A guide to the procurement of privately financed projects: an indicative assessment of the procurement processes

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Dedication

To Kirsty

Contents

Preface

This book outlines the concept of privately financed projects (PFPs) that can be used for both public–private and private–private interactions. It utilizes models from several countries such as the UK, Northern Ireland, Australia, South Africa, Germany and the Netherlands to suggest a model for the development of robust procurement systems for PFPs. It is designed to provide the reader with a basic understanding of the critical facets involved in PFP and suggests frameworks for developing objective–orientated procurement elements. (For example, the Outline Business Case is a procurement element that fulfils a specific or several procurement objectives.)

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Abbreviations

ADSCR	annual debt service coverage ratio
BaFO	best and final offer
BLiT	build, license, transfer
BLT	build, lease, transfer
BO	build, own
BOD	build, own, design
BOO	build, own, operate
BOOST	build, own, operate, subsidise, transfer
BOOT	build, own, operate, transfer
BOT	build, operate, transfer
BRiT	build, rights, transfer
BRT	build, rent, transfer
BT	build, transfer (turnkey)
BTO	build, transfer, operate
CBA	cost–benefit analysis
DBFO	design, build, finance, operate
DBOM	design, build, operate, maintain
DBOT	design, build, operate, transfer
DSCR	debt service coverage ratio
DSRA	debt service reserve account
EIA	Environment Impact Assessment
EoI	expression of interest
FBC	full business case
FELCH	feasibility, environment, life cycle, characteristics, homogeneity
FFF	furniture, fixtures and fittings
ICA	inter-creditor agreement
IRR	internal rate of return
ISOP	invitation to submit outline proposals
ITN	invitation to negotiate
LDA	lenders' direct agreement
LLCR	loan life coverage ratio
LO	lead organization
MARR	minimum acceptable rate of return
MRA	maintenance reserve account
MSRA	maintenance service reserve account
NAO	National Audit Office

NPC	net present cost
NPV	net present value
OBC	outline business case
OJEC	Official Journal of the European Communities
OS	output specification
PB	preferred bidder
PBP	pay-back period
PFA	private finance alternative
PFI	private finance initiative
PFP	privately financed project
PIN	prior intention notice
PPP	public–private partnership
PQQ	pre-qualification questionnaire
PRG	Project Review Group
PSC	public-sector comparator
PUK	Partnership UK
RDS	room data sheet
ROE	return of equity
RTA	road traffic accident
SMT	soft market test
SPDA	service provision direct agreement
SPV	special project vehicle
TVF	tariff variation formula
VFM	value for money

1 Privately financed projects (PFPs)

Purpose of the guide

This guide provides a systematic approach for the preparation and evaluation of privately financed projects (PFPs) or services. It is intended to assist both the principal (often a public body) and the promoter (private body) at each phase of the procurement process, from inception through to financial closure. Stakeholders involved in a PFP procurement process may use the guide to gain an insight into the process.

The aim of the guide is to increase insight into the subject of PFP procurement processes. After reading the guide, users should gain an appreciation of where and how their activities contribute to the procurement process.

It is also intended that principals operating the guide should be able to adapt the private finance procurement process to their specific organization and business sector. Moreover, in the case of the promoting organization, the guide provides an appreciation of the steps that occur and the various processes undertaken, and the associated costs of bidding.

The guide is applicable to PFP and project finance in both the EU and beyond. It is designed for PFP where the principal grants a commercial mechanism that forms the basis for attracting private finance. In compiling this guide, it has been assumed that for invited competitive tenders, *Official Journal of the European Communities* (OJEC) structures are adopted.

The guide commences with a brief introduction to PFP, outlining typical organizational and contractual structures currently operating in the PFP market. It then identifies a generic procurement process for PFP, in a series of phases. Each phase contains a series of elements, which are designed to fulfil specific procurement objectives. By altering the format/content or positioning of such elements, users are able to tailor the procurement process to their project and business sectors. Each procurement phase is numbered and the flowchart illustrating the procurement process is provided to identify the likely steps involved in the PFP.

Both the text and notes have been kept as concise as possible so that the guide can be used as an *aide mémoire*. Space has been left to incorporate notes to allow the user to tailor and update the guide as and when required.

What the guide is not

The guide does not address all the issues concerning risk and value management. Rather it is designed to address the mechanics of the PFP process and to allow the user to gain a rapid appreciation of the steps a project proposal goes through for procurement.

The guide does not discuss the human elements that interact with the successful delivery of the PFP. It is widely accepted that highly skilled, experienced and knowledgeable people form the project team, thereby supporting the successful development and fulfilment of a PFP.

Similarly it does not detail the development of technical, financial and legal elements, instead concentrating on how they fit together so that the user may understand where and how their individual input fits in to the procurement process.

Definition of a privately financed project

A privately financed project, sometimes referred to as Private Finance Initiative (PFI) project may be defined as:

> 'A project based on the formation of a project agreement therein granting a *commercial mechanism*[1] by a principal, usually a government with identifiable vires[2] to enter into such an agreement, with a promoter who becomes responsible for all or part of the following: design, build, financing, operation and maintenance of an asset over the duration of the agreement, after which the asset is transferred back to the principal in full operational order.
>
> During the period of the project agreement the promoter owns the commercial mechanism in accordance with the terms and conditions contained within the control structure, resulting in payment via a payment mechanism allowing the promoter to repay financing, investment costs, maintenance and operational costs and make a margin of profit.'

Note such transactions are by no means limited to principal (public)–promoter (private) transactions. Private–private transactions that grant a commercial mechanism to a specified project agreement are just as applicable.

Types of PFP

There are several types of PFP all of which influence the structuring of the control structure and relationships formed with the project companies derived by the

[1]As highlighted in the project agreement structures, there are a whole host of *commercial mechanisms* that can be granted by the principal to the promoter. The important facet is that the commercial mechanism is secure enough to allow finance to be secured based upon the future revenue streams.
[2]Vires = explicit powers. Does the party entering into the contract have the powers to enter into such a contract? If they do not then it is known as ultra vires and the contract is void.

promoter. The proposed structure outlined within Fig. 1.4 is based upon a service sold PFP and users may find the structure alters in accordance with the type of project and the demands the principal places upon it.

Privately financed projects fall into three main categories:

(1) financially free-standing
(2) service sold projects
(3) joint-venture/public–private partnerships (PPPs) (HM Treasury, 1995).

Financially free-standing projects

The identification of the demand for the service based on historical data or market research secures private-sector interest and investment, allowing a PFP structure to be pursued. Financially free-standing projects bear demand/market risk, with financiers making every effort to analyse and verify future revenue streams. Public involvement is often supportive, dealing with specific risks that are beyond the scope of the promoter's management capabilities; for example risk such as Environmental Impact Assessments (EIAs), public hearings and objections, feasibility studies, regulatory rights, establishing performance standards and the overall management structuring of public involvement within the process. In short, raising issues associated with the principal's ability to promote the project internally while protecting the public interest (Flybjerg *et al.*, 2003). Hence for financially free-standing projects such activities may have to be split, altering the organizational structure of the principal. However, where public interest may be at stake, through situations of monopoly, the principal may take action to incorporate specific *step in or termination rights* upon the financial performance.

Characteristics of financially free-standing projects mean that:

- future revenue streams secure finance
- the final decision to sanction rests with the promoting party and the predicted revenue streams
- costs and profit are recouped directly from charges to the user
- a value-for-money (VFM) test is not required[3] (Merna and Owen, 1998).

Promoter's organization and contract structure has the following characteristics:

- Privately financed, designed, constructed, operated and maintained.
- A special project vehicle is formed.
- Tends to be consortia based.
- Utilized for large-scale projects, for example Dartford Crossing, Skye Bridge, Channel Tunnel, Severn Bridge, Northern Relief Road, Hong Kong Cross Harbour Tunnels (Walker and Smith, 1995).
- Bids often backed, or insured for investment purposes.

[3]A VFM test is a comparison of the public-sector (principal's) life-cycle cost estimate, known as the public-sector comparator (PSC), to that of the private-sector (promoter's) cost estimate for delivering the service. The difference between the two estimated costs for delivering the service is known as the VFM. There are several variations, with some PSCs operating purely on a net present cost basis and some on a net present value basis.

Being the primary party responsible for the commercial success of the scheme, the promoter is responsible for internally developing and gaining necessary commitments from lenders, who identify whether or not the promoter as a whole is capable of delivering critical success factors within the project. Lenders conduct an exceptionally rigorous 'due diligence' process.

Services sold projects

Characteristics of services sold projects mean that:

- the promoter provides a capital asset, which in turn provides a service
- revenue is generated from providing the service to an output specification and performance standards
- the principal pays for service through taxation
- VFM tests are conducted.

Promoter's organization and contract structure has the following characteristics:

- Generally privately financed, designed, constructed, operated and maintained.
- A special project vehicle is formed.
- Bids often backed, or insured for investment purposes.
- Examples include hospitals, schools, street lighting, housing, fire and police stations, leisure facilities and waste management schemes (4Ps, 2004).

The principal receives a service paid for based upon specific quantities and the quality of services provided. For example, hospital building and maintenance, for which the principal pays an amount each period for the availability or usage and standard of the building and the soft and hard facility management provided. In the UK, the remit of the promoter is specifically limited to areas of the service associated with facility management rather than direct health care.

Joint-venture/public–private partnerships

Characteristics of these projects are as follows:

- Both parties contribute to the project.
- Revenues are generated from providing the service directly or indirectly to the public.
- Finance is granted with regard to predicted future revenue streams.
- Both the public and private sector may contribute to the financing using various sources, for example, through grants, existing assets, ancillary works, or loans held by the Government (HM Treasury, 1995).
- A VFM test is conducted.
- Examples include hospitals, prisons, telecommunication services, schools, street lighting, housing, fire and police stations, leisure facilities and waste management schemes.

JV/PPP represents an alternative PFP structure enabling participants to form hybrid relationships between the principal and promoting organizations. PPP utilizes the participants' skills and resources to deliver a solution that may not have been purely commercially or socially viable under alternative procurement routes.

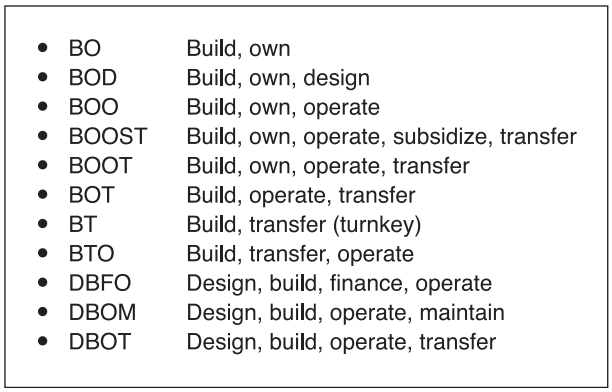

Fig. 1.1 Project agreement structures

Project agreement structures

For the purpose of this guide PFP will be used to cover all forms of agreement involving a commercial mechanism. The agreements shown in Fig. 1.1 are just some of those used within PFP.

There are several alternative forms of contracts and terms used to describe the commercial relationship between the principal and the promoter. Several of the acronyms omit terms for finance and design. However, this does not mean finance and design are not provided by the promoter; instead such resources are widely accepted and used.

The terms given in Fig. 1.1 describe the mechanics of the project agreement and the ownership of the economic unit produced. However, ownership or exclusivity of the economic unit and the services derived may take several forms (or commercial mechanisms):

- concession
- licence
- franchise
- lease/leaseback
- rent
- rights
- ownership.

The principal decides which commercial mechanism is to be applied for the project. However, the promoter may suggest alternative structures during the procurement process, which may reduce the cost of the service. Therefore during the later stages of the PFP procurement negotiations, the promoter may have a significant input with regard to selection of the most efficient commercial mechanism addressing VFM. Such agreements generate a whole host of new acronyms such as those given in Fig. 1.2.

Several different connotations can be developed, but they are all bound by the commercial mechanism of delivery, which is stipulated in the project agreement. In the UK, the selection of commercial mechanism between the promoter and principal has recently been influenced by issues concerning tax treatment.

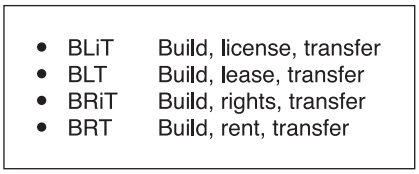

Fig. 1.2 Agreement acronyms

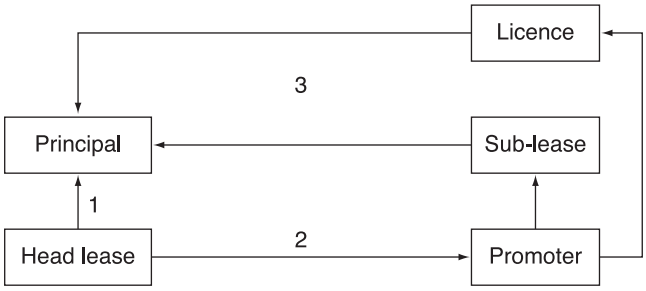

Fig. 1.3 A typical lease mechanism

To show how the commercial mechanism may operate, a lease structure is illustrated in Fig. 1.3.

As indicated by the numbers in the figure:

(1) The principal develops a head lease, sub-lease and licensing arrangement.
(2) The head lease is granted to the promoter.
(3) The sub-lease and licence are then granted to the principal.

Head leases are registered at the Land Registry and the leases usually put into operation from the point of financial closure to transference or termination. Lenders may hold the head lease as a form of recourse.

Sub-lease(s) committing the promoter to the principal for the duration of the agreement is (are) granted directly after the head lease.

The promoter then grants the sub-lease and the licence to the principal at the same time. This allows the principal to carry out its day-to-day activities from the asset/facility provided. Such licences may not be required whereby the private sector is the sole deliverer of services to the public. However, in PPP it is common for the principal to support the promoter and licences are granted.

There are a whole host of commercial structures that can be used within a PFP. A review of the structures utilized in previous projects identifies significant variations, often structured to address variations in the principal's organizational structure, service remit, degrees of recourse and promoter's degree of commercial freedom (PPPU, 1996; NAO, 1999; NAO, 2000).

Organizational and contractual structure

A typical PFP structure illustrating the control and response structures maintained over the duration of the agreement is given in Fig. 1.4.

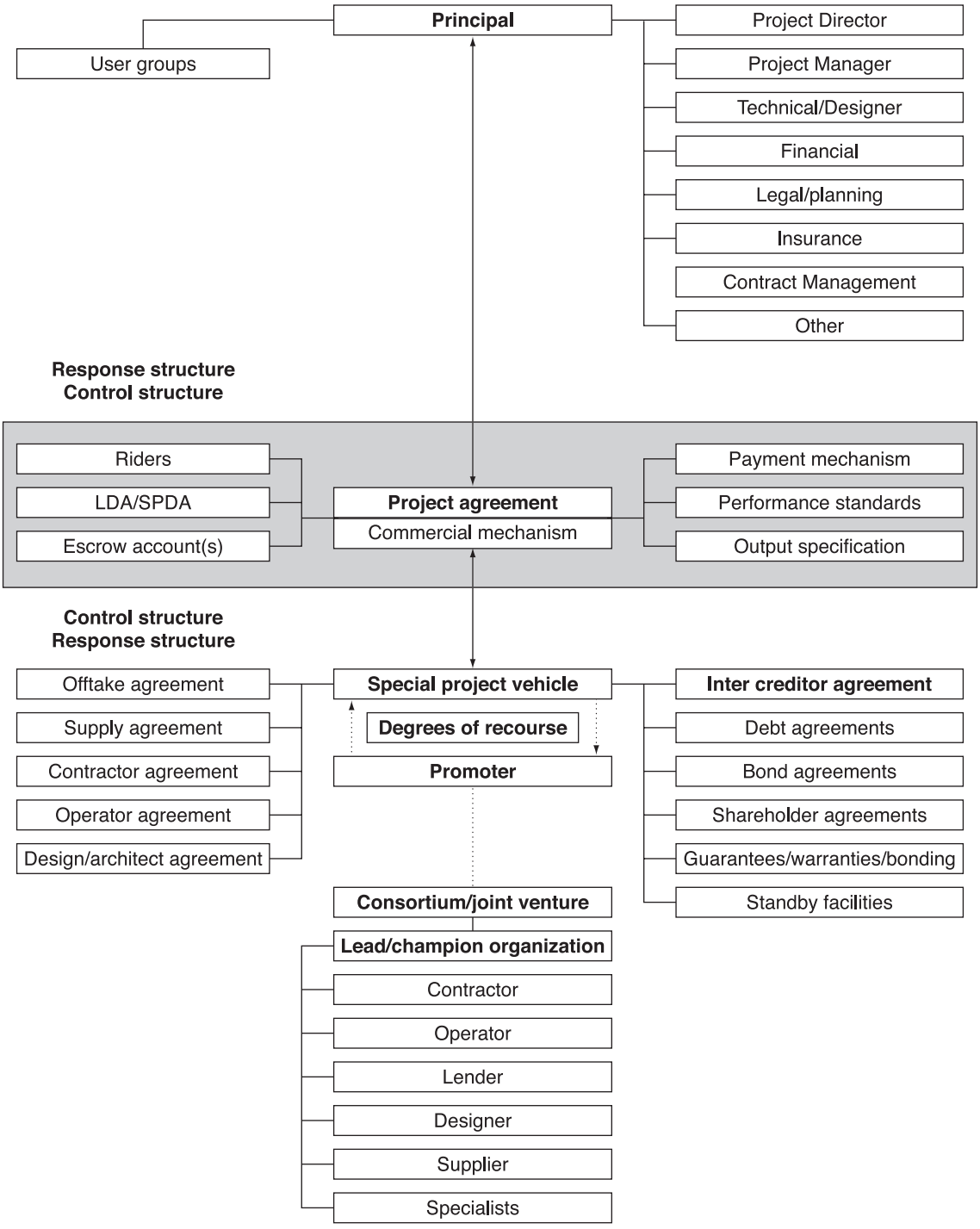

Fig. 1.4 Organizational and contractual structure of a typical PFP. LDA, lender's direct agreement; SPDA, service provision direct agreement

Figure 1.4 is not designed to be all-inclusive; instead it is designed to provide the reader with a basic understanding. There are situations where specific parties or agreements may not be necessary. It is up to the user to decide when, where and how this may affect the overall structure.

The control structure outlined in Fig. 1.4 is designed to streamline the commercial contract between the primary participants, namely principal, promoter and lenders. Each primary participant develops response structures to meet the demands of the project agreement.

Principal response structures

The principal response structure is the structure adopted by the principal organization to manage the project agreement over the life of the commercial mechanism. As the commercial mechanism operates a series of different commercial activities, the principal organization requires various degrees of knowledge and experience. The various players and their respective responsibilities are listed below.

- *Principal*. The party responsible for granting a commercial mechanism and the ultimate owner of the asset after transference or termination. The principal organization is the direct representative of the users of the service and is accountable to the user groups for the performance of the services delivered. Principals identify a series of instruments such as workshops, presentation, structured scoring mechanisms, interviews and questionnaires to address the needs of the users throughout the commercial mechanisms operation.
- *User groups*. Participants in direct contact with the day-to-day operation of the project agreement and the services it provides. There are often several forms of user groups with differing degrees of priorities to the service. However, the principal's responsibility to the various user groups may be brought into question, especially when dealing with tertiary revenue stream sources. This may be an acceptable remit of operation for the promoter, where there is still an incentive to deliver competitively priced services.
- *Project director*. Responsible for the selection and development of the project team and steering groups responsible for the evaluation of the bids. The project director also acts as a champion to the project, providing a point of contact between the project and senior management.
- *Project manager*. Responsible for the planning, organization, monitoring and control of all aspects of the project. The project manager works closely with all members of the project team, advising on potential risks, priorities, anticipated problems, and focuses the efforts of the team on progress and essential considerations such as ensuring VFM is achieved from the procurement.
- *Technical*. The technical specialist is introduced to support the principal's organization for the development of the technical elements of the bid proposal and subsequent evaluation. The specialist concentrates on the development and evaluation of responses to the output specification and performance standards. Technical specialists work with the financial specialist to ensure the transmittance of incentivization via the payment mechanism. Innovation is identified as a critical element to PFI projects and the VFM they deliver (Construction Industry Council, 2000), but it is not always achieved (Leringer, 2003). Advice is often needed to identify alternative control mechanisms that address innovation throughout the life of the commercial mechanism. For example:
  - the applicability of output and/or input specification
  - structures for future investment/extension of services
  - structure of the procurement process
  - mechanisms used to test the VFM, affordability and bankability of the scheme
  - mechanisms used to test the efficiency of the bids and costs incorporated within them

  - mechanisms that allow the commercial mechanism to adjust to current technology/improvements and reductions in the operational cost basis.
- *Finance*. Financial specialists are used to develop the detailed life-cycle models required to assess the economic parameters surrounding the project, grant requirements and marketing recommendations. The specialist may be used to tailor the payment mechanisms to the commercial and technical demands of the project, protecting the VFM and affordability the scheme offers over the life of the commercial mechanism.
- *Legal*. Legal specialists develop the project agreement forming the primary documentation of the control structure. The specialist is responsible for ensuring no part of the supporting documentation contradicts the needs of the principal and other stakeholders.
- *Insurance*. Insurance specialists, often competing with insurers to those incorporated in the promoter's special project vehicle (SPV) may advise on the competitive nature of the insurance being provided. Due to the events of 9/11, the attainment of insurance has become limited, especially for specific assets or sectors. This creates further challenges to PFP with regard to the risk transference attainable within schemes.
- *Contract management*. Parties responsible for the monitoring and maintenance of the project agreement's performance pre- and post-construction completion. Specific members of the project team may continue to operate as contract managers. For example, the project manager with his or her extensive working knowledge of the agreement may stay with the project, or take up a contract manager's position in the principal organization.
- *Other*. Other specialists may be drafted in as and when specific problems arise during negotiation. As the PFP becomes more detailed, specialists in specific areas such as planning and taxation are consulted. Project directors should address such issues by engaging organizations with the necessary resources.

Control structure

The control structure is the contractual framework developed by the principal and promoter during the PFP procurement process. The control structure aims to provide a stable environment for the delivery of services, while protecting the VFM expected from the consideration granted by each party. Elements of the control structure are listed below.

- *Project agreement*. This is the contract structure which draws together all the control mechanisms. Project agreements outline all the commercial elements under which the principal and promoter operate throughout the term of the commercial mechanism period. The project agreement outlines procedures for dealing with specific issues that may arise during the life of the commercial mechanism. A simile for the project agreement is a computer program which calls upon specific sub-routines to allow the program to reach its objective; in this case the sub-routines would typically be the payment mechanism and output specification.
- *Commercial mechanism*. Exclusive rights or privileges to deliver services to the principal by the promoter for the duration of the period contained therein.
- *Payment mechanism*. The mechanism developed for the remuneration of the promoter in consideration of the service provided. Payments back to the principal are made in situations of breach of the project agreement and act as incentivization to the promoter to rectify failures and comply with the efficient service delivery model. The payment mechanism contains details surrounding indexation or tariff variation formulae (TVFs), caps and deductions, performance-based payments

and availability-based payments. Issues of the separability[4] and account treatment are contained within the elements of the control mechanisms.

