurement options to be considered (informed by existing local and international precedents);
- an overview of the key project risks, together with an assessment of the retained and transferred risk position for the government under each procurement option;
- an outline of the expected timeframes for achieving an operational facility and the relative risks to those timeframes under each procurement option;
- Completion of market analysis, including market soundings, addressing the following:
 - market capacity & key players;
 - appetite amongst financiers, operators and suppliers; and
 - issues relevant to competitive tension.
- assessment of the relative value for money outcomes for the government under each procurement option;
- overall assessment and ranking of the identified procurement options against the evaluation criteria, together with a recommendation regarding the preferred procurement approach;
- a summary of the commercial structure and issues associated with the preferred procurement approach (including preliminary accounting treatment); and
- identification of issues arising from the above analysis which are relevant to the next steps in the implementation of the project.

A.4 Approach to options assessment

Evaluation framework

The methodology adopted to identify and evaluate suitable procurement options for the project comprised the following:

- the draft project objectives and unique aspects of the project were identified and reviewed;
- evaluation criteria against which to assess each procurement option were identified, consistent with the over-riding objectives for the project;
- the relative materiality of each criterion was agreed, ranking the criteria in terms of high, medium and low priority. A rating system to facilitate a qualitative assessment of the procurement options against the evaluation criteria was also established;
- alternative procurement options were identified and defined;
- the draft project objectives, evaluation criteria, evaluation approach and procurement options to be assessed were then supported by the key government departments;

- an assessment of key project risks relevant to the selection of a procurement approach was undertaken (building on the risk analysis already completed to date);
- detailed market soundings were undertaken on the procurement options with a range of interested parties, including potential financiers, contractors, suppliers and operators;
- further work was undertaken to consider the advantages, disadvantages and differences between the procurement options against the evaluation criteria to determine a preferred option for the project; and
- in parallel with the above, separate consideration was given to whether different components of the project should be packaged and procured separately (and potentially under alternate procurement models).

The evaluation has relied on a qualitative, rather than a quantitative, assessment of the differences between the alternate procurement options. In some cases some preliminary financial modelling may be useful.

The overarching purpose of the procurement method adopted is to assist in achieving the project's objectives whilst maximising the Government's value for money for the project.

Of the evaluation criteria identified, the project team ranked a number of individual criteria as being of 'High' importance because they form key outcomes of the procurement process. The high importance criteria were:

- operational flexibility
- risk management
- time to deliver project
- market interest
- value for money

To facilitate the qualitative assessment of procurement options against the above evaluation criteria the following rating system was adopted.

✓✓✓ Procurement option is extremely effective in satisfying the requirements of the criterion

✓✓ Procurement option is effective in satisfying the requirements of the criterion

✓ Procurement option just satisfies the requirements of the criterion.

✗ Procurement option is ineffective in satisfying the requirements of the criterion

✗✗ Procurement option is extremely ineffective in satisfying the requirements of the criterion

Template Evaluation Matrix

The results of an assessment would be summarised in a table as similar to the one below using the above ratings.

	Evaluation Criteria	Importance of Criteria	Government funded D&C	Government funded Alliance	Government funded DBOM	Privately funded PPP
	Operational Flexibility The extent to which each procurement option enables the Government to retain flexibility in terms of the operational profile.					
	Risk Management The extent to which each procurement option provides incentives effectively and efficiently to manage and reduce risks, thereby minimising the whole-of-life cost to the government.					
	Time to Deliver Project The extent to which each procurement option is able to support achieving an operational supply by [X].					
	Market Interest The extent to which each procurement option assists in maximising market interest amongst the appropriate players with the relevant skills, expertise and capacity to deliver the project.					
	Value for Money The extent to which each procurement option assists in maximising the government's value-for-money from implementing the project. <ul style="list-style-type: none"> • Design and construction innovation • Other innovation factors • Whole-of-life cost considerations • Risk allocation • Competitive tension • Government development and tender costs and resources • External development and tender costs 					
	Budget Certainty The extent to which each					

	Evaluation Criteria	Importance of Criteria	Government funded D&C	Government funded Alliance	Government funded DBOM	Privately funded PPP
	procurement option assists in providing earlier budget certainty to the government.					
	Flexibility (Future Scope Changes) The extent to which each procurement option assists the government in managing and implementing changes to the functional requirements of the project over time (particularly in relation to any variation in the required capacity of the plant).					
	Stakeholder Management The extent to which each procurement option assists the government in managing stakeholders through the delivery of the project.					
	Overall Rating					

A.5 Further example of risk assessment against procurement options

The general balance of risk exposure for the government under each procurement option is outlined in the following preliminary risk allocation matrix. This matrix would be based on a preliminary risk assessment and is not intended to present a definitive risk position under each procurement option. Instead, it seeks to highlight a general comparison of risk allocation across the options.

Risk	Preliminary Allocation			
	D&C	Alliance (1)	DBOM	PPP
Scope / specification risks				
Scope / specification risk	Government	Government	Government	Government
Site and approval risks				
Site availability and access risk	Government	Government	Government	Government
Site condition risk	Government	Government	Government	Private
Land acquisition risks	Government	Government	Government	Shared*
Environmental approvals risks	Government	Government	Government	Shared*
Planning approvals risks	Government	Government	Government	Shared*
Design, construction and commissioning risks				

Risk	Preliminary Allocation			
Design risks	Government	Shared	Government	Private
Construction risks	Government	Shared	Government	Private
Construction cost escalation risk	Private	Shared	Private	Private
Supplier risk	Private	Shared	Private	Private
Operating risks				
Demand risk	Government	Government	Government	Some private
Operating performance risks	Government	Shared	Private	Private
Maintenance risks	Government	Shared	Private	Private
Operating cost escalation risks	Government	Shared	Private	Private
Change in specification risks	Government	Government	Government	Government
Obsolescence risk	Government	Government	Government	Private
Competition risk	Government	Government	Government	Government
Other risks				
Interface risks	Government	Government	Shared	Shared
Change in legislation risk	Government	Government	Government	Shared
Industrial relations risk	Government	Government	Government	Private

(1) Competitive Alliances, for each of construction and operation

* Government bears risk in relation to its reference design, with the private sector at risk for the extent of departures from that design.

Assessment against D&C

Assessment against Alliance

Assessment against DBOM

Assessment against PPP