- *Output specification*. An objective-based specification. The output specification states what is to be delivered rather than stating how it will be delivered. However, it should be noted that there are circumstances where prescriptive specification may be required such as FFF (furniture, fixtures and fittings).
- *Performance standards*. These outline specific performance criteria the promoter must meet. The standards include the monitoring techniques and incentivized payment mechanism structures adopted.
- *Riders*. Riders are attachments/amendments made to the project agreement to address specific concerns. Often riders relate to elements of the contract that are new and thus may require additional attention and development by the project team. For example, under new guidance from Partnership UK (PUK) (see PUK, 2000), sharing of refinancing gains needs to be incorporated into all UK PFP project agreements. Those project agreements that were ongoing while the guidance notes were being formalized develop riders to address such issues.
- *Lenders' direct agreement (LDA)*. Direct agreement between the lenders and the principal regarding terms and conditions of loans. This sets out the lenders' or security trustees' *step in* rights to take control of the project agreement in specific circumstances of promoter default and the security lenders have over assets of the SPV.
- *Service provision direct agreement (SPDA)*. This outlines the principal's right to step in and take over the project agreement subject to the LDA either during default, termination or transference.
- *Escrow accounts*. Accounts established for payments to or from an account on the occurrence of a specific event. For example, in the Canadian Embassy Project, Berlin, the principal opened an escrow account, which would only pay out amounts to a contractor on completion of specific elements of work, signed off by the client representative. This was used to mitigate any risk associated with the operator becoming insolvent during construction, due to the declining property market in Berlin. In this instance the construction could have ceased, followed by highly expensive and complex litigation proceedings. Therefore this element of the contract was separated via an escrow account, which made direct payments to the contractor on completion of elements of the embassy. Once fully constructed and commissioned, specific handover proceeding were prescribed, with the operator accepting the future liabilities associated with operational performance. This structure separated the construction elements from those of operation, restricting the operators solvency risk to purely the operational phase of the commercial mechanism.

Special project vehicle

The SPV allows identities to be created to perform under the terms and conditions of the project agreement. SPVs are used to create:

- an identity who solely operates within the confines of the commercial mechanism and project agreement

[4]Separability refers to the ability to separate specific elements of the service that warrant a specific payment. If elements of the service are not separable, alternative accounting methods may be applicable.

- limited or non-recourse finance
- off-balance sheet transactions.

The limited or non-recourse nature of the private finance funding allows sponsors of an SPV to fund the project outside of their balance sheet as it shifts significant degrees of risk associated with the operation of the service from their financial responsibilities (see Merna and Njiru (2002) for more information). Thus finance is secured via predicted future revenue streams from the promoter holding exclusivity over the commercial mechanism.

Off-balance sheet transactions are attained by the transference of risk from one party's balance sheet responsibility to another. Specific percentages relating to the quantity of risk transferred may be necessary to justify shifting an asset/liability from one firm's balance sheet to another (Heald, 2003).

The attainment of off-balance sheet status for PFP projects may not be the critical element to the attainment of VFM as for the justification of PPP, which offer alternative risk transference models. Instead, risks are allocated to those parties able to manage and cope with the liabilities faced, with several PFP in the UK remaining on balance sheet (HM Treasury, 2003).

There have been recent PFPs undertaken via the formation of a limited partnership rather than an SPV. Under the limited partnership the promoter limits its and other investor liabilities. In the case of a £70 million school PFP, the structure proved to be an efficient tax structure while operating within the UK market (Hoare, 2003).

Degrees of recourse

There are three degrees of recourse for lenders.

(1) *Non-recourse*. The lender to the project, both debt and equity, hold no recourse to the general funds or assets of the promoter. The sole recourse available to the lender is to the SPV and its future revenue streams.
(2) *Limited recourse*. The lender to the project potentially both debt and equity has limited recourse to the general funds or assets of the promoter. Degrees of recourse may also be enhanced through the use of collateral, bonds, guarantees and warranties.
(3) *Full recourse*. The lender to the project has full recourse to the funds borrowed through either project collateral or external collateral provided by the promoter or parent company. This form of transaction does not require the formation of an SPV but substantially reduces the risk to lenders and requirement for off-balance sheet attainment. This form of finance is normally associated with traditional corporate finance transactions.

The degree of recourse set against the risk in the project impacts the mark-up of the LDA and the rates of borrowing to the SPV.

Promoter's response structures

The promoter's response structures can be divided into the following categories.

- *Off-take agreements*. Agreements that outline terms, conditions and circumstances under which services produced by the SPV may be procured. Off-take contracts refer primarily to those services delivered to third parties.[5]
- *Supply agreements*. Agreements for the provision of consumables or services to the promoter for a specific period.[6]
- *Contractor agreement*. Agreement between the SPV and the contractor for the completion of the capital elements of the works. There are several forms of agreement available to the SPV. A SPV should seek to place agreements that are attuned to the considerations placed within the project agreement.
- *Operation and maintenance agreement*. Agreement between the SPV and the operator and maintainer of the asset post-construction, outlining vicarious rights and specific performance deductions potentially liable to their organization.
- *Design/architect agreement*. Agreement outlining the responsibilities of the architect and the designers. This may include elements of guarantees, warranties and bonds for the performance of specific designs.
- *Guarantees/warranties/bonding agreements*. Agreements may be a collection of guarantees, warranties and bonds from members of the promoting consortium. In some cases the guarantees/warranties/bonding contained within the control structure will have sufficient assignment rights with appropriate long-term limitation periods with respect to the duration of the project agreement. If such periods are insufficient with respect to the project agreement then issues of transmissibility come into play.
- *Inter-creditor agreement* (ICA). The agreement between the lenders, outlining levels of seniority, security and terms and conditions of default. The ICA draws together all the agreements used to finance the SPV. (See Merna and Njiru, 2002 for further details.)
- *Debt agreements*. Agreements made with the lenders to finance the SPV. The agreement covers all aspects of the borrowing, including fees, assigned interest rates, drawdown periods, margins, repayment dates, debt service reserve account (DSRA),[7] mezzanine reserve account,[8] proprietary rights and ownership of assets as collateral and events of default as per the ICA.
- *Bond agreements*. Agreements made with bond holders to finance the SPV. This agreement typically outlines the nature of the placement and the disclosure of information, guarantors, SPV name, amount, drawdown, coupon and repayment structure, maturity, level of security as per the ICA, terms of prepayment, events of default as per the ICA, covenants and transferability and revenue account size.

[5]The party that holds the off-take contract does not necessarily have to be the principal. There are circumstances where the principal may be providing services to different organizations or departments.

[6]It should be noted that a tariff variation formula (TVF) may be generated to mitigate risks associated with inflation. The TVF would then pass on any increases in supply cost derived from inflation risk to the SPV. The SPV would then seek to have the same TVF facility within the project agreement contained in the payment mechanism so the risk is directly passed through. However, associated delays in payment should not generate any liquidity risks to the SPV.

[7]A debt service reserve account is an account opened by the SPV into which revenues will be drawn to build up a cash reserve equal to the servicing of the debt for a specific period. The account acts as a buffer. Use of funds from the DSRA may be seen as a default.

[8]Mezzanine reserve accounts are used to serve the same purpose as the DSRA – to act as a buffer for failures in the repayment of mezzanine borrowings.

- *Shareholder agreements*. Agreements made with shareholders to finance the SPV. In this agreement the shareholders may or may not be identified, along with the amount, guarantors, rights attached and, as per the ICA, dividend policy and the transference of shares.
- *Standby facilities*. Used as contingent capital available for drawdown under specific circumstances, such as late completion or construction cost overruns. This amount usually has its own terms and conditions. Its quantity and size can also be determined by the debt service coverage ratio (DSCR)[9] and the DSRA.

Promoter

The main categories to be defined are listed below.

- *Consortium/joint venture*. The promoter may be formed from a number of organizations, brought together because of their experience, knowledge and skills to deliver the project under the terms and conditions of the control structure.
- *Lead organization (LO)*. The LO heads up the consortium/joint venture and is responsible for preparing the tender documentation for submission. The LO may also be responsible for operating the SPV and selecting the various agreements made between the SPV and the various parties that either form the promoter's organization or undertake work on a subcontracting basis.
- *Off-take*. The promoter may hold third-party off-take contracts for specific revenue sources and services; For example, in several street lighting projects the rights to advertise within specific designated areas. Take the following example: the promoters approached several advertising companies to bid for the rights on a lump sum basis. An off-take agreement was formed between an advertising company and the SPV for the rights to advertise on lighting columns. This then allowed the promoters to reduce the unitary payment due to the certainty of payment from the third party's revenue streams.
- *Supplier*. Parties responsible for the provision and servicing of consumables to the SPV. There may be instances where the promoter may have to deal with specific suppliers for long-lead items. Such long-lead items pose a potential risk to payments, or may default if such products are required to rectify or make available specific services or perform to a specific standard. Dealing with reputable suppliers who work with the SPV to prevent such occurrences improves the robustness of bids and the VFM.
- *Contractor*. The party responsible for the construction/capital expenditure within a designated programme of works.
- *Operation and maintenance*. The party responsible for the expenses incurred post capital expenditure completion and for the life-cycle operation of the asset or economic unit completed post-construction.
- *Design/architect*. Responsible for the life-cycle design and future operational performance of the asset. Establishing systems that promote the unification of the various disciplines to deliver an asset that operates efficiently over the life cycle of the facility.
- *Guarantees/warranties/bonding*. These are made between members of the consortium. For example, a supplier of mechanical apparatus may provide to the purchaser/SPV a guarantee relating to the performance of a specific device. If the same performance

[9]The debt service coverage ratio illustrates the factor of safety a predicted cash flow has to service the debt instrument.

standards for the device are outlined within the control structure, and the performance standards and limitation period are sufficient, then the guarantee forms an asset to the SPV. Bonding and warranties that provide some form of consideration to the SPV with regard to meeting specific liabilities, strengthen the promoter's structure and the bids made.

2 Privately financed projects: the procurement process

Introduction

Chapter 2 provides a guide to the procurement process by outlining the phases from project review to financial close and subsequent project implementation. The process is broken down into a series of phases that can be modified by the user to accommodate particular characteristics of the project. Consideration of the project characteristics and the supporting process infrastructure (guidance organizations) aids the user in the design of a procurement process suitable to the current PFP market.[10]

Participants

The parties involved in a PFP procurement process are outlined below.

- *Principal*. The party responsible for the development of the control structure and the analysis and evaluation of bidder responses. Persons or organizations that form and support the principal are illustrated in Fig. 1.4.
- *Promoter*. Throughout the process there may be between 1 to 15 promoters involved in the procurement process. The scheme and the control structures become more refined as the bids pass through a series of evaluations, the successful promoting party emerges.
- *Project Review Group*. The Project Review Group is a group of multi-disciplinary individuals with significant experience in the procurement of PFP. The group analyses the integrity of fundamental assumptions and decisions made by the principal when developing the project proposal and control structure. Project Review Groups control a level of funding for the project; often this is the funding necessary for capital elements of the works.[11]

[10]Note several countries with mature PFP markets have formed authorities for the processing and authorization of PFP projects. Such authorities vary; however, this guide has addressed this issue through the use of the Project Review Group.

[11]Note that in major infrastructure investments a separate Steering Group may be formed to oversee the project and provide guidance.

- *Guidance organizations*. Organizations are formed to develop and provide guidance to specific parties involved in the PFP projects. Principal treasury departments usually form and promote the development of such bodies, which devise standardized forms of procurement infrastructure to reduce the cost and time frame for procurement, for example, 4Ps (see 4Ps, 2004).
- *Quasi public–private organizations*. Formed from both the private and public sector to provide guidance on PFP. Often they oversee the standardized form of control mechanisms and address issues that may arise where the standardized formats are inadequate or require updating. Both the public and private sector have access to such organizations, for example PUK.

Aims and objectives of the procurement process

The procurement process aims to instil and identify within principals and selected promoters the ability to deliver the project with the desired outputs supported by robust performance metrics.

The objective of the process is to:

- maintain competition between bidders throughout the procurement process
- achieve a solution that is affordable to the principal and offers sufficient returns to the promoter for the risks they are undertaking
- establish a fully auditable process that highlights how and where decisions have been made
- maintain the fundamental characteristics of the procurement solution that lead to the selection of the procurement route in the first place
- achieve value for money (VFM)[12] from the procured solution
- identify the user groups' needs and deliver those that are affordable and operate towards the provision of value
- be structured in a manner which can support the negotiation processes, addressing alteration of bidding strategies and administrative anomalies, for example, joint funding.

Throughout the procurement process the Project Review Group develops a series of demands to test the principal's and promoter's knowledge and understanding of the project, to ensure the participants involved are capable of delivering the project successfully. Such tests may come in the form of expression of interests, outline business cases, full business case, submission of the control structure for review.

PFP process

There are several PFP process diagrams currently available within the marketplace. Many have been tailored to meet the specific business sector in which PFP operate[13] (Office of Government Commerce, 1999; New South Wales Government, 2001; South African National Treasury, 2001; Public Private Partnership Unit,

[12]VFM relating to public procurement is: 'the optimum combination of whole-life costs and quality to meet the user requirement' (Office of Government Commerce, 2003).

[13]Many of the guidelines produced by various countries refer to those produced by the UK Treasury as they were one of the first to develop the subject of PFP. There are direct similarities between the UK procurement process and various countries.

2002). Standardized forms of control mechanisms have been formed to reduce the time and cost incurred during procurement. However, there are cases where such material is not present within specific markets/countries and may have to be derived as required. For instance, a project not previously procured in this manner may require a new control structure to be developed. This may be derived from structures used in either different markets or from previous PFPs.

Assigning the correct consultants to advise is critical to reducing the procurement process time frame and cost, and consultants can often bring the working methodology of operational control structures that can be tailored to fit the project. Consultants may spend the majority of their time establishing the differences between the business sectors or markets not currently addressed within the current framework and allocate provisions within the procurement process.

An initial assessment of the characteristics of the PFP is conducted to establish where and how the procurement process can be adjusted to address the demands of the project. This analysis is conducted on a qualitative basis and currently bears no credence to the total capital expenditure incurred on the PFP.[14] Users of this guide should bear this in mind when using the FELCH matrices (Tables 2.1–2.3) when forming decisions about the structure of the procurement process. The following subsections discuss the FELCH matrices in detail.

FELCH matrices

FELCH matrices are used to make assessments of the circumstances under which the principal and the promoter engage in a PFP. Tables 2.1–2.3 analyse the technical, legal and financial considerations of the project, via the FELCH analysis, as listed below.

- ***F****easibility*. The study of the feasibility of a PFP via the analysis of the technical, financial and legal constraints surrounding a project.
- ***E****nvironment*. The global constraints that influence the development of the control structure and the possible need to alter current environmental constraints to allow such projects to be undertaken. An example of this would be the alteration of security and enabling legislation.[15]
- ***L****ife cycle*. Study of assumptions made during technical and financial modelling of the project and their integrity based upon the duration of the commercial mechanism allocated.
- ***C****haracteristics*. Study of the project characteristics that influence the development of the control structure. This attempts to establish the degree of uniqueness contained in the project, which would require bespoke control mechanisms.

[14]There has been guidance issued by the UK Private Finance Unit designed to improve the PFI procurement process (Private Finance Unit, 2002). The New PFI Procurement Model operates within a specific business sector and utilizes the total value of the scheme. Overall, the Private Finance Unit concludes that the higher the value of the PFI contract the longer the process should be and the more bidders involved.

[15]Security legislation is designed to protect the interest of the investors. The lack of such legislation would affect the homogeneity between the principal and the promoting party and also place greater demands upon the response structure of the promoter as it seeks to mitigate such risk via alternative means. Enabling legislation means that the host government may have to enact legislation authorizing the transference of assets from the public to the project (UNIDO, 1996). Such situations would lengthen negotiation and increase bidding costs.

Table 2.1 Technical FELCH analysis

Characteristics	**Yes**		**No**
Principal	**(1)**		**(–1)**
Do the principal organizations require or have guidance for performance indicators, monitoring techniques and reporting systems?			
Potentially high private-sector interest in the scheme?			
Does the project require a low degree of public consultation?			
Land, planning, waivers and overall access to the sites do not pose any problems?			
There are no delicate or specific environmental problems surrounding the project?			
The project has minimal media coverage or holds no critical political pledge?			
International and national technical standards. Do they support the development of specifications that operate efficiently for PFP?			
Are data readily accessible regarding the current capital cost of providing such services?			
Are data available surrounding the life-cycle operational cost of assets and services?			
Are there current procurement systems in place that promote effective project delivery?			
Are the contracts currently used similar to those proposed within the PFP?			
Can the principal organization readily quantify those technical risks that are transferred?			
How many years has the PFP been operational within the marketplace? High 10–20 years or more Medium 5–10 years Low Below 5 years*	**High (1)**	**Med (0)**	**Low (–1)**
How many years has the PFP been operational within the business sector? High 10–20 years Medium 5–10 years Low Below 5 years*	**High (1)**	**Med (0)**	**Low (–1)**
Is the response from the public from previously procured PFP positive?			
Is the project based on tried and tested technology?			
Promoter	**(1)**		**(–1)**
Do the promoting parties have the skill base within the marketplace to fully deliver the services required and are they sufficiently available?			
Have the promoting parties delivered technically similar projects in the past?			
Will the promoting parties have the technical capabilities to innovate around the specifications systems proposed?			
Can the promoters operate above and beyond the performance standards required and can payment mechanisms be sufficiently structured to incentivize that?			
Is the level of technology transfer acceptable to the promoting parties?			
Does the local/national construction industry have experience/involvement in similar forms of construction contracts?			

Table 2.1 continued

Characteristics	Yes	No
Promoter	**(1)**	**(–1)**
Can the promoting parties readily quantify and price the risks transferred?		
Can the promoting party provide the necessary guarantees, warranties and performance bonds? Are there standardized structures in place?		
Specialized equipment is not used and the processes involved in delivering the service are not sequentially dependent?		
Detailed plans of utilities and services maps are readily available?		
Score		

*As markets become more mature it is up to the user to establish relative scales for the assessment of the maturity. The authors note the system devised is crude and that a better indicator may be the total number of PFPs that have reached financial closure by the principal.

- ***H**omogeneity*. Establishing an appreciation of the similarity of the principal and promoting party's position under the PFP. This identifies PFP types and associated operational practices that would work efficiently on a day-to-day basis over the term of the commercial mechanism.

By providing users with the objectives of the FELCH analysis, they should be able to devise their own system to appraise and develop appropriate procurement processes. Users may wish to segregate the analysis into each category and weight the results for specific questions depending upon their criticality to the procurement programme and cost.

Tables 2.1–2.3 ask basic questions about the procurement infrastructure surrounding the PFP project. Scores derived provide an insight into the robustness of the current procurement infrastructure available for the processing of the PFP. The users may then identify specific areas of weakness and seek to either improve or mitigate the effects via the incorporation of the necessary provision within the procurement process.

For example, if a project scores low on one package such as financial, then the procurement programme and the activities surrounding the financial development and analysis of bids may be adjusted accordingly. Such elements should be analysed by consulting parties bidding on a fixed lump sum basis.

Scoring matrix

The scoring matrix (Table 2.4) is used to classify a potential project, which is used to suggest a procurement process. However, this qualitative assessment must be backed with a detailed appreciation of the strengths and weaknesses of the scheme often relating to human aspects of the process. Users should further refine the model to allow for bespoke considerations that may be prevalent within their respective market.

In the case of a high-scoring project, the conditions surrounding the project are favourable to a rapid and relatively low-cost procurement process. High-scoring projects also have standardized mechanisms contained within the control structure; this significantly reduces the time taken to develop the business case and prepare the documentation. See Fig. 2.1.

Table 2.2 Financial FELCH analysis

Characteristics	**Yes**	**No**
Principal	**(1)**	**(–1)**
Is the supply of funding to the principal organization reliable and readily available?		
Principal is aware and has access to financial instruments to address the demands of the project?		
Financial monitoring and reporting structures are in operation?		
The overall credit rating of the principal and backers is secure and does not require any further enhancement?		
Has the principal the ability to produce, monitor and deliver upon a payment mechanism structure?		
There are tried and tested performance standards that can be linked to the payment mechanism structure?		
Performance standards are calibrated to alternative projects with definable margins for profit?		
There are standardized payment mechanism structures?		
Clear and stable taxation laws?		
Systems for the identification of off-balance sheet transaction?		
Previous and similar schemes have not produced VFM, affordability* and bankability† problems?		
Promoter	**(1)**	**(–1)**
Has access to several financial markets?		
Appreciates the accounting principles that are applicable? PFP and off-balance sheet transactions are financially defined?		
There is a high degree of certainty regarding the information surrounding cost estimations?		
The revenue models are contract-based and do not require substantial investigation?		
Is the need for escrow accounts minimal?		
Promoter has the ability to model the sensitivities within the project?		
Promoter has access to financial risk-mitigating tools and instruments?		
Financial reports are readily accessible and signed off by the CEO?		
Financial structuring and engineering of the deal is expected to be manageable with minimal financial innovation?		
Application of reserve accounts is in keeping with the financial instruments and technical requirements of the project?		
Promoters have access to the necessary forms of instruments needed for the type of drawdown expected?		
Score		

*Affordability is the principal's ability to afford the proposed capital investment and the incurred increase or decrease in operational expenditure based upon current and project revenue budgets.

†Bankability is the financier's view of the project's financial integrity over the life of the project agreement. Several checks relating to the debt service coverage ratio may be conducted to check that the cash flow will support private interest in the scheme.

Table 2.3 Legal FELCH analysis

Characteristics	**Yes**	**No**
Principal	**(1)**	**(–1)**
The country has discernible bankruptcy laws?		
The principal has legal advisers who have experience of PFP commercial mechanisms, specifically in relation to how they interact with local and national legal frameworks?		
Commercial banking and insurance legislation?		
Principal has support from legal advisers who have experience of the local and national legal framework that exists?		
Structured environmental and labour laws are adequately covered within the project agreement?		
Facility and ease to develop special legislation to address project issues?		
There are standardized forms of project agreement that can be implemented alongside various commercial mechanisms?		
The principal has experience of developing and operating under similar project agreements in the past?		
Promoter		
Contracts, collateral and security are all enforceable?		
Promoters have operated under standardized form of project agreements?		
Legal framework regarding property rights is well established?		
Commercial mechanisms are legally defined and the promoter is aware of the financial implications of such mechanisms?		
The legal system is able to address hybrid forms of agreements that may offer benefits to both parties?		
Standardized formats of performance bonding/warranties/guarantees are established and used?		
Score		

Medium-scoring project proposals outline the need for limited development and guidance relating to the control structure. For example, a typical medium-scoring project would be where a standardized project agreement exists but has not been previously applied to the business sector. See Fig. 2.2.

Low-scoring project proposals require extensive development and support from the principal and the promoting party. Such schemes are unlikely to have transpired in the past and there is a lack of supporting knowledge that provides the structural

Table 2.4 FELCH scoring matrix

Project	Score (x)	Cost of the procurement process
High	$60 > x > 36$	Low
Medium	$35 > x > 0$	Medium
Low	$-1 > x > -60$	High

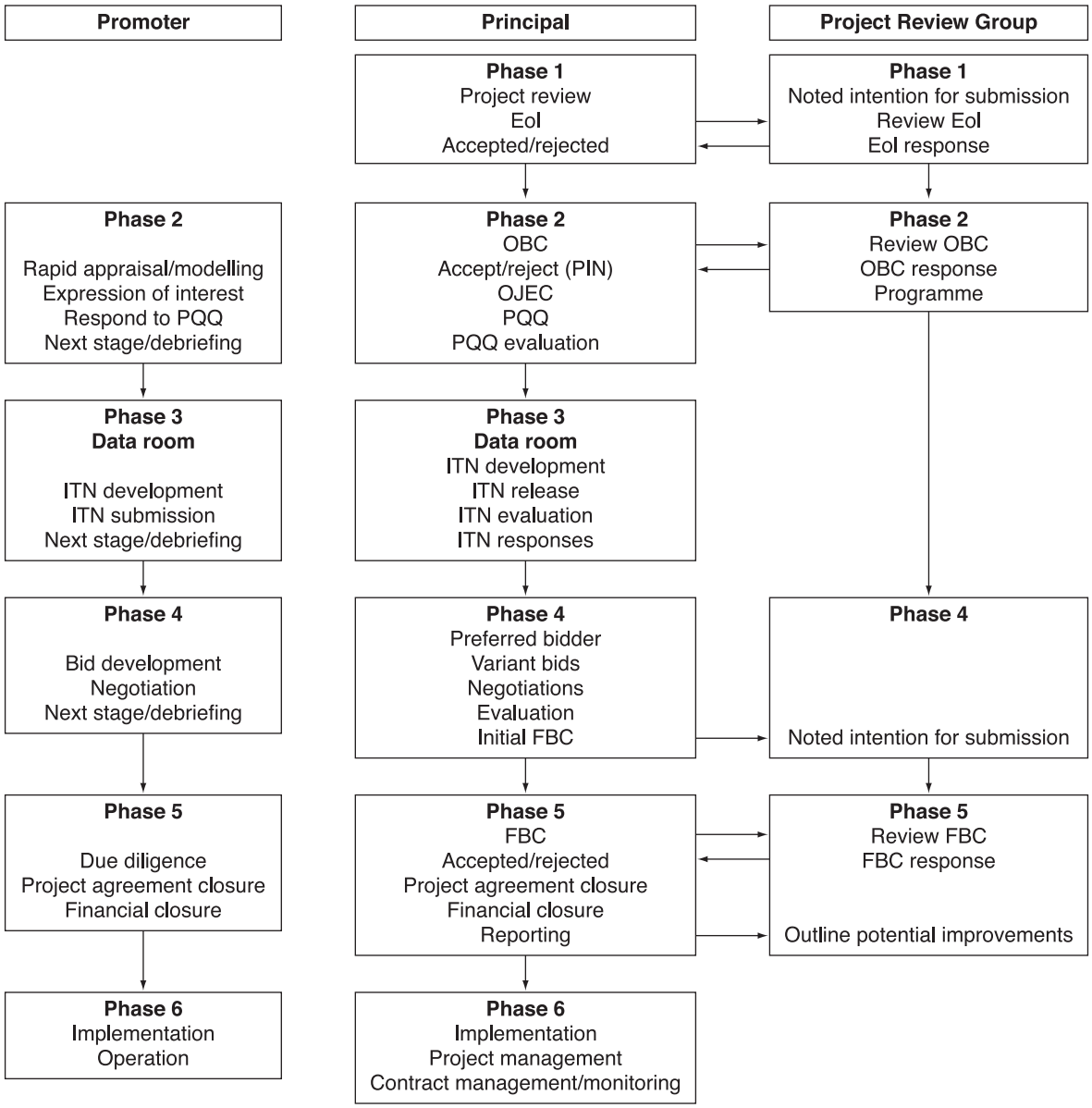

Figure 2.1 The high-scoring PFP procurement process. (PQQ, pre-qualification questionnaire; ITN, invitation to negotiate; EoI, expression of interest; PIN, prior intention notice; FBC, full business case)

basis for developing the control structure. Procurement process times must be increased, as they have a dual responsibility, namely to the current project and to such future projects. See Fig. 2.3.

Using the FELCH analysis to select a procurement process is not a cast-iron guarantee that the proposed process is the most efficient; rather the analysis is there to assist users to look at the systems currently operational in the market and assess their robustness for the task ahead. Projects may fail in specific areas regarding the aims and objectives and so the user must address such specific areas by incorporating or adjusting the procurement elements involved in each phase of the procurement process.

High-scoring FELCH projects

High-scoring FELCH projects containing standardized control structures help in the identification of assumptions and uncertainty within the service models. Improvements in the certainty of early cost estimations aid in reducing the time frame in which decisions relating to VFM and risk transference are updated and concluded. This in turn reduces both the costs and time frame of processing a PFP without adversely impacting VFM.

Figure 2.1 highlights the following characteristics of high-scoring FELCH projects.

- *Promoter*. The use of standardized formats provides a basis from which promoters identify flaws, areas of concern or lack of applicability of terms and conditions contained within the control structure. Front-end response and brain drain from the bidders to the principal is not a key demand due to the large number of schemes previously processed.
- *Principal*. The high degree of standardization within the control structure reduces the demands placed upon the front-end of the procurement process. The principal should seek to identify those issues not addressed by the standardized control structure and establish the limitations of the proposals with regard to improving the service and the VFM attainable. Tendering processes are streamlined through pre-qualification and pro forma response with a view to aggressive reduction of bidders.
- *Project Review Group*. Low involvement of the PRG is a reflection of the maturity of the process; however, their involvement during key phases such as Phase 2 and 5 act as safeguards, providing a vital check on the probity of the proposal. PRG awareness of weakness within the standardized control structures should provide a basis for auditing the thoroughness of the PFP proposal.

Phase 1

A project team is formed to develop the project review, consisting of members of the principal organization. If the scheme has potential, the principal may seek to develop the scheme further, sourcing specialist advice in the development of an expression of interest (EoI). The EoI is submitted to responsible principal departments, identifying the demand for the project and the potential VFM that a PFP option could deliver. Several departments may form pro forma submissions, a prime example of which would be the UK DfES submission pro forma, which has been integrated into a database that automates economic parameter calculations. Automating systems reduce the time taken to process bids.[16]

Phase 2

Once the principal department supports the PFP proposal, the principal may commit further resources to the development of the outline business case (OBC). The principal may maintain the same project team or source alternative consultants to form the OBC, which is submitted to the Project Review Group (PRG). The PRG reviews the proposal and determines whether funding should be made available. If the OBC is accepted, the project is advertised via the OJEC notice. Promoters use

[16]There may be cases where the EoI is removed from the process, with the principal moving straight towards the development of the outline business case. In the case of the guide the EoI is developed and submitted by the principal to either a cabinet or department who grants both political and revenue support for the future investment.

this information to form an estimate of the likely returns and risks within the project. The analysis is simple, but with the aid of the standardized control structures the assumptions contained within the models are reduced, through increasing the promoter's ability to commit to investment early in the design. Pre-qualification questionnaires (PQQs) are derived and sent to potential promoters. Responses are analysed and a short list is identified outlining those promoters to be included in the next round.

Phase 3 (three to four bidders)[17]

A data room is established by the principal, containing information surrounding the project, to promote dissemination and sharing of information. Bidders have access to the room, with resources made available.

Using the standardized control structure, an initial control structure is drafted for the project by the principal. The principal then drafts an invitation to negotiate (ITN) document stipulating exactly what is needed in response to the ITN and how this should be done. The ITN also outlines the scoring mechanism used for the future assessment of the bids. The bidders then develop responses and the opportunity to acquire further clarifications. Clarification notes are made available to all promoting parties outlining alterations made to the control structure.

The bids are assessed and bidders informed by the principal. Debriefing of all the bidders takes place, outlining the reasons for acceptance or rejection. More importantly, the principal provides feedback with regard to bidder performance set against critical success factors.

Phase 4 (one to two bidders)

Following the ITN a final bidder or bidders emerge from the process, and enter into negotiation to extend the proposal. Steering groups are formed from the principal and promoting organization to address specific technical, financial and legal aspects of the bid. During the negotiation and clarification process an initial full business case (FBC) is prepared, which follows the same format as the OBC using updated information.[18]

Phase 5

Based upon the updated and detailed service designs the OBC is reassessed to incorporate the new information, transforming the OBC into the FBC. The FBC aims to present the PRG with a snapshot of the VFM, affordability and financial health of the project before financial closure. Based upon a review of the FBC, the PRG makes a final decision relating to the Government's commitment to the scheme. The FBC should outline those elements of the control structure to be revised or negotiated.

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[17]The number of bidders outlined are a recommended figure. However, the authors note that there are several markets where there are limited promoting organizations operating, for example, Northern Ireland. In such circumstance it may prove fruitless to follow lengthened procurement processes.

[18]Note the full business case is a report presented to the PRG, stipulating the current position of the project pre financial closure. It can be developed from the models previously used within the outline business case, but in a situation where the project has undergone radical variation it may require the complete redevelopment of the business case. Variant bids can often generate such scenarios.

At the same time due diligence can be carried out; if due diligence is completed before the FBC submission, this adds strength to the FBC. However, practitioners should seek to identify similarities between the two, with the principal utilizing the FBC as a means of conducting internal due diligence, along with the promoter conducting external due diligence. Information used by both parties needs to have the same origin and discrepancies between the two can be used to highlight any fundamental errors or misunderstandings.

Once the PRG and the promoter's lenders are satisfied with the FBC and the results from the due diligence process, both parties sign the project agreement and subsequent financial closure.

With the deal closed, the principal's project team develop a report outlining problems encountered, lessons learnt and suggestions for the future.

Phase 6

The final phase of the process is the implementation and management of the construction and operation of the service. The principal's main responsibility is to manage and operate the control structure. Close liaison between both parties is maintained during the construction and post-completion phase.

Medium-scoring FELCH projects

Medium-scoring FELCH projects have a degree of standardized control structures that are applicable to the project. However, differences between the nature of the project as identified by the FELCH analysis and current practices generate a situation where the PFP holds a degree of uncertainty. This degree of uncertainty is sufficient to warrant a reciprocating procurement process that refines the estimates and assumptions made.

Figure 2.2 highlights the following characteristics of medium-scoring FELCH projects.

Promoter. The promoter seeks to establish how the PFP may alter the process from those experienced by other business sectors. Promoters look towards the technical and subsequent risk and towards financial issues that may arise from the proposed project. They also evaluate the current standardized control structure's ability to cope commercially.

For many promoters, entering a new business sector may place demands upon their internal processing of the PFP, as they have to extend risk management policies and strategies. Response periods have to be lengthened; however, the application of previous structures or standardized formats may help to address such issues.

Principal. Standardized control structures exist; however, they may not be applicable to the project or business sector in which the PFP is operating. Although the market for PFP is persistent, due to the lack of completed projects in the business sector the reduction of bidders cannot be as aggressive as in the case of high-scoring FELCH projects.

Project Review Group. Knowledge concerning metrics and outputs from the project proposals may be limited and further resources may need to be sourced. The PRG seeks to identify the critical success factors associated with performing PFP and establish an internal knowledge base to support future projects.

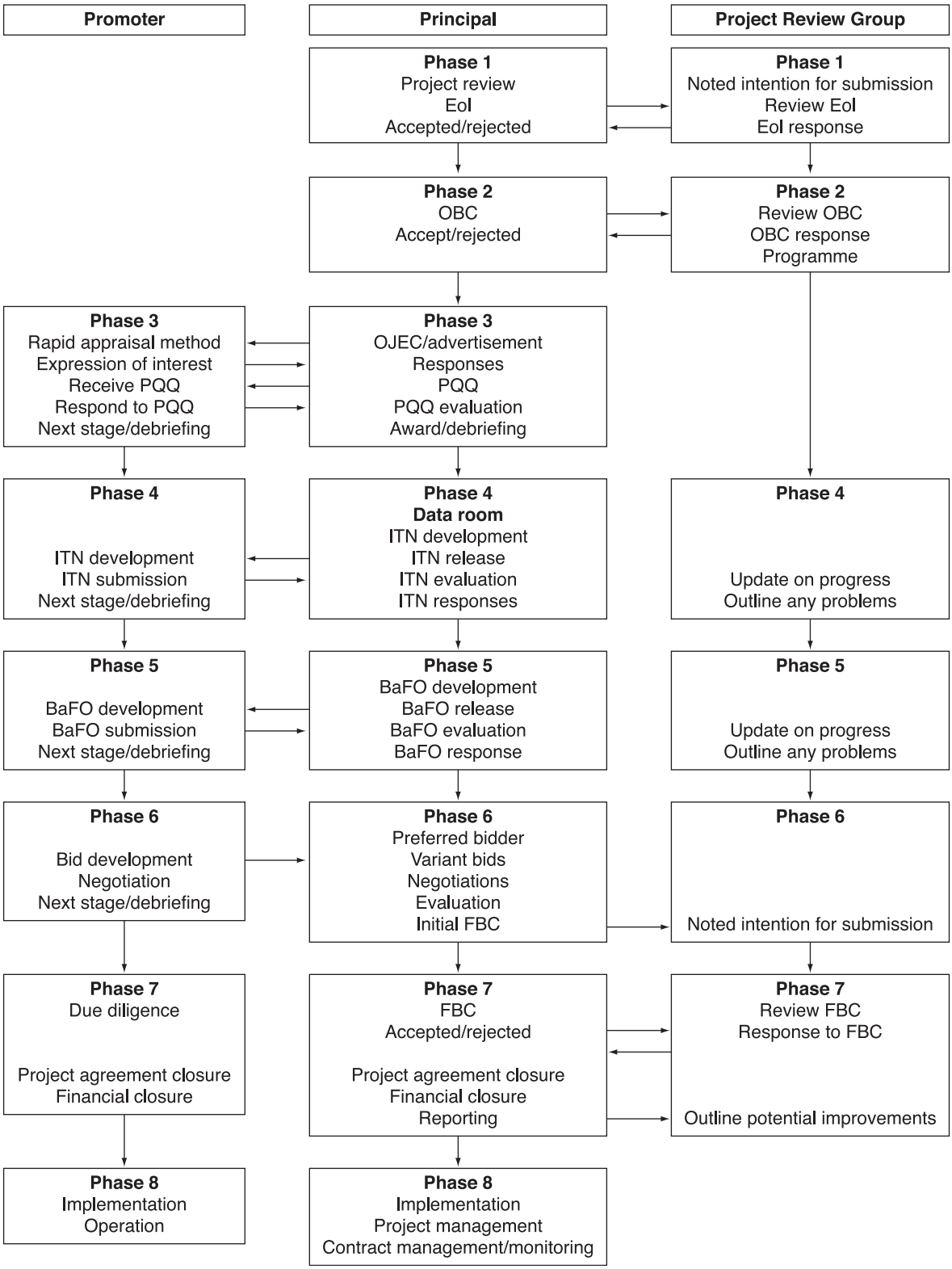

Figure 2.2 The medium-scoring PFP procurement process. (BaFO, best and final offer)

Phase 1
Detailed models are not required at this stage; rather an appreciation of the scope, assets and services the scheme is seeking to develop.

Phase 2
The OBC is developed based upon the scope formed from the project review. The OBC is submitted to the PRG and provided the PRG accepts the OBC, the principal may continue with the PFP. The decision relating to the acceptance of the business case is twofold, those being of a qualitative and quantitative nature. For specific business sectors, the PRG develops hurdle rates for specific qualitative and quantitative metrics.

Phase 3
The project is advertised in accordance with market requirements, followed by a PQQ issued to shortlisted parties from the OJEC response and other parties the principal has been recommended or may have had experience of working with.

Responses from PQQ are evaluated and a number of promoters are taken forward to the ITN.

Phase 4 (four to six bidders)
Phase 4 is similar to that of the high-scoring ITN phase 3. The principal creates a data room and ITN documentation. The ITN includes an outline of evaluation criteria and an initial drafting of the control structure. The inclusion of more bidders aids the process by increasing the level of competition and produces a working environment where further clarification and questioning of the ITN is received from the bidders.

ITN builds upon the responses already received from the PQQ – wasteful repetition should be minimized. Variant bids may form part of the ITN submission but this is not a critical element at this stage. After submission of the ITN the bidders are debriefed and successful bids are taken forward to the best and final offer (BaFO) phase.

Phase 5 (two to three bidders)
BaFO follows the same format as the ITN, using updated information to refine the control structure. The principal begins to firm up the commercial decisions and analyse variant bids. BaFO appraisement follows the same succinct scoring methodology of the ITN. Under the medium-scoring FELCH projects the BaFO becomes an element where negotiations regarding risk transference and returns are discussed.[19] Finally a bidder or bidders emerge from the process.

Phase 6 (one to two bidders)
During the preferred bidder phase, the technical financial and legal elements associated with the bid may be separated and discussed by specific steering groups.

[19]Note the study of the variant bids provides an insight into the actual resources commitment to the project, and the flexibility of the promoter to deliver or work with the principal on a multitude of potential solutions therefore increasing the VFM. Also those that develop innovative alternative solutions that do offer greater VFM to the principal are highly regarded and promoters who engage the principal more readily in the development of variant bids, appreciating the principal's business, will add weight to the proposal.

Further to this a project team meeting is held to monitor the progress of each steering group and to monitor the programme.

Phase 7

The full business case is developed based upon:

- bidder responses to date
- previous business cases
- the updated control structure.

The FBC identifies the position of the project at the time of signature. Disagreements and risk allocation between the two parties should have been dealt with. The preferred bidder also conducts due diligence, which is similar to that of the principal's FBC. Third-party consultants are often drawn in to review documentation.

Phase 8

The final phase of the process is the implementation and management of the construction and operation of the service or product. The principal follows a similar path to that of the high-scoring FELCH project. Feedback on the performance and future improvement to the control structure are centralized and recorded by the PRG.

Low-scoring FELCH projects

Low-scoring FELCH projects operate in markets that have minimum standardization of PFP control structures. Knowledge of standardized formats from alternative markets or countries may be used to format control structures. The project team may be multi-national for this reason.

The stability of the PFP market may be questionable, with bidders pulling out from many bids, so sufficient abortion points held by the PRG need to be present to allow the project to be terminated without the generation of excessive advisory fees. However, the PRG may be either non-existent or fragmented, which adds further time and cost to the process.

Figure 2.3 highlights the following characteristics of low-scoring FELCH projects.

Promoter. Involvement within a new market or new sector with little knowledge surrounding the control structure may identify an element of uncertainty. Moreover, observations made of mature PFP markets indicate that such market development has been supported with leniency in the commercial mark-up of the control structure, catering for the additional risk.

Principal. If the FELCH analysis has produced a low score, this requires the principal to take steps towards the development of not only the control structure for the project but procurement infrastructure that may be required for future projects. In certain instances the procurement infrastructure such as guidance organization may not exist. The principal may not only have to develop the control structure but also record what assumptions they were based upon and the critical decision made during their development.

Project Review Group. Members of the PRG may be incorporated into the principal's project team, or in a situation where the PRG does not exist, members of the principal's

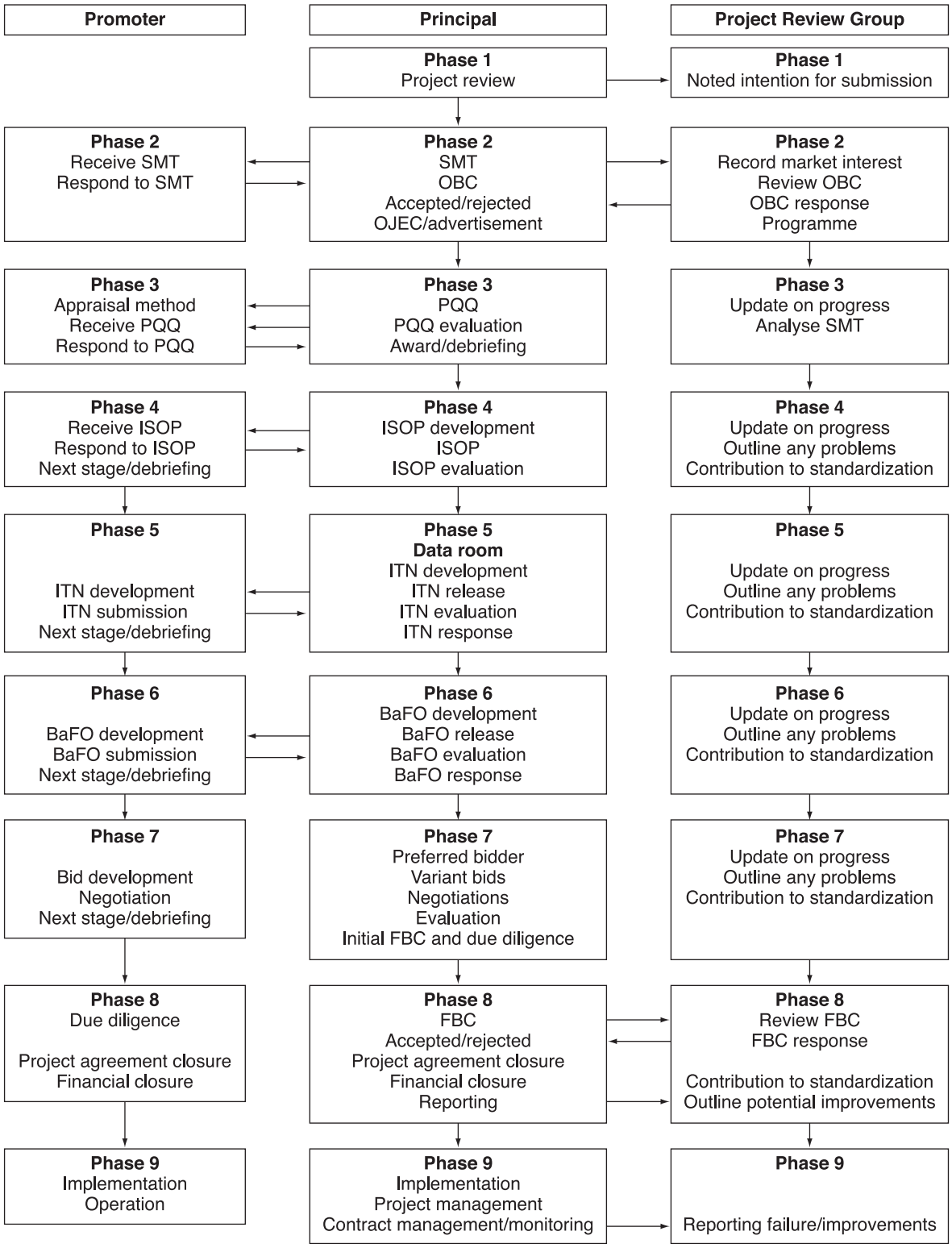

Figure 2.3 The low-scoring PFP procurement process. (ISOP, invitation to submit outline proposal; SMT, soft market testing)

project team may be prime candidates for membership of the PRG if/when it is formed for future PFPs.

Phase 1
Pro forma project review responses have yet to be devised at this stage. Where actual units such as the PRG have not been formed, departments or states[20] can develop them. Principals weight the additional cost and time on the procurement process based upon the future investment opportunities within the marketplace. Models that are developed from scratch may introduce a greater degree of inaccuracy in the estimates, compared to that of higher-scoring FELCH projects.

Phase 2
Due to the low score, further investigation into the state of the PFP market is required. A soft market test is conducted to do exactly that. This aids in the identification of weaknesses and strengths within the current marketplace. The OBC is produced based upon this appreciation and the proposal moves to advertisement once funding supporting the OBC is identified.

Phase 3
PQQs proceed, as tendering is open to encourage competition. Acceptance criteria may not be as strict as higher-scoring projects, especially if the principal is trying to introduce PFP into the market or alter the traditional operations of an industry.[21]

Phase 4 (six to eight bidders)
Invitation to submit outline proposals (ISOPs) are then used to develop the solution proposed in the OBC.

First drafts of the control structure are reviewed from the comments received from the ISOP bidders. Affordability and VFM are reviewed, providing an initial public-sector acid test. If the bidders cannot deliver such aspects then the project must either be revised or abandoned.

Phase 5 (four to six bidders)
A data room is established within the principal organization's site, containing all the information surrounding the project.

From the ISOP the control structure is reviewed and developed to address several issues raised during phase 4. The ITN document is drafted. Schedules, terms and conditions of contracts between the principal and the bidders are devised with the issuance of clarification notes. Specific attention is placed on the future programme with a high demand for flexibility and extension.

Debriefing of all the bidders takes place, outlining the reasons for acceptance and rejection of bids. More importantly, the principal provides feedback.

[20]'States' in this context refers to political states or regions within a country.
[21]Such secondary objectives may be short-lived as secondary markets, specializing in the trading of PFP move into the market, providing promoters with exit strategies.

Phase 6 (two to four bidders)
BaFO provides another opportunity to review the control structure, using updated information and issues raised during the ITN to improve the understanding between the principal and the promoter. Greater concentration towards risk transference and mitigation is required within the BaFO stage. Bidders often develop detailed operational plans for the management of risks. Bidders consult user groups to develop the designs and construction methods/programmes, finalizing the technical and commercial elements of the project.

Phase 7
During the preferred bidder phase, the technical, financial and legal elements associated with the bid may be separated and discussed by specific steering groups. Further to this a project team meeting is held to monitor the progress of each steering group and monitor progress.

Phase 8
The full business case is developed based upon:

- bidder responses to date
- previous business cases
- updated control structure
- proposed recommendations for future projects
- difficulties incurred
- procurement programme review.

Areas of concern or future development are identified within the FBC, placing recognition of markets position on the acceptance and pricing of risk. Low-scoring FELCH FBC are often substantially different to the scheme originally proposed within the OBC. In such circumstances additional time and resources are allocated to the procurement programme.

Phase 9
The final phase of the process is the implementation and management of the construction and operation of the service or product. The principal follows the same path as the high-scoring FELCH project. Feedback on the performance and future improvement to the control structure are centralized and recorded by the PRG.

It is possible to have a low-scoring FELCH PFP, but the bidding organizations may have considerable knowledge and previous experience to carry the project through to completion. It is recommended, however, that the principal utilize a more thorough and lengthy procurement process as illustrated above to enable the principal's project team to learn and be brought up to speed with current practices. Consultants employed by the principal may hold similar knowledge and experience as the bidders. This knowledge must be transferred to the principal's internal team to enable efficient operation of the project agreement post-financial closure.

Objective-orientated procurement elements

After studying previous PFP and guidance notes outlining the procurement process, a generic methodology has been established to aid in the development of a bespoke PFP procurement technique. At the core are objective-orientated procurement elements. Each element contributes or prepares those parties involved with the attainment of

Table 2.5 Procurement elements

Number	Procurement element	Acronym	Estimated duration: weeks
1	Project review	PR	4
2	Expression of interest	EoI	4
3	Soft market testing	SMT	3
4	Outline business case	OBC	12
5	OJEC advertisement*	OJEC	6
6	Pre-qualification questionnaire	PQQ	8
7	Invitation to submit outline proposal	ISOP	10
8	Invitation to negotiate	ITN	12
9	Best and final offer	BaFO	16
10	Preferred bidder	PB	6
11	Due diligence	DD	4
12	Full business case	FBC	8
13	Financial closure	FC	1
Total			94

*The guide uses CUP guidance No. 51 (HM Treasury Central Unit on Procurement, 1995) to determine a probable time frame for advertisement and response. Users of the guide should confirm limitations to the time in which projects must be advertised and the time given to bidders to respond. In the case of the EC, Prior Intention Notices (PINs) can be released to reduce the time frame by informing bidders of the principal's future intention for that financial year.

critical success factors within PFP projects. (Objective-oriented procurement elements are discussed in detail in later chapters.)

By combining the objectives held by each procurement element, the principal places bidders under a rigorous process that tests and reaffirms their competency and understanding of the agreement into which they are to enter. Moreover, the PRG use the same technique to test the principal via the formation of the OBC and FBC.

Table 2.5 numbers each procurement element; each element is dealt with in subsequent chapters.

The estimated duration assigned to each procurement element in Table 2.5 provides the user with a guide of the time frames involved. When attempting to establish a programme for the procurement process the user should identify the PRG meeting schedule along with response period.[22] Several of the objective-orientated elements have output similarities and through their combination may decrease the total resources and time frame in which PFP are procured.

Resourcing and time frames of PFP procurement processes

The resource and time frame plan in Fig. 2.4 provides an indicative outline of the degree of resources, timing and overall cost for the procurement of PFP. The level of resources required by the principal and promoter is dependent upon the knowledge and experience each party has of previous procurements.

[22]This should not affect the procurement cost.

FELCH score	**High**				**Medium**				**Low**			
Party involved	Promoter	Principal	PRG	**Time frame:**	Promoter	Principal	PRG	**Time frame:**	Promoter	Principal	PRG	**Time frame:**
Procurement phase				Weeks				Weeks				Weeks
Phase 1	Low	Low	Medium	6	Low	Medium	Medium	7	Low	High	High	9
Phase 2	Low	Medium	High	26	Low	Medium	High	24	Low	High	High	36
Phase 3	Medium	Medium	Low	22	Medium	Medium	Low	16	Medium	High	High	16
Phase 4	High	High	Low	10	Medium	High	Low	12	High	High	High	10
Phase 5	High	High	High	5	Medium	Medium	Low	17	High	High	High	10
Phase 6	High	Medium	Low	CC	High	High	Low	8	High	High	High	16
Phase 7					High	High	High	8	High	High	High	10
Phase 8					High	Medium	Low	CC	High	High	High	10
Phase 9									High	High	High	CC
Cost of procurement process	% CAPEX	% CAPEX		**69**	% CAPEX	% CAPEX		**92**	% CAPEX	% CAPEX		**107**
Pessimistic	4%	3%		**78**	7%	3%		**109**	10%	5%		**127**
Optimistic	3%	2%		**63**	4%	2%		**85**	6%	2%		**96**

CC, contract commencement.
The shaded boxes identify those phases that are not relevant to high- and medium-scoring FELCH projects. Costs associated with the procurement process are indicative of a project's capital value of £20 million. As the project value increases, the percentage of procurement costs with respect to the total value of the contract significantly reduces for both the principal and the promoter.

Figure 2.4 Resourcing and time frames for PFP procurements.

Table 2.6 Cost estimation systems in project appraisal

Cost estimate method	Description	Error: ±%	Procurement element used
Global, ball park	Utilizes outturn cost of previous schemes to place a figure on the cost per functional unit of a future scheme	30*	EoI
Factorial	Utilizes previous percentages of elemental outturn costs of schemes, to predict the elemental cost of future schemes	20–10	EoI
Elemental	Carried out in parallel with design, measuring the works based on either billed rates or units	15– 2†	OBC–FBC
Operational	Based on method statements and programme of works. Labour, plant and materials are estimated at current rates	10–2	OBC–FBC

*See Walker and Smith (1995); †See Thompson (1989).
Several of the estimation techniques are geared towards the estimation of capital expenditure. They are not necessarily geared towards the continual operation of the facility and research into improving such cost data would be extremely valuable.

Designing PFP procurement systems

Amalgamating or incorporating procurement elements into specific phases enables the procurement process to serve the demands of the project and its encumbering environment. The following areas warrant consideration:

- demands from other participants/stakeholders/user groups
- identification of areas of necessary and non-necessary repetition
- critical requirements of each element and how they may fit together or be combined
- bringing a project proposal to a specific point at a particular time[23]
- physical outputs, design details, technical specifications and financial metrics required at a point in time set against the elements that can deliver them.

When designing the procurement process it is often to meet specific requirements set down by the PRG at specific points in time. For example, a critical part of the procurement process of PFP is the completion of a public sector comparator (PSC).[24] The PSC is primarily a cost estimation of the likely cost of the principal delivering a service to the same output specification and standards of that used within the PFP control structure. The PSC also makes allowances for risk, taxation and optimism bias.[25] Techniques used to develop the PSC are illustrated in Table 2.6. Therefore when designing the procurement process, consideration must be given to the level and accuracy of estimates produced at each phase of the process.

There are several cost estimating systems available; a few are highlighted in Table 2.6.

[23]This can be dangerous in situations where the project proposals are being rushed or are underdeveloped. Great care needs to be taken to ensure the proposal is working to manageable dates.
[24]This depends upon the type of PFP the principal is undertaking but it is recommended that a PSC is always formed.
[25]There is evidence that there is a widespread tendency for appraisers to be overoptimistic when preparing proposals. This optimism degrades decision makers' ability to form an effective picture of the financial benefits and pitfalls of a project. Via the utilization of the optimism bias, decision makers automatically incorporate a factor of risk associated with the estimated cost and the physical outturn cost. Historical figures from such errors have been used to generate a project-specific optimism bias. For further details see Mott MacDonald (2002).

From Table 2.6 the error within the cost estimation techniques suggests that different estimation techniques are suitable depending upon the stage of the procurement process at which the options are analysed. It is essential that the PRG does not ask for levels of accuracy within the PSC that are outside the scope of the procurement processes capabilities.

Another area in which the procurement process may be tailored to the specific demands of the project relates to the two main packages that form a bid, those being the technical and financial packages. Moreover, further separation of the packages can be devised with the separation of the technical package into design, construction and operation.

In the case of HM Treasury building, the finance for the project was separately tendered to that of the technical packages (NAO, 2001). This system was devised to promote competition within the bids and enhance the VFM of the scheme by allowing the best technical package to team up with the best finance package.

Structuring such a procurement system may require more time; however, in this instance this was traded off against the greater VFM than that of a bid that had a fixed financier and service provider.

The separation of the finance provider from the service provider bidders places greater demand upon the due diligence process, as financiers are not necessarily working with a party with whom they have operated in the past and thus they may have to price the risk associated with the construction and operating performance for several bid scenarios.

As stated previously, the FELCH analysis proposes a generic procurement process solution based on analysis of the market. Users of the guide may find assessments made early on in the procurement process were incorrect. For example, the level of response and interest within the project during the OJEC and PQQ may be less than expected. This may require the redesigning/reassessment of the proposed procurement process. As more information surrounding the project's characteristics come to hand, users should review any assumptions made during the development of the PFP procurement process.

3 Preliminary assessment of project proposals

Introduction

Chapter 2 provided an insight into the processes that are involved in delivering a PFP. The guide now focuses upon each procurement element in each phase and how they are completed.

The following procurement elements are addressed:

- project review
- expression of interest
- soft market testing.

Project review

When reviewing a proposal it must go through a series of filters to assess whether it is compatible with the current and future strategies and policies held by the principal organization.

Aims

The project review determines whether or not the PFP delivers the needs of the principal and its recipient user groups while maintaining the commitments and working ethic illustrated in the investments, strategic and policy boundaries.

Objectives

- Project reviews indicate the benefits or pitfalls a PFP may have in accordance with specific metrics used to assess the performance of the principal organization currently providing the product or service.
- To assess the quality and robustness of the PFP investment with the current and future plans of the principal.
- To filter proposals that would not offer either VFM or substantial socio-economic benefits through private finance.
- To prevent further expenditure on project proposals that do not fulfil the basic requirements of future PRG assessments.

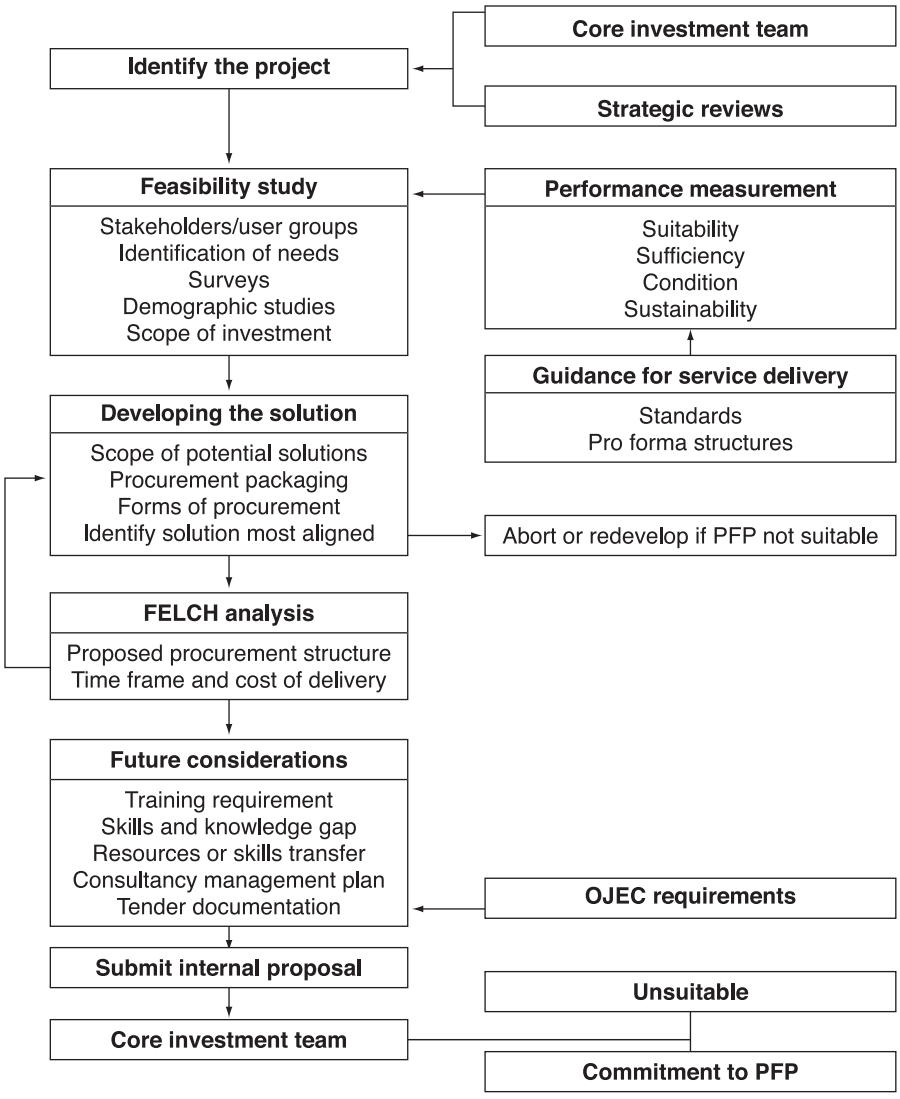

Figure 3.1 The project review process

Developing a project review

Figure 3.1 highlights a typical process the principal organization follows to complete a review of the PFP proposal.

Identifying a project

The principal forms an internal core investment team that identifies current failings in the principal's organization to meet the standards and targets set down by government. After analysing strategic reports and reviews (which may, in the case of the UK market, be the best value review), a need is identified for improvement and investment. A project brief is formed, outlining the requirements of the future investment.

Feasibility

The review moves on to the feasibility stage, which identifies the context of the problem, forming a project brief. The current failures in the service are identified and substantiated by an internal departmental or state performance measurement system. Stakeholder and user groups are engaged to improve the brief.

A survey is conducted on the current asset stock set against the criteria held by either:

- current best practice guidance
- design standards
- Regulation/legislation (health and safety), or
- performance measurement standards.

This identifies the current demand for investment and the expected benefits.[26]

Demographic studies of the growth and movements of the population are used to substantiate the proposed investment plan. Initially the scope of the investment is agreed based upon a detailed outline of the current asset stock and sources of funding available.

Developing the solution

Based upon the performance of the asset/services currently held by the principal, proposals for the packaging of assets/service are derived. This is followed by an investigation into the procurement options available.

Finally, the developed solution proposes a series of assets and services to be incorporated into the project proposal.

FELCH analysis

An initial analysis of the proposed project is undertaken using FELCH analysis. Based upon the scoring and value of the project, the project may be further developed or returned to the development stage to address issues that arise during the analysis.

Future considerations

After reviewing the procurement process requirements, the lack of resources and skills within the principal organization is identified and a series of points (as illustrated in Fig. 3.1) are addressed. For example, the consultancy management plans outline when, where and under what terms consultants are engaged.

An investment proposal is then submitted to the Corporate Investment Team (CIT).

Project review outputs

The outputs form the logic for the principal and its respective department to back the investment, if the funding is sourced from a central unit. The following outputs are derived from the review:

- The priority of each asset and service.
- Likely investment required by each prioritized asset and service.
- How the investment should be structured to offer the greatest opportunity to the service and life of the assets.

[26]For example the DfES within the UK uses a curriculum analysis to assess a school's ability to deliver the education services required. Surveys of the space, size, condition and facilities contained within the school envelope set against government or department recommended standards identify further failing. Information of this nature linked to an asset base and investment plans may then be used to substantiate the need for further investment.

- How the investment addresses the standards and metrics critical to the performance of the principal.
- Preferable procurement route and likely time frame for delivery.
- Whether the proposal is in keeping with long-term strategic commitments and service improvements.

Expression of interest

Principals have to form a case for the investment, which is submitted to a corporate body within their respective service area or department. EoI are common where there are several principals interested in securing funding from a central Treasury Unit.

It is common for developed markets or high-scoring FELCH projects to complete an EoI submission to the PRG. The PRG filters those projects that are unlikely to deliver VFM in the later stages, thus reducing the cost basis of PFP procurement.

Aims

To review the public and private models for delivering the service based upon a predetermined asset base and make a case for or against the involvement of private finance.

Objectives

- To develop an initial business case outlining the key elements of the project.
- To develop a technical model of the proposed solution used. This will enable the development of metrics to assess the PFP compared to traditionally funded projects.

Developing an expression of interest

Before the development of the EoI it may be necessary to appoint a project manager. In several local authorities/states, private finance teams are formed purely to operate on such projects, providing continuity to the process. See Fig. 3.2.

Business need

The business need should be developed from information contained within the project review, incorporating any new policies or strategies.

Technical

Identification of any relevant standards, methods and current service delivery practices that must be adhered to and incorporated within the output specification should form part of a preliminary technical assessment. An outline of the timetable for delivery of the services based upon an initial FELCH analysis is submitted. Additional elements to be incorporated are highlighted in Fig. 3.2.

Legal

Standardized forms of control structures are identified, which are assessed based upon their applicability to the project. The EoI may identify the preferred commercial mechanism and project agreement to be used for the project. In situations where the project has a low legal FELCH score the EoI requires the development of a preliminary heads of terms.[27]

[27]Heads of terms are areas or titles relating to specific activities, operations or actions in the project agreement that need to be addressed by the principal and promoter to ensure both the aforementioned parties operate in a manner befitting the consideration granted by both parties.

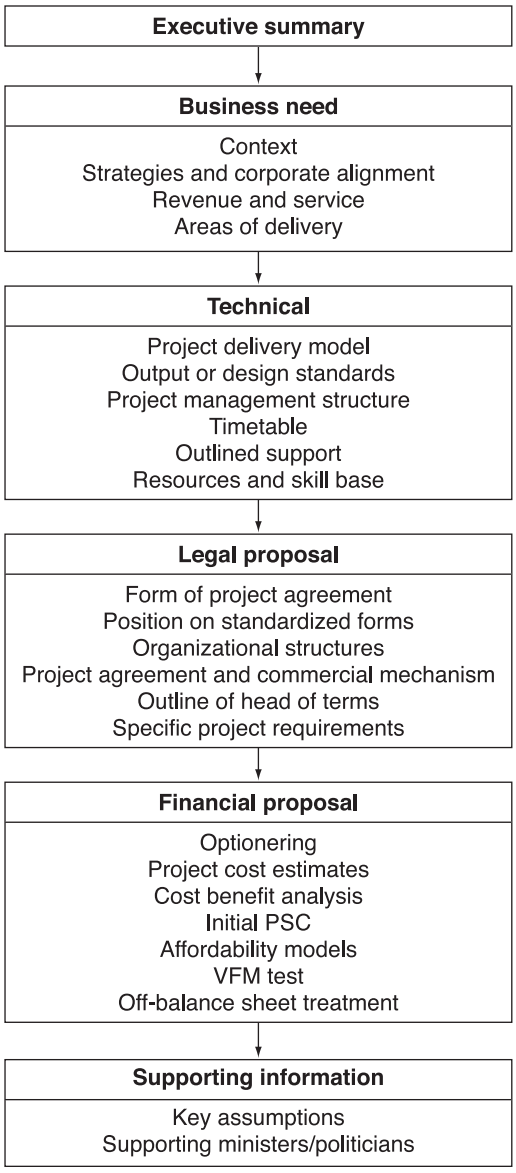

Figure 3.2 Typical process for the development of an EoI

Financial

A series of solutions that deliver the output specification and standards identified by the technical review are developed. Socio-economic analysis may also be used to assess the net benefit of each option. A preferred option is selected based upon the highest net present value (NPV) or lowest net present cost (NPC), unless substantial qualitative elements in the project dictate otherwise. The preferred option is then taken forward to develop a public sector comparator (see Appendix 2), which can be compared to a private finance alternative (PFA) if so desired, to provide an estimate of the VFM.

Supporting information

Further backing from local members of parliament or state bodies endorsing/committing to future operational expenditure for the service should be included where possible.

Outputs

From the EoI a brief outline of the following elements are identified:

- Estimation of the future price of the service.
- Estimation of the future charges for the service or product.
- Estimation of the VFM the scheme could offer.[28,29]
- Comment on bankability (see Appendix 1).
- Estimation of the affordability of the scheme.
- Alternative options for delivering the service.
- Establishment of the asset base and future organizational changes that need to take place (see Appendix 1).

Effort made during the derivation of the EoI may reduce the time taken to produce the OBC. Where projects have strong economic justification principals may wish to adopt such strategies.

Soft market testing

Soft market tests (SMTs) are often carried out for projects that have a low FELCH score or projects where commercial success is dependent solely upon technological innovation.

Aims

SMTs are designed to provide the principal with an understanding of the level of interest in the project and how the proposal can be structured to address the market's concerns surrounding the outlined proposal.

Objectives

- Market interest in the scheme.
- Commercial issues that affect critical issues for the principal and promoter.
- Review of the FELCH analysis.
- Unacceptable positions the principal is holding with regard to current market practices.
- Market growth.[30]

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[28]In the UK, the type of PFP was used to establish the content of the OBC and FBC. For example, if the project was a financially free-standing PFP, the need for a VFM calculation would not be required, due to the commercial acceptance of the project.

[29]In the case of South Africa, an evaluation of the VFM the PSC/PFS has to offer is not created so early on in the process. It is only when the bids are received from the promoters that a figure for the VFM is produced (National Treasury, 2001). However, an evaluation of the affordability of the scheme is produced and compared to the budget. Users may find specific calculations or steps taken within the procurement element will vary to suit the mechanics used to support the decision-making process.

[30]There have been instances where bidders have pulled out of PFP because there are so many projects flooding the market. In the case of Dumfries and Galloway Council's £95 million education PFP, three bidders pulled out, leaving one sole bidder (Contract Journal, 2003). The principal prepared a bid as if the principal were another bidder (ghost bid). This highlights the need to maintain an overview of the market's plimsoll line, identifying what the market can sustain and the appropriate timing and packaging or bundling of the project. Central finance units should identify the quantities of investment the market can efficiently sustain.

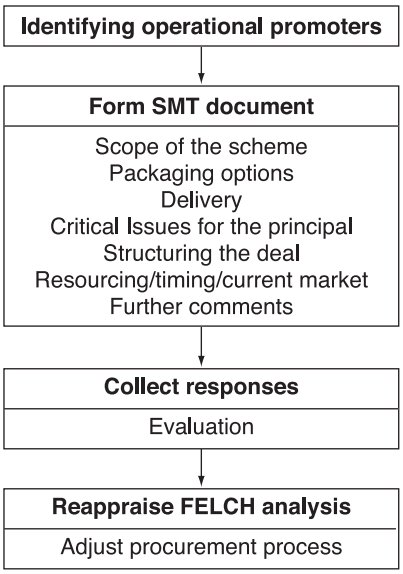

Figure 3.3 Soft market test process

Developing a soft market test

Figure 3.3 outlines a simple structure for the processing of soft market tests.

Identifying operational promoters

The principal identifies promoters that have been involved in or have delivered similar schemes in the past. There may be situations where the promoter no longer operates within the market; information of their motivations for leaving the market may serve to identify problems the principal may encounter during the procurement of the project. Principals may wish to contact other principal organizations that have been involved in similar projects to obtain details of reliable promoters.

Forming the SMT document

The scope of the project is outlined, providing basic information, such as the expected capital value and the preferred method of procurement. Information surrounding additional services that could be incorporated into the agreement can be supplied. Promoters use this information to ascertain appropriate packaging or bundling structures based on their interpretation of the risks facing the project.

The promoter's opinions of the critical issues surrounding the project focus upon the affordability, bankability and potential delivery methods. Promoters have rapid appraisal techniques (Merna and Smith, 1994) that provide an indication of the scheme's bankability in terms of internal rate of return (IRR) and NPV, generated from the preliminary inputs of the PFP. Method statements are not required at this stage, rather comments on potential technical complexity or innovation. With regard to aspects associated with the control structure to be utilized, potential problems or suggestions are sought.

Finally, the principal attempts to establish the resource capacity of the market to allow the project to be procured competitively.

Collecting responses

The responses are collected and conflicting opinions are analysed with suggestions made by promoting parties incorporated where relevant. The response to SMT is

often fragmented, especially in underdeveloped markets. Therefore consideration of whether or not to proceed with an SMT may prevent the wasteful expenditure of resources by the principal.

Reappraising FELCH

The initial assessment of the PFP under the FELCH analysis may alter after participants operating in the market respond to specific questions. Their opinion and views may be different to those of the parties conducting the FELCH analysis. Therefore after responses are collected, the analysis may have to be reappraised. Questions within the FELCH analysis are altered and incorporated into the SMT.

Outputs

The outputs of soft market tests (see Construction News, 2002) can be identified as follows:

- Establish current market interest in the PFP.
- Identify issues that need to be addressed.
- Establish the most attractive means of packaging the project.
- How they might deliver the project.
- Scope of the scheme:
  - land availability
  - infrastructure issues
  - environmental issues
  - employment issues
  - innovation and revenue sources.
- Costs and affordability issues.
- Payment mechanism.
- Monitoring arrangement.
- Risk envisaged for transference.
- Project agreement structure.
- Timetable for delivery (4Ps Know-How, 2002).

The SMT should not provide those bidders that were involved in the SMT with a competitive advantage over those that were not and it should not form any part of a contract or agreement for the future submission or acceptance of bids.

4 Developing the business case and advertising the project

Introduction

Chapter 3 concentrated on the preliminary assessment of projects. Chapter 4 focuses upon the detailed development of business cases and advertisement of the project to the open market.

The following procurement elements are addressed:

- outline business case
- OJEC/PIN (advertisement).

Outline business case

Aims

To prove to the PRG that the project fulfils the investment criteria and that there is a financial, technical and legal business case for the investment.

Objectives

- To illustrate to the submitted body the principal's ability to deliver the project based upon the context of the programmes, estimates, analysis, resources and experience contained within the business case.
- Affordability and bankability of the scheme.
- Scope of the services and quantification of the commercial and social benefits.
- Appraisal of the technical options available.
- Justification of procurement route VFM test.

Developing an outline business case

The OBC builds upon the EoI, expanding on areas explored in the EoI. The EoI is a useful contributing document to the OBC and can reduce the time frame for OBC preparation and submission. In situations where the PFP exhibits strong commercial and social benefits during the EoI stage the project can be fast-tracked. For such PFP, the PRG assign specific members to oversee the review process. See Fig. 4.1.

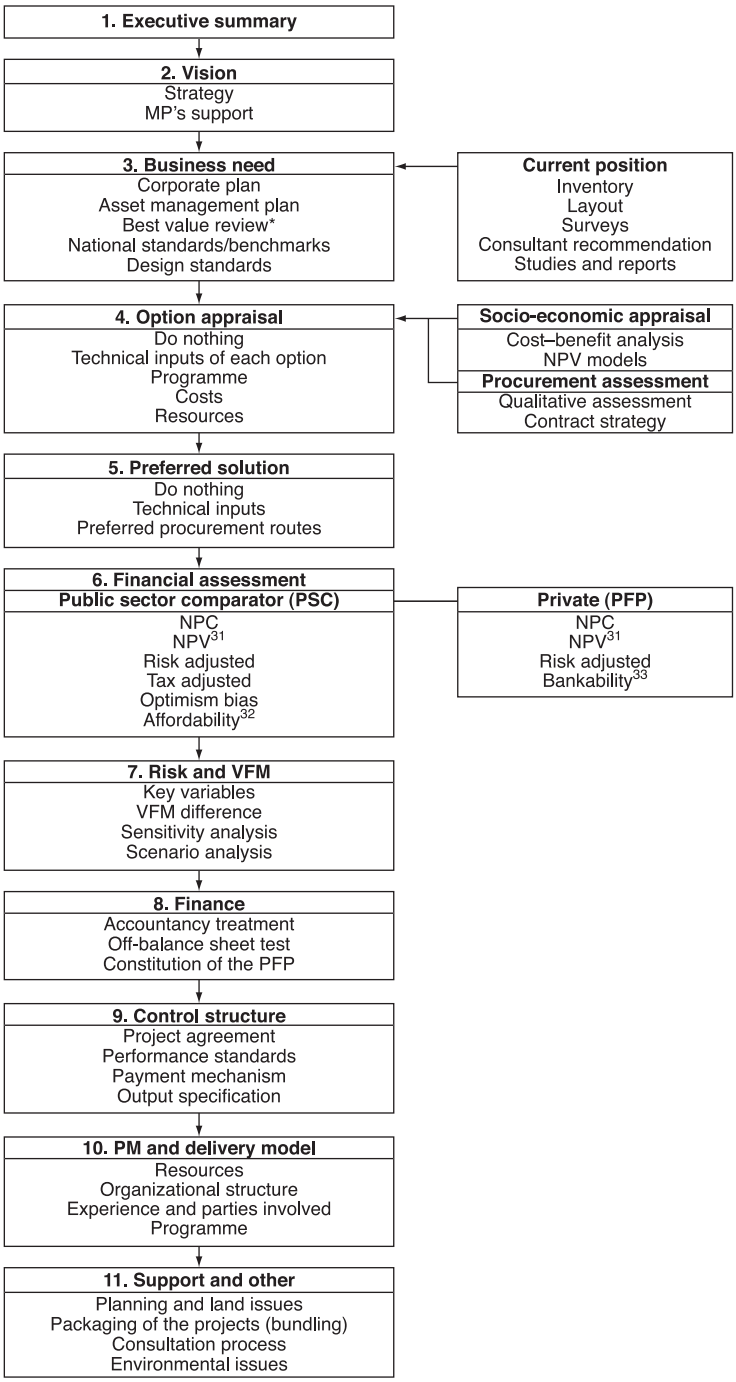

Figure 4.1 A typical outline business case structure

[31]The NPV of the public- and private-sector models should theoretically be the same at this stage as both options are operating to the same output specification and control structure. However, if the principal decides to develop a model, which represents what the principal could feasibly deliver, this may be used to form a useful comparison and socio-economic justification for PFP involvement.
[32]For financially free-standing projects affordability calculations are replaced by marketing analysis of the current demand and future revenue potential of the project.
[33]PRG within certain countries may not require a VFM calculation until after private bids have been received, usually during the ISOP and ITN phase. In such circumstances the financial assessment only contains calculations on affordability and bankability.

Vision

This provides corporate insight into the principal's objectives for the services and products it is currently providing to the public. It outlines the principal's responsibilities and vision for meeting and improving the services it currently provides.

Business need

In high-scoring FELCH PFP the EoI business need can be updated and inserted into the OBC. For lower-scoring projects the business need is developed and supported by several reports produced to reflect the overall efficiency of the service. The principal's corporate plans must remain consistent with the characteristics and benefits associated with the PFP solution. For example, corporate reports place a strong desire for private investment based upon the demands of the current assets and services being delivered.

Option appraisal

Several service delivery models are developed in line with a specification that is either input- or output-based. The models developed to address the specification vary the time, resources and, in the case of a do minimum or do nothing option, the performance of the outputs. The do nothing option acts as a baseline from which a solution with an alternative performance can be assessed, usually on a cost–benefit basis. Options that are explored within PFP tend to be as follows:

- do nothing
- do minimum, affordable or fallback position
- life-cycle investment leading to full replacement
- fast-track
- full replacement of stock
- refurbishment of current stock.

However, these options can vary significantly for mega or large-scale investments and IT, equipment-based procurements. Heald (2003) recognized the practical importance of establishing a fallback position, identifying what would be financially deliverable if private finance were not sought. Again this may be used as a benchmark to appreciate the improvement via the private finance injection, but should not be a determining factor to the VFM assessment of the scheme.

Three options tend to be used for the socio-economic assessment due to the time taken to develop the models. Each option derives a technical input, which is represented by a programme, costs and resources used.

Socio-economic appraisal. Cost benefits are established based upon predetermined valuations of the specific benefits that services, or improvements to services, offer society. The social benefits are valued and revenue/value is generated based upon the fulfilment of the benefit. Appendix 3 provides an example of a cost–benefit analysis (CBA) of a street lighting PFP. The basic calculation of a cost–benefit ratio is as follows (see Smith, 1998):

$$\sum (Bt - Ct)(1 = r) - t > 0$$

where Bt is the benefits accrued at time t, Ct is the cost incurred at time t, r is the discount rate, and t is time.

Procurement assessment. There are several contract structures available for public and private procurement. A qualitative assessment of the various routes based upon the critical success factors identified by the vision and business need results in the selection of a suitable route. Against each critical success factor a procurement route is graded, based upon its ability to deliver. The route that produces the highest score is selected as the preferred means of delivering the service.

There have been several recent proposals to quantitatively assess the performance of alternate procurement routes, with the most publicized example being that of the London Underground (BBC News, 2002). The mayor of London proposed a public-sector alternative to the PPP, to be financed in a similar way to that of the New York subway system via the issuance of a bond (Glaister and Travers, 2001). For major projects of this nature further analysis into this field may be warranted, especially where proven track records on similar projects have delivered similar outputs to those operating under similar financial requirements.

Preferred solution

After the option appraisal a preferred solution for the delivery of services is established. This solution establishes the performance of the output specification with respect to the future formation of a public sector comparator (PSC) and a private finance alternative (PFA). With this in mind both the public and private models provide the same standard and performance, the only difference being the programme, cost and resources utilized to deliver the service.

The preferred solution is a hypothetical solution, as during contract negotiation aspects surrounding the technical specification and performance of the service are altered. Preferred solutions within the PSC also have to be altered to incorporate such variations.

Financial assessment

Once the technical input has been established, the PSC and PFA are produced. Both models are based on whole life cycle of the commercial mechanism. Costs within the model are adjusted to cater for risk, competitive neutrality, taxation and optimism bias. The two models of the public and private sector are compared to produce a single or variable estimate of the VFM.

Risk and VFM

A series of assumptions and risks are introduced into the model, which are tested to establish the limitations of the investment proposal. Assumptions and risks assigned to the PSC and private finance alternative are compared, taking into consideration the effects specific risks and variables may have on the VFM of the scheme. Further analysis of the effects of such assumptions and risks provides an insight into circumstances or events that influence the net VFM that one particular model of procurement has to offer over another (see Fig. A2.3 of Appendix 2). Modellers use scenario analysis to determine the robustness of the VFM a PSC or PFA hold over each other. (Lamb and Merna, 2004).

Finance

Several countries require an appraisal of the off-balance sheet treatment of the project. This establishes the substances[34] of the transactions that are to take place. However,

[34]Party A pays party B £5. Party B then pays £5 to party C. The substance of the transaction should be reported as A → C £5.

off-balance sheet attainment is not a prerequisite to VFM, as proved by the number of projects that have remained on-balance sheet (HM Treasury, 2003a).

The determination of the on-off-balance sheet transaction depends upon the following aspects:

- The accountancy principles applied.
- Reflection of assets on the basis of control (which can cause difficulties especially when trying to assess hybrid forms of PFP such as PPP) (Heald and McLeod, 2002).

The legal ownership is not the sole determinant of the balance sheet treatment as the transference and allocation of risk can have significant influence on where and with whom control lies (Spackman, 2002).

Accountancy reporting practice needs to be identified and in certain countries there is specific guidance as to what constitutes a PFP transaction.

Control structure

The degree of detail the OBC goes into concerning each mechanism of the control structure is dependent upon the FELCH scoring of the project. If the project has a high score and there are robust standardized formats, then the principal simply refers to them.

However, in lower-scoring FELCH projects a standardized format may not exist, thus requiring the control mechanisms to be outlined within the business case. A pre-requisite to submission would be the key headings with a brief description, illustrating the building blocks for the structure of the control mechanism. Heads of terms may be included within the appendices, and initial outlines of the payment mechanism and performance standards can be included. (See Appendix 4 for details of payment mechanisms and output specification.)

As the statutory, legislative, regulative systems may not be operational or may be unknown for low-scoring FELCH projects, the commercial mechanism used to transfer the rights to provide services by an SPV may have to be developed throughout the procurement process. The business case should identify any alterations to the legal systems required and the implications in terms of the procurement programme and cost.

Project management delivery

An outline of the procurement programme, individuals involved and their experience is included in the OBC.

Support and other matters

Areas not covered but of relevance to the strengthening of the business case are incorporated into this section. This element of the OBC relates to the political context, backing and support for the project, now and in the future.

Output

The output from the OBC has the following characteristics:

- PRG acceptance/rejection.
- VFM calculation and areas for future negotiation.

- Preliminary output specification, payment mechanism, performance standards and project agreement.
- Financial and non-financial evaluation.
- Selection of the preferred procurement route.
- Project management delivery strategy.

The outputs from the OBC may then be used to structure future advertising material and report requirements, which in the case of the UK would be Cabinet reports.

OJEC/PIN (advertisement)

Several countries or states have established obligations to promote competition within public works and contracts. An outline of the EU obligations has been used to provide an illustrative example. Users of this guide should tailor their procurement process to reflect the obligations of the host country.[35]

EC Treaty obligations state the following (HM Treasury Central Unit on Procurement, 1995):

> 'Public authorities and other parts of the State, in its broadest sense, must comply with EC Treaty obligations, in particular not to discriminate against suppliers or contractors on the grounds of their nationality or the Member State in which they are based.'

Prior intention notice (PIN)

The PIN is a notice alerting member states of the EU and the companies residing therein, to the principal's future intention of submitting an advertisement for the stated works, services or supply contract. It reduces the period of OJEC by raising the market's awareness of the principal's intention to procure.

Aim

To introduce competition into the provision of supplies, works and services procured by principal organizations, public authorities, states, regional and local authorities and other public bodies.

Objectives

- To provide interested bidders with sufficient information to allow them to make an adequate assessment and verification of their interest in providing the services, works or supplies.
- To operate within the confines of the rules and regulations of the procurement treaty.

Developing an OJEC/PIN

The various stages involved in developing an OJEC/PIN are illustrated in the flowchart given in Fig. 4.2.

[35]Note for private–private PFP, such obligations may not be applicable. However, private-based principals should establish advertisement procedures and time frames to promote competitive tendering.

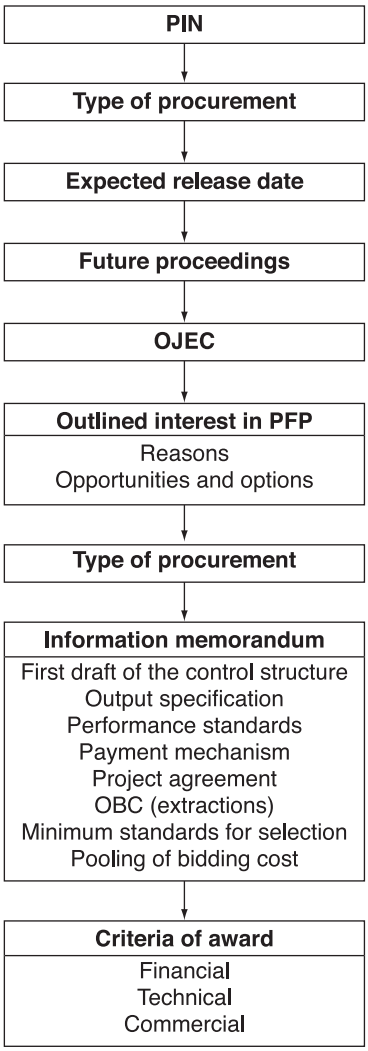

Figure 4.2 Formation of a typical PIN and OJEC notice

Criteria of award (overall evaluation matrix)

A brief example of how a PFP may be evaluated and subsequently awarded upon is illustrated in Table 4.1.

The degree of disclosure varies; as markets become more mature and transparent the level of disclosure may become more open. It is not recommended that principals form single strategies regarding disclosure as proposed by Smith (1999). Instead principals should seek to innovate upon the systems used to test the bidders as bidders become more accustomed to the evaluation techniques, rendering the argument of degree disclosure irrelevant.

The evaluation system and associated weighting mechanisms must be decided with the project team.

In this case the headings are disclosed, but the physical weightings and totals are not. The principal should seek to reassure bidders of the methodology and fairness of the process used in the evaluation of submissions.

Table 4.1 Criteria of award[36]

Activities	Headings	Weighting: %	Totals: %
Financial	Cost of bids	60	12
	Economic position of promoters	20	4
	Robustness of bids	20	4
Subtotal			20
Technical	Meeting the output specification	40	20
	Future operational performance	40	20
	Soft management/relationships	20	10
Subtotal			50
Legal	Acceptance of project agreement	50	10
	Risk allocation	30	6
	TUPE*	20	4
Subtotal			20
Subtotal	Overall Integrity		10
Total			100

*TUPE, Transfer of Undertaking Protection of Employment Regulation 1981 is to protect employee contractual rights in the event of a relevant transfer.

Outline interest in a PFP solution

The preferred project agreement structure is outlined within the OJEC and the principal should identify if an alternative proposal would be considered.

Type of procurement

The demand for competitive tendering of PFP generally depends on three aspects:

(1) Type and categorization of the majority of the activities undertaken within the project agreement.
(2) Size and value of the project agreement.
(3) Selected awarded procedure (open, restricted or negotiated).

Once the PFP has been classified by the procurement rules, limitations to future programmes and number of bidders can be included within the procurement process.

Information memorandum[37]

From the OBC, background information surrounding the project is released to the bidders once their degree of interest has been recognized. What is released from the OBC is highly dependent upon the maturity of the market and the knowledge base of the principal and promoting parties. Inappropriate disclosure may result in a weak negotiation position for the principal.

[36]Table 4.1 represents the general criteria for the evaluation of a PPP submission. Several employees of the principal were to be transferred over to the successful promoter. Further to this, the principal was interested in the partnership relationship that might form between them over the period of the project agreement and how this may physically operate.
[37]The information memorandum tends to be released after OJEC and EoI responses from bidders are received. This limits the expense of advertisement.

The principal may find that decisions relating to disclosure need to be sought on the following elements:

- public sector comparator (Canadian Government, 2002) and associated VFM
- affordability models
- bankability models
- risk register.

In high-scoring FELCH projects the release of the initial PSC in the information memorandum reduces the time frame associated with tendering, as both the principal and promoters have a higher appreciation of the costs and pricing of risks within the market. However, where there is disparity between the two parties in the degree of knowledge surrounding the pricing and operation under PFP contracts it may be advisable to restrict disclosure of the PSC in order to maintain competition within the marketplace.

Where there are limited numbers of bidders it is not recommended that the PSC be released.

Outputs

The outputs from the OJEC/PIN can be listed as follows:

- Initial feedback from the project as it stands at the moment.
- Response from bidders.
- Views and confirmed level of interest from the market if the procedure is open.
- Assessment of the adequacy of the procurement process initially proposed by FELCH analysis.
- Expression of interest from bidders.
- Development of a minimum technical and financial standard that must be reached for bidders to be involved in the bid.[38]

[38]The minimum standard is updated throughout the procurement process, so that as the bidders pass through the process the standards they must reach become more specific and targeted to those areas that led to successful PFP in the past.

5 Tendering

Introduction

In this chapter three procurement elements designed to test the capabilities of bidders are covered:

(1) pre-qualification questionnaire (PQQ)
(2) invitation to submit outline proposal (ISOP)
(3) invitation to negotiate (ITN).

Pre-qualification questionnaire

From the expression of interest made by bidders, the principal releases a PQQ to the bidding promoters or consortia.

Aims

To identify those parties with the technical and financial capability of developing and delivering a PFP to the principal's requirements.

Objectives

- Establish the competence of the bidders.
- Identify the interest in the market for the PFP.
- Identify parties that are not interested and the reasons why.
- Appreciate the financial and technical position of the consortium and its ability to meet minimum standards.
- Identify areas of weakness within the consortium that may pose problems for the future.
- Identify problems in the past with the procurement process and control structure that would test the viability of the PFP.

Developing a PQQ

Figure 5.1 provides a structure for a PQQ, with the headings forming the basis for bidder response and evaluation (refer to UNIDO, 1975; HM Treasury, 1992; Office of Government Commerce, 2001).

The PQQ provides the principal with an opportunity to investigate the capabilities of the current participants in the PFP market.

Figure 5.1 The PQQ

[39]Refer to Office of Government Commerce (2001) for more details.

[40]Liquidity – current assets/current liabilities (provides an indication of the firm's ability to service short-term obligations. Gearing – debt-to-equity ratio of the firm is the structure suitable to address the risk within the project or a firm's activities? Loans – short-, medium- and long-term loans may be used. Firms utilizing inappropriate terms should be questioned. Net worth – assets. Acid test – current assets (inventories/current liabilities). The exclusion of inventories from a firm's assessment of its assets provides a clearer understanding regarding a firm's available cash and subsequent liquidity.

[41]Refer to UNIDO (1975).

[42]Aspects associated with value engineering, re-engineering, business process re-engineering/redesign and Just in Time in delivering the service are all covered within the analysis of PQQ.

[43]See HM Treasury (1992).

General

This unit covers the information required from bidders outlining the name and legal status of parties involved. This is to prevent bogus parties being incorporated into the rest of the procedures and acts as a source of information for future communication between the parties. There have been instances where bids have been awarded to the wrong party: in the case of The People's Bank of China in Singapore, the design was awarded to an architect firm that held a name similar to that of a prominent firm that in fact should have been awarded the bid. This resulted in poor design and late completion.

Financial

The financial questionnaire establishes a snapshot of the parties' financial position, in an attempt to protect continuity throughout the bidding procedures. Financially weak bidders may fail during or after the bidding procedure. Current and future corporate actions may interfere with the future PFP activities of a bidding company.[44] Altering corporate strategies or restructuring during the bidding procedure can result in bidders leaving the process, potentially having a detrimental effect upon the competitive nature of the procurement process.

Healthy balance sheets and turnover are a prerequisite to a successfully operated company capable of absorbing risks that may occur during the project agreement. Consortium hurdle rates can be established, based upon their collective turnover. For example, the project agreement must not form more than 30% of the annual turnover of the consortium. Such ratios are designed to address financial stability and identify bidders that do not have financial resources to deliver the project (Office of Government Commerce, 2001).[45]

The sources of finance available to the bidder, their quantity, quality and suitability for the PFP need to be assessed on a predicted debt : equity ratio often derived from previous project structures. Projects that have a low FELCH score may have insufficient information and thus base ratios on the risks inherent in the project (Merna and Khu, 2003), the norm being to use acceptable ratios currently operated within the marketplace.

When analysing the responses from bidders there are several signals to look out for:

- debt downgrading
- falling profit margins
- staff reductions
- deteriorating liquidity
- high gearing (high debt : equity ratio)

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[44]Recently a UK-based contractor disposed of eight contracts and several PFI ongoing bids to another UK-based investment firm for approximately £29.1 million. The portfolio contained roads, MOD work, accommodation projects including schools and police stations. Identification of a firm's application of specific delivery models such as value engineering, re-engineering, business process re-engineering/redesign and just-in-time techniques should be investigated by the PQQ (John Laing Investment, 2003).

[45]Users of these ratios should note such guidance has a degree of flexibility as the information is backward-facing and the current position of the firm may have changed. If this is the case the bidders must alert the principal to the most current financial position.

- write-offs/losses
- late filing of accounts
- reports (investment and press releases)[46]
- solvency ratio
- current market activities/interests.

Technical

The technical review establishes a picture of the bidder's track record and identifies current technical knowledge or experience that may be superior or advantageous to the principal and service. A review of the use of subcontractors and the level of outsourcing of the contract from the main body of the project company may identify problems associated with the following scenarios:

- Inappropriate transference of risk to subcontractors via secondary contracts.
- Caps and floors with respect to risk transferred, which are set at levels insurable or reasonably manageable by the subcontracts.
- Potential for high liquidated damages as services forces smaller subcontractors out of the bidding.
- Ensuring secondary contracts with subcontractors are no more onerous than the project agreement.
- SPV does not attempt to make subcontractors liable for its own defaults.
- Relief rights are passed directly through to the subcontractor with no discount (Rosenburg, 2003).

Principals seek to establish how the bidders place themselves within the market. Several firms may seek to deliver the whole contract in-house providing a single point of contact for the whole contract, while others are from a number of companies forming a consortium.

Outputs

After the evaluation of the PQQ responses by the principal and a series of outputs are established:

- Select a number of bidders interested in the PFP to be shortlisted.
- Potentially restructure the procurement process to suit the level of market interest and reappraisal and feedback of the FELCH analysis.
- Develop a series of contacts and projects that the principal may visit to identify aspects of best practice, innovation and scope for improvement.
- Develop a profile of the companies involved, outlining current liabilities and future commitments that may jeopardise the process.
- Identify any areas that form potential show-stoppers to the whole process.

Invitation to submit outline proposal (ISOP)

The ISOP has in the past been used to further reduce the number of bidders, by weeding out those not considered capable of meeting the technical, financial and legal targets placed by the OBC.

[46]As the SPV may be constructed from a consortium of members, it is critical that those undertaking specific risks and financial commitments have the resources to do so. Each member may therefore have to provide information surrounding its financial position to ensure it can contribute the necessary finance.

The ISOP structure is similar to that of the principal's OBC, providing an insight into the bidders' expectations of the project and their future position relating to the control structure. It raises issues that need to be clarified, outlining assumptions made within the bid and, its pricing.

The structure of the ISOP is project-specific; following the PQQ the only details principals are aware of are the general operations and activities of the bidder. The ISOP asks the bidder to produce a quality plan regarding the physical delivery of the service. This plan draws together all the policies and strategies of the bidder to form a response to the procedures and processes they envisage in delivering the service.

ISOPs are often used where there are numerous consortia or promoting organizations fulfilling the PQQ requirements and acts as another layer of evaluation.

Aim

The ISOP allows the bidders to address project-specific issues presented in the information memorandum, developing a quality plan outlining how the service would be delivered.

Objectives

- Assess the responses to the initial control structure, with the ISOP concentrating on issues specific to the project.[47]
- Raise the principal's understanding of how the project would be delivered and the commercial trials facing its delivery.
- Development of a detailed evaluation criteria for the assessment of the bids.
- Shortlisting of bidders.
- Receive from the bidders a quality plan regarding how the service will be delivered.
- Initial cost estimate for the provision of the service.

Developing an ISOP

Figure 5.2 illustrates the ISOP process. The level of detail and weighting placed in the evaluation of the ISOP is dependent upon the areas covered by previous procurement elements. For example, during the PQQ a brief outline of the procedures available may be removed to introduce specific responses, such as examples of where and how re-engineering or value engineering has been applied in previous projects.

General

The response to the general elements contained in the PQQ outlines the commercial and legal information surrounding a firm interested in bidding for the project.

Technical

A quality plan is drawn up, identifying how the project would technically be delivered, indicating lines of responsibility structures for management, expected design formats, programmes for works and procurement. Policies of each member of the bidder need to be unified via the quality plan to respond to the ISOP. From the technical inputs an

[47]For example, a PFP that involves transference of employees from the principal organization to that of the promoter would require a response outlining the promoter's capabilities to manage such transferences.

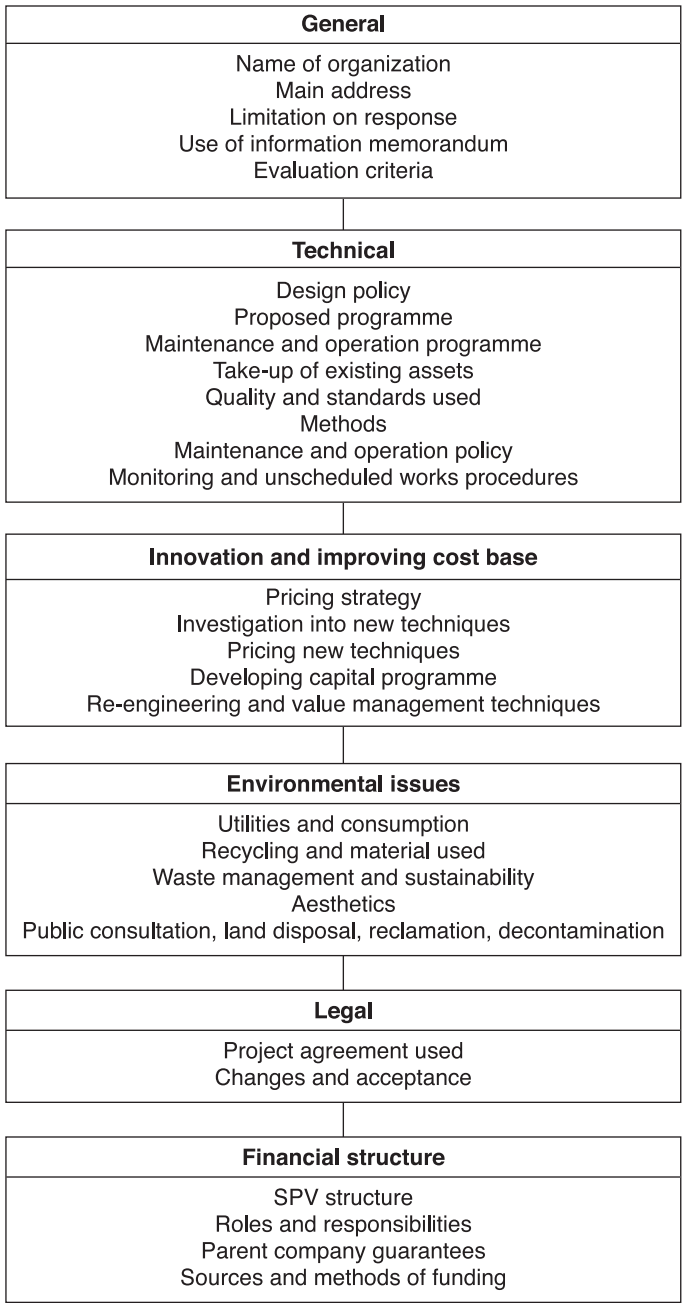


Figure 5.2 The ISOP process

initial cost estimate can be produced, but this may not be fundamental to the project assessment at this stage.

Innovation and improving cost base

The principal's unitary payment varies over the term of the commercial mechanism, with market testing exercises used to assess the price of the service delivered. However, market testing may be conducted over inappropriate periods with respect to technological advances, which result in significant cost savings. The bidder's position of sharing cost savings should be outlined, with a strategy for market testing.

Environmental issues
Policies associated with the environmental management during construction and service delivery are outlined, identifying current legislation and systems established to meet them.

Legal
Where the principal utilizes standardized forms of project agreement, the bidders respond to issues that are far more project-specific, as the general framework has been established and agreed by both the public and private sector. If standardized formats are not available, heads of terms may be produced by the principal and released within the information memorandum; the heads of terms are assessed for their probity.

Financial
Further details of how the bidder intends to finance and structure the SPV for the PFP are assessed, operating on the premise that the PQQ identifies the bidder's capabilities and not its competency. Studying how the bidder intends to structure the SPV and associated guarantees may draw out weakness of knowledge or experience with current market practices.

Outputs
Outputs of the ISOP can be summarized as follows:

- Receive critical responses to the proposed control structure to promote future refinement.
- Cost estimates for the service.
- Evaluation of bidders and subsequent shortlisting.
- Identification of issues concerning affordability and value for money.

In higher-scoring FELCH projects ISOPs are not required as extensive knowledge concerning the content of the control structure format already exists. ISOPs are primarily designed to gain further insight into the marketplace and current commercial position on issues that may be raised from the release of the control structure in the ITN.

Invitation to negotiation (ITN)
ITN may not always precede the ISOP phase and can be used as the initial phase in the development of evaluation criteria and the control structure to be released.

Aim
To develop detailed control structures allowing detailed designs and technical, financial and legal responses from the bidders.

Objectives
- Develop evaluation criteria for the assessment of technical, legal and financial responses to the project.
- Evaluation and shortlisting of bidders.
- Develop the technical, financial and legal documentation used in the delivery and eventual financing of the project.

Developing and conducting ITN

Figure 5.3 identifies documents released during the ITN element and outlines potential evaluation criteria used for the assessment of bidder responses. The evaluation criteria are designed to combine the evaluation into manageable packages. Detailed bid submission response structures have been included. Note such response structures must be derived from the principal's own technical, financial and legal documents. The structures illustrated in Tables 5.1–5.3 provide typical examples.

Technical documentation

The technical ITN documentation is based around a general PFP service. See Table 5.1.

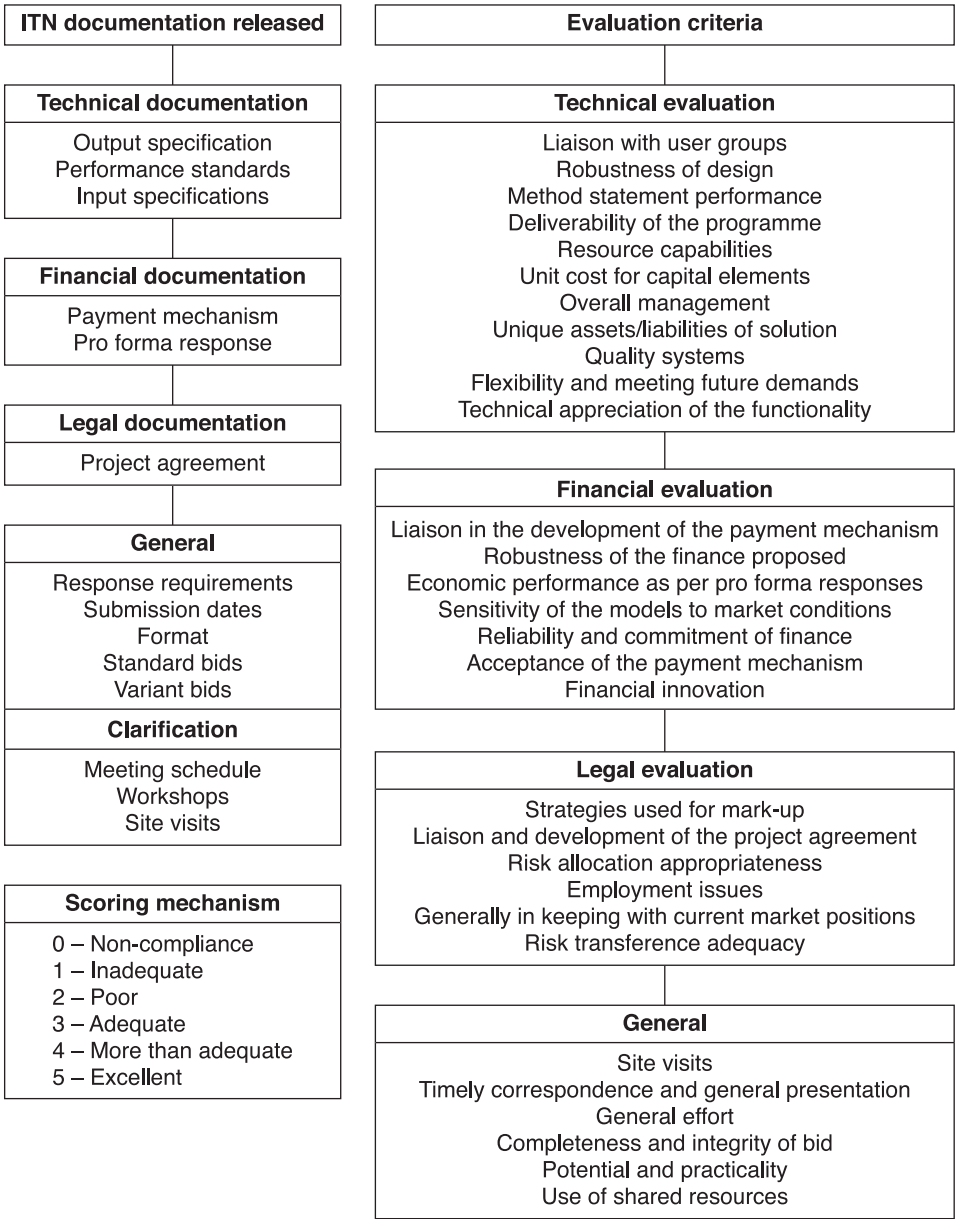


Figure 5.3 The ITN process

Table 5.1 The technical bid submission

Heading	Comment
Contact and Liaison	
Project team	
User groups	
Overall approach statement	
Statement on design philosophy	Philosophies used in the design are in keeping with the project objectives and vision
Design statement	
Design philosophy/codes/practices	Several codes may have to be used; identification of which used, outlining conflicts with affordability
Adaptation/flexibility of the design over the contract period	Scope for future development of the commercial mechanism, addressing the demands of the long-term agreement.
Environmental performance	Waste management, lean construction, sustainability and the assessment of the material and operating systems used
Schedule	Outline quantity of service to be provided
Statement on any variance from the principal's output specification/life expectancy, etc.	Design innovation, variant bids and affordability
Method statement	
Relocation/demolition/construction	
Provision of temporary services/mobilization	Outlined and discussion of the programme
Other project-specific elements	Historic, mine shafts, etc.
Specifications	
Civil and structural solution	
Design layout	
Datasheets (input specifications)	
Mechanical and electrical solutions	
Elemental cost analysis	Identifies cost associated with specific elements of the work
Cost pro formas for capital elemental life cycle and operating costs	
Building services strategy	
Utilities and internal service	
Specialist services	
Facility management, service providers, monitoring and standards	
Life-cycle replacement	
Integrating with principal operations	
Operation manual and guidelines	
Project management and design team resources	
Project management and design team resources and previous experience	
Evidence of sufficient resources to deliver the project	
Programme	
Planning consents	
Completion of design and issue of layouts	
Start and completion of temporary accommodation	
Start of construction works on each site	
Completion of buildings with any phasing identified	
Relocation dates for each user group	
Commencement of service delivery	

Table 5.1 continued

Heading	Comment
Release of surplus sites	
Commentary on programme overall	
Drawings and schedules	
Master plan of the site	
Conceptual arrangements	
Plans, elevations, sections	
Schematic layouts and commentary on services	
Clarification notes	
Revised issues, changes/variation	

Technical evaluation

Using the headings in Fig. 5.3, the response to the technical documentation is scored for each bidder. Scores from technical evaluation are then placed within the framework of the overall evaluation matrix (see Table 4.1) to weight the scores with respect to the rest of the financial and legal contributions of the bid. See Fig. 5.4 for further clarification.

Financial documentation

Variant bid submission may be addressed on a bespoke basis. See Table 5.2.

Financial evaluation

The financial evaluation follows the same structure as the technical evaluation, utilizing information surrounding the financial submission. However, there have been instances of insufficient interest from the PFP market to deliver the services and/or bidders leaving the process mid-way through the process (NAO, 2002). In such circumstances '*should cost*' models are derived, which are developed to appreciate the cost included in the bid and improve the negotiating position of the principal. In such circumstances the principal may seek to employ or introduce new members to the project team; this may include key members of those bidders that have dropped out of the procurement process.

Legal documentation

Bidders provide commentary on elements of the project agreement they wish to alter or negotiate further. A brief outline of the terms and conditions contained in the project agreement is given in Table 5.3. It is therefore not expected that the bidders contribute to every term, condition and provision.

Legal evaluation

The legal evaluation assesses bidders' response to the terms and conditions of the project agreement, specifically in relation to the bidders' acceptance. Furthermore, the bidders' constructive contribution to development of equatable forms of contract and operational relationships is assessed.

There is no direct submission for the general elements of the project, rather additional qualitative elements that illustrate the performance and working methodology of the bidders.

Table 5.2 The financial bid submission

Heading	Comment
Finance	
Unitary payment/annual	The discounted unitary payment is compared
Indexation of payment	The selection of an economic indicator used for indexing the payment
Percentage of payment to be index linked	A certain percentage of the unitary payment is linked to the index used to reflect the effects of inflation
Financial plan	
Development costs	Costs associated with bidding; abnormally high rates may signify unsuccessful bidding in previous projects
Start-up costs	Costs associated with the temporary works, locating the SPV
Capitalized interest	Interest capitalized within the model during periods of non-repayment of the borrowed amounts
Finance and legal fees	Fees for the arrangement of instruments used to finance the project and fees to develop and analyse the project agreement
Working capital	Degree of finance required by the SPV to maintain its transaction liquidity; too high is wasteful, too low forms a credit risk
Others	Other assumptions relating to the future quantity of finance required that pertain to the financial operations of the SPV
Finance structure	Outlines the requirement in association to the various instruments available in the market
Senior debt	Has seniority over the rest of the financial instruments during recourse
Subordinate debt	Tends to be private placement debt, mezzanine, bonds and capital markets
Leasing	Further lease arrangements that may be held, including restrictive covenants, hire purchase arrangements and any associated import/export guarantees and their associated lending seniority
Equity	Subordinate to all forms of finance unless otherwise stated
Total finance provided	
Loan performance	Amounts drawdown, amount repaid, closing balance, interest rate, interest charge, fees/management/margins, SWAPS and hedging
Indicators	
Real/nominal IRR/NPV (project, equity)	Bankability and degree of interest in the project
Principal interest cover ratio	Identification of tight ratios under sensitivity analysis that may impede the efficient pricing of financing
Debt service cover ratio	Conformity to market standards, application to credit risk
Loan life cover ratio	Conformity to market standards, application to credit risk
Gearing or debt : equity ratio	Conformity to market standards, application to credit risk
Projected results	Turnover from the project, cost of sales, gross profits, overheads, profit/loss, interest charge, interest income, dividends, retained profits
Cash flow	Earnings before interest taxation and amortization (EBITA), depreciation, VAT, debtor, creditors, construction cost, life-cycle capital expenditure, working capital (VAT/debtors/creditors/corporate tax/sink funds/DSRA*/MSRA†/deferred tax
Taxation	Profits before tax, depreciation, capital allowance, taxable profits, losses, taxable profit/loss, corporate tax
Commercial	
Corporate, SPV and organizational structure	The structure adopted and its conformance with tax treatment and standards applied
Off-balance sheet	Acceptance under the terms of procedures used to identify off-balance sheet acceptability
Refinancing	Outlining of sharing covenants and mechanism for dispersion back into the unitary payment
Certification and guarantees	Made available to the project; implications to the cash flow, sensitivity
Payment mechanism commentary	Areas of bidder response conformance. Outline of areas to be further developed and negotiated
Levels of commitment	Acceptance of elements of the control structure by the financiers
Other models included	Variants bids developed, outline of unitary payment improvements

*DSRA – debt service reserve account, used in circumstances where the promoter is unable to service the senior debt repayment.
†MSRA – maintenance service reserve account; an account used to address the future maintenance requirements of the project.

Table 5.3 Legal bid submission

Heading	Comments
Project agreement terms	
Definitions and interpretation	
Exclusion of legislation	
Land issues	Access, grants, court orders, leases, licences, engrossment, stamping, termination, expiry, compensation, title deeds
Construction phase	
Works	Obligations, dates, resources
Programme	Construction programme, principal programme, obstruction, commissioning
Representatives	Authorities' parties, termination of representatives, notification management
Meetings	Location, parties involved
Collateral warranties	Changing contractor parties, collateral warranties required
Design	Finalizing, submission and reviewing procedures, design databases, rectification procedures, change in law
Changes	Varying proposals, limitations, implementing variations
Extension of time	Notification, information supply, duty of mitigation, compensation events, relief events, change in law
CDM Regulations	Responsibility of design, duties, indemnities
Site	Access, use, warranty, safety, security, cleaning, ground conditions, latent defects
Monitoring and inspection	Rights of inspection, information supply, right to open up
Service availability	Inspection for principal commissioning, issues of acceptance
Service phase	
Obligation	Standards and performance, varying services, variation implementation
Condition of assets	Maintenance, surveys of the asset, programmed works, programmed and unprogrammed maintenance
Hazardous substances	Storage, registration
Emergencies	Instructions from the principal
Performance monitoring	Promoter monitoring, principal monitoring, benchmarking, market testing review dates and procedure, adjustments to unitary charge
Use	Priority of assets, period of use, third-party use
Employment matters	TUPE, emoluments, pensions
Employees	Conduct of staff, Criminal Records Bureau, admission to the site, removal from site
Operating manual	Maintenance manual, access
Payment	
Provisions	Payment of unitary payment, invoicing and payment, disputed amounts and procedures, rights to set off, VAT, payment format, exclusive remedies and the payment mechanism
Indexation	Updating financial models, no better no worse, adjustment procedures
Termination	Service availability date, target service availability date, long stop date*
Termination of the agreement	Promoter default, default procedures and rectification periods, principal voluntary termination, principal termination procedures
Force majeure	Ability to make deductions, notification and processing procedures, agreement and termination, mitigation, continuation, cessation
Consequence of termination	Provisions, accrued rights
Surveys and retention funds	Retention funds, final surveys, notification, disruption minimization, maintenance works, costs, failure
Transference to another promoter	Cooperation, transfer of responsibilities
Compensation on termination	
Definition	List of definitions

Table 5.3 continued

Heading	Comments
Force majeure	Amounts paid by the principal, payment
Promoter default	Retendering election, adjusted highest compliant tender price, adjusted estimated fair value price, circumstances of retendering, no retendering, fair value negotiation
Principal default	Amount payable, payment method
Corrupt gifts and fraud	Amount, payment, assets, taxation
General	
Relief event	Occurrence, procedures, relief against triggering mechanisms,† deductions
Change in law	Qualifying change in law, procedures and notification, change in services, specific discriminatory change in law, general change in law
Variations	Principal change, procedure and effects on trigger events, dispute resolution, small works
Step-in	Principal step-in, reason, notification and procedures, promoter in breach, promoter not in breach, mitigation
Confidentiality	Keep confidential, permitted disclosure, obligation preserved, audit, exploitation, expiry, access to information
Indemnities and responsibilities	Promoter indemnity, promoter not responsible, principal indemnity, principal not responsible, claims and conduct, cost of claims, mitigation
Insurance	Requirement to maintain, obligations, nature, co-insurer, evidence of policies, renewal certificates, breach, claims, limit of liabilities, premiums and excess payments, principal acceptance
Reinstatement	Application of proceeds, escrow/joint accounts, procedures for reinstatement, warranties and guarantees
Uninsurable risks	Obligation, risk becoming uninsurable, consequences, risk becoming insurable
Dispute resolution	Negotiation, alternative dispute resolution, expert determination, litigation, continued performance, injunctive relief
Intellectual property	Rights, transference, procurement
Assignment and subcontracting	Restriction of the principal, restriction of the promoter, exception, audit
Audit access	Cooperation, obligation
Corporate structure	Change in control, warranty, change in ownership, no agency
No agency	Clarifies the position of the contract and the relationships that may form; in this case the promoter can not be construed as an agent of the principal
Entire agreement	Agreement therein contained is the full and only agreement made between the promoter and principal
Severability	Invalid, unlawful or enforceable terms, condition or provisions do not affect the legality, validity and enforceability of others
Waivers	Prioritize the project agreement, nothing waivers the document
Public relations	Restrictions, photographs, advertisements
Promoter records	Records of costs, books and accounts, retention, expiry, confidentiality
Data protection	Non-disclosure
Corrupt gifts	Constitution, termination
Interest on late payment	As stated
Discrimination	Non-discrimination
Health and safety	Promoter's responsibilities, accidents
Discharge terms	Unenforceable agreements, compensation
Governing laws and jurisdiction	Execution of the agreement
Risk matrix	Risk heading, definition, allocation, comments

*Systems used that could trigger a termination event, target dates in which services must be provided or specific elements of the works must be completed.
†Identifies which triggering mechanisms relief events have privilege over, and those they do not.

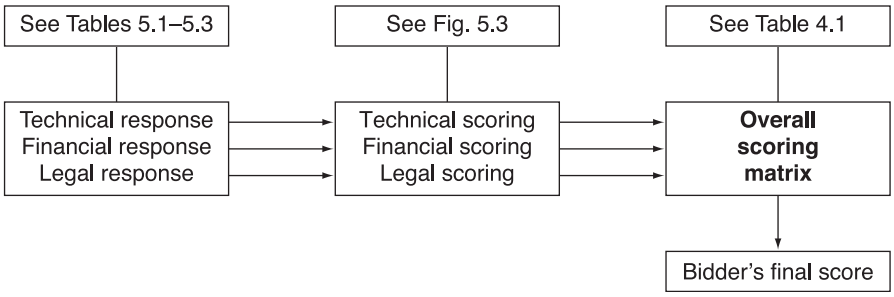


Figure 5.4 Scoring mechanism

General evaluation

The scoring mechanism as illustrated in Fig. 5.3 is used to score the general elements of the bid; this then contributes to the scoring of the overall integrity of the bid as per Table 4.1.

Scoring mechanism

Figure 5.4 identifies how the bids are scored and transmitted into a manageable single score. Clear scoring practices are critical for the auditing of decisions made during bidder selection.

Outputs

Outputs of the ITN process can be summarized as follows:

- Bidder scoring.
- Future guidance and direction for future bidder responses.
- Bidder performance on specific critical issues and areas that all the bidders omitted.
- Shortlist of bidders.
- Reviewed and updated:
  - — control structure
  - — outline business case (PSC, affordability).

6 Preparing the bidders

Introduction

Chapter 6 addresses the following procurement elements:

- best and final offer (BaFO)
- preferred bidder (PB).

After the ITN the principal seeks to further refine the control structure and bidder responses via an additional procurement element – BaFO. After BaFO a preferred bidder is announced.

If bidders fail to deliver bids that are compliant or there remains significant need for clarification on the project, the principal may enter into a BaFO stage. This allows negotiations to take place with a heightened degree of competition.

Best and final offer (two to three bidders)

The BaFO is structured based upon the original ITN. The bidders' response to the ITN allows the content of the response to the BaFO to be significantly reduced. Areas where the bidders have accepted or met specific terms and conditions can be removed from the response requirements, allowing the bidders to concentrate on areas of non-compliance.

Aim

To improve the control structure and bidder responses to a level that is acceptable to the principal and the PRG.

Objectives

- To improve the performance of the bids.
- To take forward those bidders that have a reasonable chance of being awarded the project agreement.
- To use the additional procurement element to insert an additional layer of competitive bidding to address the profit margins that may exist within the project.

Conducting BaFO

Figure 6.1 illustrates a typical process for conducting BaFO negotiation.

Principals should aim to clarify their position or strategy followed for the procurement process during the ITN. There are cases where the principal allows the nature of future

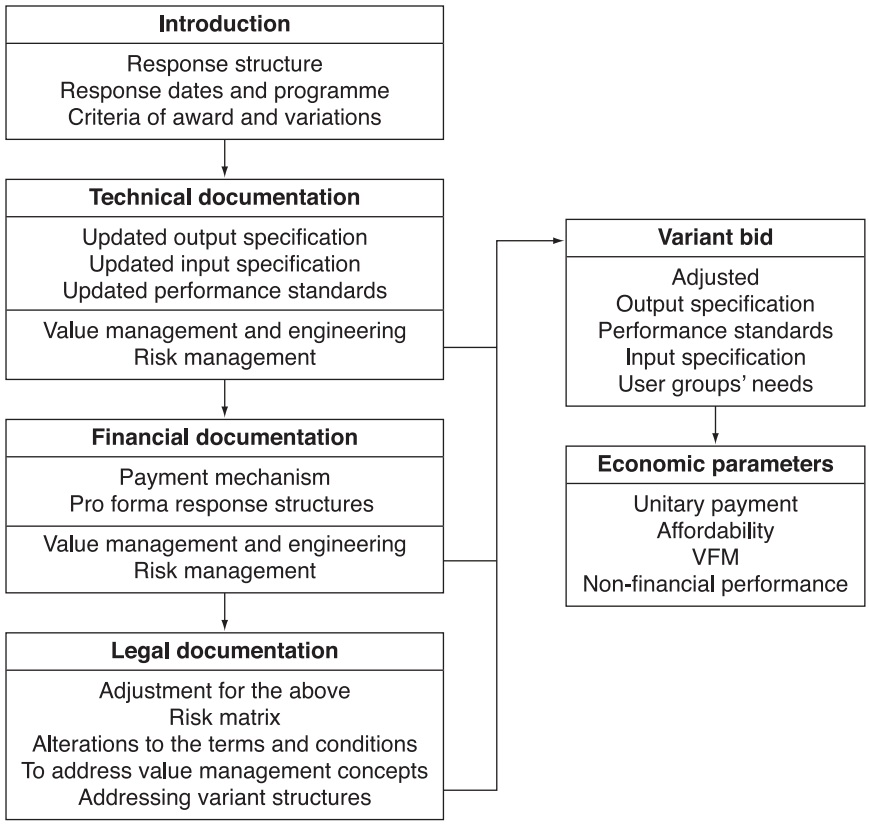


Figure 6.1 Conducting the BaFO

procurement elements incorporated within the process to be dependent on the performance of bidder response and the number of bidders available. However, the negative effect of this is that bidders may attempt to undertake negotiations during phases of the procurement process that the principal may want to address only during the BaFO stage. This misunderstanding between the two parties can cause frustration for both sides.

During the BaFO stage, adjustments to the scoring mechanism are made as bidders prove their ability in previous bid responses. For example, the technical response of each bidder from the ITN may have achieved a compliant score, but the financial response failed on several bids. Emphasis on future scoring of bids may move from the technical elements to the financial elements as outlined by the principal. This can be used to motivate the bidders to concentrate their efforts on areas of their response that were viewed to be weak.

The BaFO stage primarily acts as another round, which is similar in design to that of the ITN. It operates on the same framework for assessment of the bids as the ITN, which aids future auditing of the process. Effort is now placed in developing and assessing variant bids, establishing some of the benefits each option has to offer. However, this is not a fundamental consideration to the assessment, as the preferred bidder stage allows further detailed negotiation and investigation into such proposals.

The principal utilizes the additional period of competition which is lost during PB to address affordability, placing pressure on the profit margins inherent within the bids. In fact a typical strategy used by the principal is to form a level of positive

affordability, which acts as a buffer for future negotiation during the preferred bidder negotiation.

Technical analysis of the bids, via detailed comparisons of bidders' input- and output-based cost element analyses, may identify areas where the bids can be further negotiated or developed.

Within the technical, financial and legal responses to the BaFO, bidders can use value and risk management techniques to improve the bid. Depending upon how the techniques used in the value and risk management affect the context of the bid, several variant bids may have to be established.

Detailed review of the legal structure identifies terms that do not deliver the transference of risk anticipated or identify risks that are inappropriately transferred or retained. The valuation of risk becomes a critical element to negotiations, and bidders must identify such risk and provide a logical argument stipulating improved systems or a mechanism for the management of risks. However, the principal holds the PSC and any decisions regarding such transference of risk must rest with the principal. These areas of risk, however, need to be further investigated.

From the variant bids a series of alternative control structures and economic parameters are derived. The variant bids that have used these techniques to improve the bid must demonstrate the economic benefits with respect to the principal's core objectives – those being affordability, VFM and improved services.

Outputs

- variant bids
- value management and risk management ideas for the future service
- shortlisting of the preferred bidder(s)
- areas of development for the future
- suggestions for preferred bidder negotiation.

Preferred bidder (one or two bidders)[48]

Detailed elements of the bids are drawn out, and discussed by various groups, which have been allocated specific remits as identified in Fig. 6.2. At this stage both the principal and promoter work together to improve the proposal. In doing so producing data that can be incorporated into the full business case (FBC). The groups now operate separately during negotiation meetings as the technical content requires specific expertise and knowledge. Direction and overall management then rests upon a Steering Group, which convenes to discuss actions that need to be taken, or decisions that need to be made, to enable the project to progress.

Aim

For the principal and the preferred bidder to develop and negotiate the project agreement until all parties are in commercial acceptance regarding its content and likely outputs.

[48]In lower-scoring FELCH projects it is recommended that one bidder be taken forward as a preferred bidder. However, in higher-scoring FELCH projects, once the ITN preferred bidders are announced, it is recommended that two bidders be taken forward.

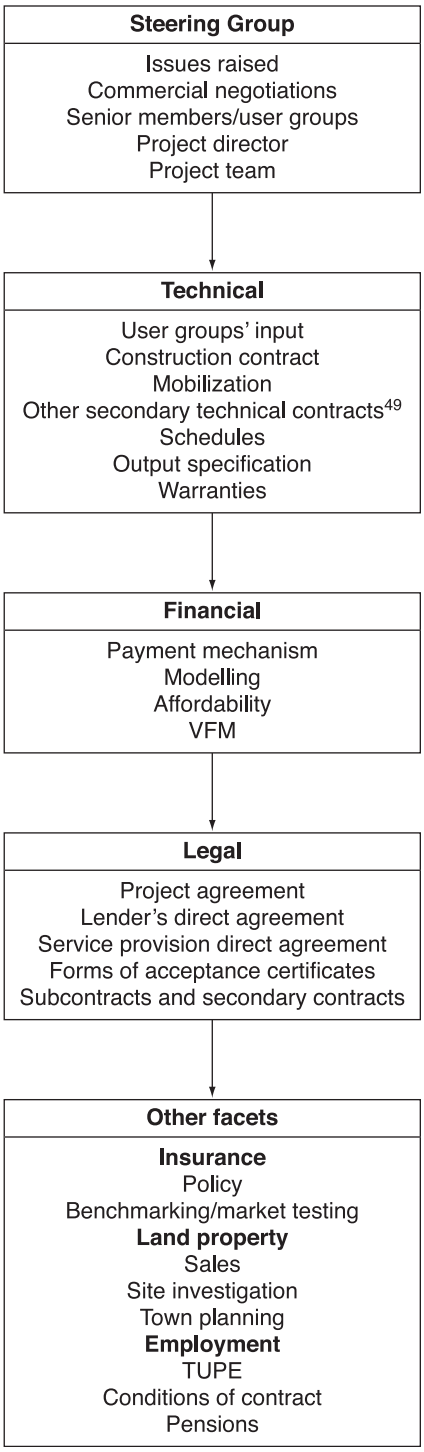


Figure 6.2 PB and PFP proposal development

[49]See Chapter 1, 'Organizational and contractual structure', for potential contracts that may exist.

Objective

- To develop and negotiate the solution/variant bids with the PB to address affordability and VFM.
- To maintain momentum towards financial closure and maintain focus to prevent the deal from unravelling.[50]
- To concentrate upon project-specific elements.

Developing the PFP proposal with the preferred bidder

Figure 6.2 illustrates the various groups formed during PB and those areas of the project that each group works on to develop a proposal that is technically capable, financially robust and legally financable.

Steering Group

The group is formed from senior members of the principal organization involved in the PFP, typically the project director, project manager and team and members of the PB. The group addresses issues raised at the technical/financial and legal meetings, providing relevant guidance and decision.

Technical

User groups' comments are readdressed, refining the solution to an acceptable and affordable degree. The various secondary contracts distributed by the promoter for the technical elements of the service are investigated, placing greater detail on the subcontractors' management and statements. At this stage comments from subcontractors' solicitors concerning the project agreement may be raised and addressed.

Mobilization efforts may commence during the PB stage; such efforts are commonplace where assets or a service base already exist and the PB works with the current service providers to ensure a smooth transition up to and following financial closure. Waivers, health and safety issues, access rights and statutory requirements all need to be finalized to allow mobilization.

As illustrated in Fig. A4.2 of Appendix 4, value management exercises are conducted to improve the affordability or VFM of the scheme. PB may identify areas within the schedules or specifications where the PB can deliver the same output using alternative schedules and specifications at a reduced cost base either in design, construction or life-cycle operating costs.

[50]Dartford and Gravehams Hospital provides an example of such deliberations. The hospital, costing £151 million (at ITN 1996 prices) received only one bid from a shortlisting of two. It had a further 12-month period where the contract was negotiated. They attempted to use benchmarking of the costs during the negotiation process but this still resulted in the bid price being 33% or £26 million over that estimated during the FBC. This increase was put down to extra requirements made upon the OS (NAO, 1999). However, the authors do not agree with such a view and it is accepted that as competition is removed from the bidding procedure, costs and prices may be negotiated upwards. Principals should seek to minimize PB periods and reduce the extent of any variations or increases in service requirements during such phases unless specified schedules have been agreed during competitive periods of the bid or there is an automated means for comparing prices as in e-procure. Also a contributing factor to the second bidder pulling out may have been their assessment of the probability of success versus the cost incurred in preparing the bid. Systems used to reimburse bidder cost may have provided VFM via the maintenance of competition during the PB stage.

Further authentication of warranties on assets or materials used on the project may be sought.

Financial

As the services are further investigated, scenarios where the service remit expands may be generated. This requires an adjustment to the payment mechanism. Scenario testing at this stage, testing the limits or points of termination and degrees of deductions for specific actions set against the user group requirements, provides insight into the system robustness and credit risk.

Affordability issues should have been met, especially as the leverage for improving affordability rests within competition between the bidders. However, circumstances can change;[51] both parties may have to reassess methods of improvement (for example, extending the project agreement duration).

VFM calculations are updated at the PB stage as details of the promoter's bid become available and a final estimate of the VFM of the scheme is calculated. This final value is then incorporated into the FBC.

The degree of payment relating to the performance standards and output of the project experiences intensive negotiations, as financiers seek to reduce the extent of the revenue open to performance-related deductions. Financial structuring and scenario analysis form a critical element to the negotiation of the project agreement.

Legal

The promoter's and the principal's position on the allocation of risk within the risk matrix are negotiated and agreed. For example, in service sold PFP, areas negotiated are often service demand levels and the degree of revenue-at-risk performance standards. Specific terms and provisions causing problems (such as market testing provisions) experience an iterative process until both parties accept the terms documented. Provision requiring input from experts in different fields or decisions made by the Steering Group should resolve such issues. Issues of this nature need to be addressed early in the process so that the necessary resources can be applied.

Areas of negotiation between the two parties are often the areas in which the project agreement derogates from the standardized formats. Efforts to log and explain the changes reduce the time taken to develop the FBC.

Other considerations

Insurance and the systems used to maintain competitive cover are negotiated, identifying systems to deal with uninsurable risk or those risks that pass into the realms of uninsurable post-contract signature or vice versa.

Areas of outstanding statutory approval are identified set against the future programme for FBC submission and due diligence.

[51]During the procurement process the central finance unit altered the means by which credit made available for the capital element of PFP was calculated, leading to a net increase in the affordability gap.

Outputs

- Identification of action points that the principal and the PB must address before they may progress to financial closure.
- Plans for the development of the FBC and the identification of relevant information used in the generation of the FBC.
- Organization of the data room, removing non-core information relevant to the due diligence and FBC. (This may be conducted throughout the process.)

7 Closing the deal

Chapter 7 addresses the following procurement elements:

- due diligence
- full business case
- financial closure.

Introduction

Before the principal and promoter sign the project agreement, both parties may need to undertake extensive due diligence procedures to establish a third-party confirmation of the feasibility of the proposal.

Evidence of deliverability

Before the exercise of due diligence is undertaken, the following items are required to address the smooth transition from preferred bidder to financial closure:

- Preliminary information memorandum or memorandum of understanding derived from the FBC.
- Provision of letters of support from both parties (principal and promoter).
- Preparation of a detailed timetable to financial closure.

Due diligence

Aim

The establishment of technical, legal, insurance and financial understanding of all parties involved in the project agreement, outlining specific considerations made by each party, to which they are committed once financial closure is attained.

Objectives

- Due diligence provides a thorough check of participants' ability to meet the future demands placed upon the organization post project agreement signature, determining the participants' legal eligibility to enter into such an agreement.
- Development of a report providing financiers with an independent assessment of the business and quantifying areas of commercial and financial risk.

Due diligence and the report

Due diligence is the meticulous review of:

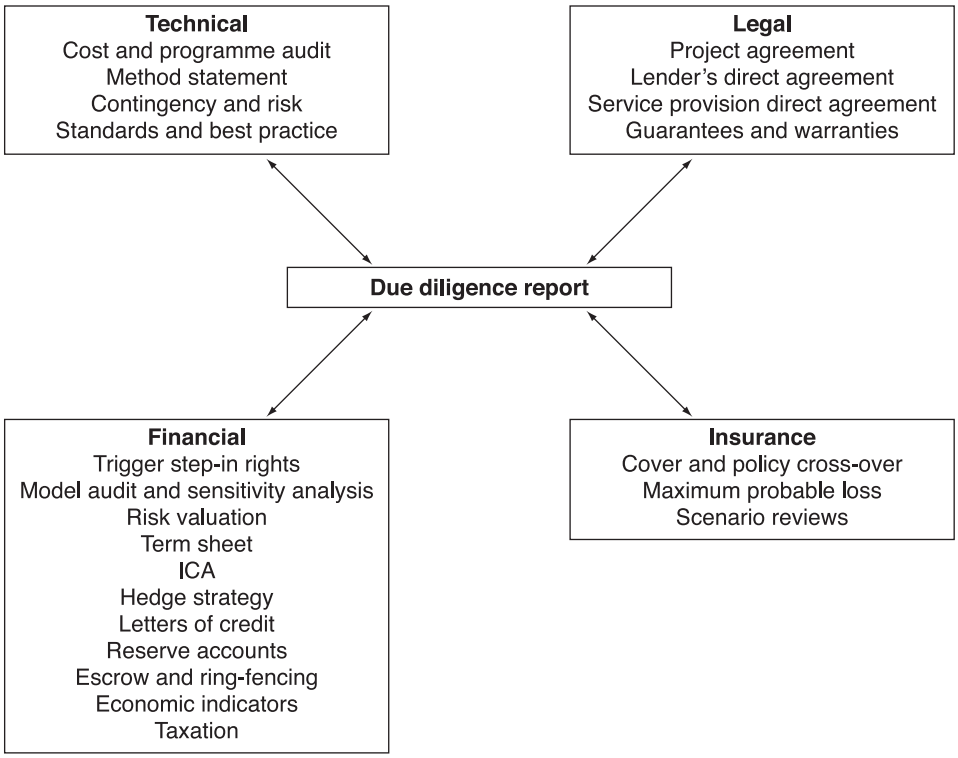


Figure 7.1 The due diligence process

- The risks identified and the systems used for mitigation.
- Confirmation or rejection of the accuracy of the information and assumptions on which a bid is based.
- Validation of the practices and methodologies applied to the project appraisal.

The due diligence report is a summary of the credibility of the technical, financial and commercial elements of the project. It audits the final proposal to identify critical areas that may have been negated or assumptions that may pose severe problems to the deal in the future.

The due diligence process can be conducted concurrently as depicted in Fig. 7.1, by the parties involved, assessing the four elements. Depending on which stakeholder commissions due diligence, the final report may incorporate all or some of the items contained in each element.

Each of the elements relies upon a degree of information from other elements to verify the integrity of the project. For example, the financial element draws information from the payment mechanism contained in the project agreement legal element, and the performance assumptions from the technical element of the project to verify the expected project cash flow.

Technical

The technical element of the project may consist of many work packages. To efficiently audit the packages the auditor should select a small number of packages and carry out due diligence. There are a range of audits that may be conducted. These are outlined as follows:

- *Cost and programme audit*
  Cost audits are designed to establish if any under- or overestimates could affect a short-term gain or loss on return on equity (Tinsley, 2000). Similarly, the programme may increase or decrease due to over- or underestimates of time.

  Construction and life-cycle maintenance cost estimates must be assessed with respect to the performance of the materials used in the project and backed by relevant guarantees or warranties.
- *Method statement audit*
  The audit determines the appropriateness of method statements associated with the capital and operational expenditure incurred on the PFP. Market analysis of the types of resources to be expended – human, mechanical and material – may identify issues associated with availability and short-term localized inflation having implications on the programme and cost estimate.

  Best practice guidance, operational standards and accreditations held by contracting parties may all be reviewed to identify weaknesses in the SPV organizational structure, strategy and method for completing the project agreement. Areas where complex methods of construction or a high skill set are required pose further areas for consideration.
- *Contingency and risk management*
  Identifying all the risks in a project is critical to understanding how the project may perform under specific circumstances. Reviewing the risk register and identifying where allowances (contingency and float) have been allocated to address identified risks provides an insight into the robustness and likely success of the project.

  Premiums placed on the transference and acceptance of risk by promoting parties is difficult to substantiate unless a sensitivity analysis is performed. Identifying areas where the promoter or the principal has incorrectly priced allocated risk must be addressed.

  The responses to the risks in the project are often formed using standard risk management methodologies that seek to identify, analyse, respond and review risk in projects (Simon *et al.*, 1997; ICE, 1998; AIRMIC, 2002; Merna and Lamb, 2004). Due diligence advisers that accumulate knowledge surrounding the alternative methodologies may verify its applicability and application. Furthermore, information gained from risk management reviews of previous projects (Merna and Lamb, 2004) may contribute to the adequacy of risk management responses.
- *Standards and best practice*
  The identification and application of relevant standards to the production and operation of the asset and service is crucial. Projects such as the Canadian Embassy in Berlin have been constructed using dual standards, whereby the standard offering the higher specification is used.

On completion of the technical audit the stakeholders are issued with a closing document confirming their opinion of the adequacy and security of the technical element.

Legal due diligence

Stakeholders require a thorough review of the project agreement, verifying content and context to appraise the assumptions used in further financial and technical modelling. The project agreement may contain a host of agreements that must not impinge upon one another. These are set out as follows:

- *Lenders direct agreement (LDA)*
  Due diligence towards the LDA should leave the financier in no doubt over its rights on collateral and to step in to either remedy the SPV defaults or ultimately take over the operation of the project agreement.
- *Service provision direct agreement (SPDA)*
  This agreement is contractually subordinate to the LDA. The principal's right to step in and take over the project agreement subject to the LDA either during default, termination or transference is contained in this agreement. Processes that fail to outline such dependencies are unstable and could lead to misuse or abuse by either party during the life of the project agreement.
- *Guarantees and warranties*
  Guarantees and warranties are often difficult to define as each provider has its own terms, conditions and definitions. Where the project agreement or the lenders are reliant upon recourse to specific parties in the event of specific failures or faults based upon reassurances provided by guarantees and warranties, the financier may require detailed due diligence to be carried out in the following areas:
  — Parent company guarantee in support of SPV. A parent company of the SPV may provide a guarantee in support of the SPV obligations. However, such a guarantee may be minimal and the constitution of such guarantees may need to be investigated if they are to provide levels of recourse to the SPV.
  — A collateral warranty is a guarantee committing party X to contractual obligations that it made with party Y, which remain enforceable by a third party Z. Due diligence should be carried out regarding the following areas:
    ○ Assignment of right is essential to the enforcement of the warranty. (*Allied Carpets* v. *Whicheloe MacFarlane Partnership*.)
    ○ Limitation periods and the date in which the guarantee may begin, completion of the asset or when the guarantee is signed. (*Northern & Shell plc* v. *John Laing Construction Ltd*. (Speechly Bircham, 2003).)

On completion of the legal due diligence the stakeholders are issued with an appropriate closing document confirming the opinion of the auditor on the adequacy and security of the legal programme.

Financial due diligence is linked to the commercial considerations assigned in the project agreement. Cross-referencing the LDA to the project agreement is vital in maintaining the financier's interest in the investment. Checks performed on assumptions made within the model set against the terms first agreed in the project agreement may highlight areas of deficiency.

Trigger step-in rights

Trigger events are events or incidents that may occur during the life of the project agreement that allow specific parties to take control of, or action towards, the project, as outlined in the LDA. In some cases such events may be linked to debt service coverage ratio (DSCR).

If the SPV fell below the stipulated DSCR in the term sheet then the lender may have the right to take control or undertake remedial action to restore the robustness of the project's cash flow. Often DSCR triggers vary over the life of a project agreement, and the suitability of such variance should be reviewed.

The assignment of unsuitable DSCR could result in inappropriate defaults or termination by the lenders. Due diligence must be carried out to establish appropriate factors of safety as designated by the DSCR triggering schedule.

Model audit and sensitivity analysis

The financial models are reviewed with regard to the following areas:

- up-to-date information
- acceptability of the assumptions
- sensitivity of key variables within the model
- worst-case scenarios of debt service capabilities
- default scenarios.

The auditor is not involved in producing the quantitative models but rather the assumptions, variables and limitations of the methodologies applied during the modelling of the project.

Auditing of the model confirms the accuracy of the information provided, including an assessment of the suitability of any typical response structure models used to identify the commercial acceptability of the project.

Sensitivity analysis, scenario analysis and default scenarios are all assessed, to identify how the combination of risks within the project may affect the future cash flows. The priority here is the identification of risk not previously addressed which could result in a commercially non-viable project.

Risk valuation

The valuation (or cost of mitigating) risk is often covered in a risk register, which identifies, classifies, values and assigns the responsibility of risk to the various parties involved in the project (Merna and Lamb, 2004). Evaluating the cost of mitigating risk often requires knowledge of past similar projects. Where such information is unavailable, reasonable estimates may be based upon practitioners' experience.

Term sheet

The term sheet indicates the amount and type of finance available from each financier in accordance with specified conditions. Due diligence on the amounts of finance and in some cases the currency outlined in the term sheet and the cash flow models is a simple yet vital check. Drawdown intervals, drawdown sizes, standby and bridging loans and working capital should be reviewed, specifically concentrating on handover periods where the facilities begin to operate, typically not at 100% revenue generation potential. Identifying SPVs with low solvency ratios may provide cause for concern.

Inter-creditor agreement (ICA)

PFP that involve more than one lender may require an ICA. Participants of the ICA can lend under different or similar terms of lending (Nevitt and Fabozzi, 2000).

ICAs provide clarification of the levels of seniority specific lenders have over other lending parties to the SPV. It is primarily there to prevent disputes and to reduce the levels of litigation between the creditors if the project were to fail.

The ICA addresses:

- Who the agreement is between.
- The rights of the borrower and lender in relation to all the supporting project agreement documentation.
- Definition of terms enabling fluent communication between parties.

- Expectations placed on each party (what each party must provide and the consequences of failure).
- The seniority of lenders and the financial instruments they provide.
- Levels of recourse.
- Notice of default or action by any lender.
- Stipulation of lenders' and borrowers' rights.
- Termination and process.
- Amendments and refinancing.

The ICA formalizes the process, outlining procedures relating to circumstances for default or termination. The ICA is reviewed to assess the probity of the procedures and the covenants incorporated therein.

Hedge strategy

Hedging financial risk via financial instruments within fluctuating financial markets is often seen as a vital business activity to securing future returns. Hedging strategies may be typically formed using options, futures, forwards and swaps (Merna and Dubey, 1998).

Letters of credit

Letters of credit tend to contain the following details:

- Confirmation of continued interest.
- The maximum amount of funding available (term sheet).
- Areas for clarification.
- Outline of areas for improvement.

When carrying out due diligence the auditor should assess the content and implied financial commitment made to the SPV. Although a financial issue, due diligence provides legal support to this item.

A certain amount of due diligence has to rely upon appropriate business behaviour. However, letters of credit confirming a promoter's commitment to equity or mezzanine finance is a prerequisite.

Reserve account

Reserve accounts are those first called upon for specific purposes. In the case of the debt service reserve account (DSRA) this may be called upon during periods of poor liquidity. If the DSRA is required over the life of the agreement, additional management and arrangement fees are incurred. The formula used to determine the amounts allocated within the DSRA, is normally three to six months peak interest repayment charges. However, in the authors' view the satisfactory level and term of such facilities are highly disputable. Due diligence should ensure that the DSRA is formed and later negotiated in association with the cost of provision set against the degree of risk coverage it provided compared to the project risks and associated debt : equity structure.

Other accounts that may be established are the maintenance reserve account (MRA), which is established for the future maintenance of the assets of the SPV.

Escrow and ring-fenced facilities

Funds are paid out from this account for a particular purpose or on the occurrence of an event. For example, the principal opened an escrow account, which would only pay

amounts to a contractor on completion of specific elements of the project, approved by the client's representative.

Investigating such structures and establishing whether they will adversely affect timely payments from one party to another is crucial, particularly with respect to liquidity.

Economic indicators

During financial due diligence, comparisons of the following economic parameters may be compared with previously successful projects to assess the commercial viability of the investment:

- Net present value (NPV).
- Minimum acceptable rate of return (MARR).
- Return of equity (ROE).
- Internal rate of return (IRR) for specific investment instruments.
- Pay-back period (PBP).
- Total amount of money expected to be borrowed.
- Total amount of revenue expected to be generated.
- Annual debt service coverage ratio (ADSCR): stipulated ranges over specific periods.
- Loan life coverage ratio (LLCR): stipulated ranges over specific periods.

Comparisons are made with previously completed projects, while recognising trends within the market, such as increasing lower return margins and lower cover ratios (Olsen, 2002), to determine the economic viability of the project. However, variations in the economic parameters are expected and stakeholders must consider such variations. Auditors should seek to identify lenders that may have overly aggressive entry strategies – that is, low coverage ratio requirements, which could lead to future step-in and termination of the project.

Taxation

Providing taxation authorities access to the project agreement, due diligence assessment and its treatment of taxation for a project is recommended. Unique or innovative tax structures, which seize upon loopholes, should attain clarification from the relevant authorities, especially if the savings are incorporated within the unitary payment.

Principals may seek to transfer to the promoter those risks associated with amendments to the tax regimes. It is therefore essential that both parties clarify such issues as this could lead to default or termination.

Attaining letters of support from relevant tax authorities outlining conformance of the tax structure and tax assumptions within the financial models provides further support to the investment.

Insurance

Banks and financial institutions (financiers) require assurance that statutory and common risks facing a project have been adequately insured to protect their investment (Scottish Executive, 2001).

The following areas need to be investigated:

- The claims settlement process.
- Agreeing appropriate terms of insurance (levels of liability and indemnity).

- Notes outlining cover and policy.
- How the risks should be distributed and what should be covered.
- Checking for double insurance or cross-over of policies.
- Checking the market: Is the current cover competitive? Does it provide affordable and efficient cover?
- Maximum probable loss scenario review.
- Identification and allocation of uninsurable risk.

Insurance companies provide numerous insurance instruments, for example, credit enhancement to cover specific risks facing an SPV cash flow (Sosic *et al.*, 1999). Such cover may require specialist assessment to avoid dual coverage.

On completion of the insurance due diligence, the stakeholders are issued with the closing document confirming the adequacy and security of the insurance programme. If there are foreseeable problems with the project, a programme outlining a time frame allowing errors or omissions to be readdressed is submitted.

Outputs

- On completion of due diligence, the lender and its credit committee receives a report identifying any problems associated with the project and its control structure.
- Programme for addressing further errors or omissions within the submitted documentation.

Full business case

The full business case (see Fig. 7.2) provides the PRG with the most recent information and models surrounding the project, incorporating changes to the business case that have taken place throughout the procurement process.

Where significant changes have taken place, which are often derived from the acceptance or derivation of variant bids, the scope of the project can significantly alter. This can affect the capital element, requiring further uplift above that of the project's allowance[52] and calling for rescoping of the project.

Aim

To allow the PRG to assess the most recent business proposal and associated supporting control structure to determine the creditability of the scheme.

Objectives

- To report on the current position of the future deal between the principal and preferred bidder.
- To assess the project proposal via an external multi-disciplinary team, carrying out due diligence for the central financing units.

Developing the FBC

The structure of the FBC is similar to the OBC, using updated information to reaffirm the initial business case. Fundamental changes from the OBC are identified. For

[52]The uplift allowance for the capital injection allocated for a project deals with the effects of inflation over the term of procurement process. The extent of the uplift is often associated with the time frame allocated for procurement.

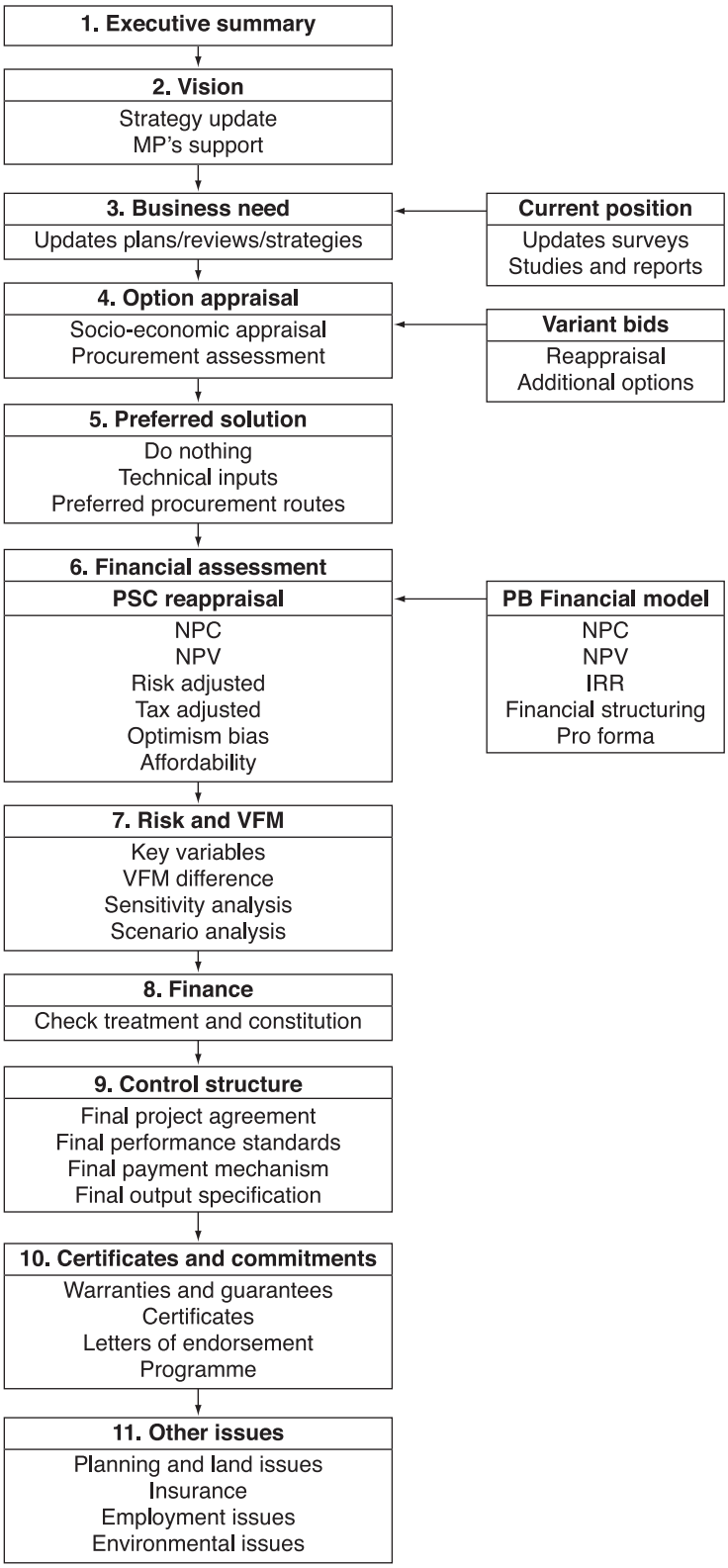


Figure 7.2 The full business case

example, the use of a variant bid requires the recalculation of the PSC. Derogation from the standardized forms of project agreement need to be identified and commented upon. Additional commentary is required on the structuring of the payment mechanism, identifying how it operates (Public Private Partnership Programme, 2002).

Outputs

- PRG acceptance/rejection of the FBC.
- Financial backing of the principal.

Financial closure

PFP entering into financial closure experience a heightened degree of auditing active and contractual negotiation. Financial closure occurs once the principal and the promoter sign the project agreement committing the principal to procuring services from the SPV via the commercial mechanism. The project agreement and granted commercial mechanism then form the basis through which finance can be secured, based on the predicted revenue streams over the life of the agreement.

Financial closure is the point at which the project agreement becomes unconditional and all the conditions within the loan agreement are satisfied or waived.

Aim

The signing and agreement between lender X and SPV Y for the provision and arrangement of finance to be used by Y for the completion of outlined and agreed capital works and expenditure based on agreed terms of repayment and collateral.

Objectives

- Both parties accept the technical, financial and legal position of the project and make the necessary funds available for the completion of the project agreement.
- That funds available are committed but with specific safeguards that promote the successful operation of the SPV and reduce the risk of failure.
- Signing of the lender's direct agreement with the terms and conditions contained within the term sheet.

In the majority of PFPs the signing of the financial closure documentation takes place once the project agreement has been granted to the SPV. This is referred to as technical closure in Fig. 7.3.

Before financial closure takes place, each type of finance must be committed to the project before technical closure can be reached. However, as there are often levels of seniority in project finance, the senior finance may not be secured until the subordinate finance is committed to the project. Therefore both the senior and subordinate lenders review the due diligence report, project agreement and business case which forms the basis for decision making.

Projects that contain public offering may extend the period of due diligence and financial closure, inducing further risk associated with:

- senior lender's dropout
- market price
- sale and uptake.

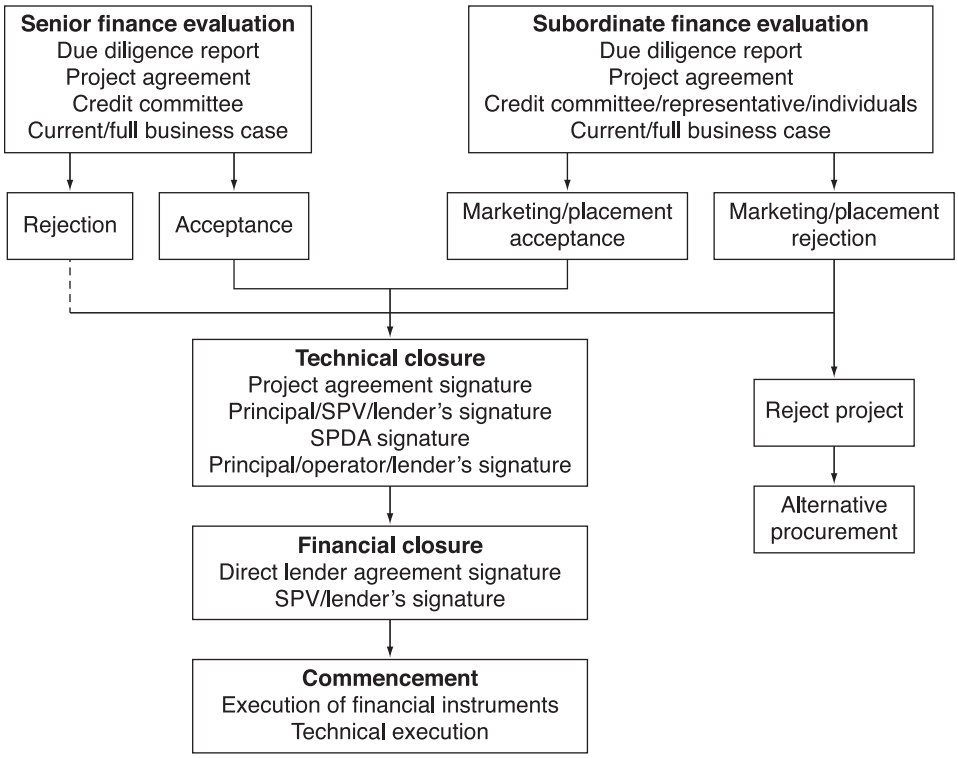


Figure 7.3 A typical financial closure process

Each risk affects the source of finance available and the ability to reach financial closure. Underwritten issuance can be used to remove the risk associated with the market price and quantity sold, hence allowing financial closure to be secured much sooner and providing financial fixity to the quantity of senior term loans required.

Credit committee approval process

Financial commitment to an SPV by an institution is approved by a credit committee. The credit committee demands due diligence takes place before financiers commit funding. The committee take into consideration their current portfolio of investments and the benefits such a project has on that portfolio and future lending opportunities.

New guidance outlined in the Basle II (1999) states that an organization's financial standing must conform to a specific credit standing based upon the risks it faces. This in turn determines the level of funding available to the credit committee. Once due diligence has been carried out and the effects upon the portfolio are identified, the committee make a decision on the provision of funding.

Due diligence report

The due diligence report is a summary of the credibility of the technical, financial, legal and insurance elements of the project. It identifies critical areas that may have been omitted or assumptions that may pose problems in the future.

Technical closure

The signing of the project agreement assigns the right to the SPV to be the sole provider of services for the life of the project agreement. After technical closure the principal and promoters of the SPV are in agreement as to how the technical elements of the project are to be delivered.

Financial closure

Financial closure is the signing of the LDA binding the financiers to provide a specified amount of finance to the SPV for the completion of the project agreement. There is a risk that the SPV financiers may drop out, either during the project or, even worse, at the point of financial closure. There have been instances, such as the Tarmac bid for Fazkerley Prison, where the finance providers were changed as banks sought to place themselves in newly-forming markets.

Technical commencement

After signature, the PFP derives a start date, that being the date of signature or a period from the point of signature.

Execute interest rate SWAPs

At the point of financial closure, a fixed rate may be preferable to the borrower to mitigate the risks associated with fluctuating interest rates. Such fluctuation could have a positive or negative effect on cash flow and the ability to service the debt. However, the borrower may only be able to attain a floating rate. By finding a party that desires a floating rate rather than a fixed rate, a SWAP can be initiated at financial close. This may operate vice versa, depending upon the desired hedging strategy outlined in financial due diligence.

Outputs

- Finance is in place and the project commences.
- The SPV operates secondary contracts to construct the asset used for the provision of services.
- The principal, SPV and the lender sign a direct lending agreement.
- Commencement date set.

8 Summary

Chapter 1

The organizational and contractual structure selected for the PFP stems primarily from the commercial mechanism that is selected for the procurement and delivery of services to the principal. Commercial mechanism are often selected based upon:

- Host country legal framework and treatment of the commercial mechanism.
- The industry/business sector within which the PFP is operating.
- The financial structuring of the deal.
- Tax mitigation and minimization.

Chapter 2

Analysing not only the environment in which the PFP is undertaken, but the supporting infrastructure is critical to the development of a robust procurement process and realistic programme. Due to the long-term nature of PFP the procurement process can be extensive, lengthy and costly, both to the principal and the promoter. When faced with such burdens, principals need to gain an appreciation of the likely outturn cost and potential success of a PFP before they design and enter into the procurement process.

Critical to the selection, design and installation of an appropriate procurement route are:

- Capital and operational expenditure incurred for the completion of the project.
- Current market interest and competition for providing the project/service.
- Current supporting infrastructure for the procurement route.
- Political/corporate will behind the project and various procurement routes.
- Principal experience and success with particular procurement routes within specific business sectors.
- Time constraints in procuring the project or services.

The guide proposed the FELCH analysis to determine a procurement process for PFP depending upon their score – high, medium or low. This is by no means an effective system as it fails to take into consideration the capital value of the project which has maintained the main focus of previous procurement designs. Ideally, a combination of the two – using the FELCH qualitative and project value quantitative system – may

prove to be the most efficient means for suggesting a procurement route for a PFP project.

Chapter 3

Principals entering into PFP need to identify how they can incorporate review structures into the principal's operational structure and procedures. Several principal organizations have developed internal PFP experts to coordinate PFP investments.

Using the FELCH analysis to assess the proposed investment may act as a useful tool to assess the qualitative standing of the project and its ability to meet the future demands of the PRG and suitable procurement process design.

The identification of metrics that provide an indication of the VFM and affordability of a project proposal is critical to a successful and sustainable PFP. Efforts spent on identifying and processing PFP become more focused, reducing the time spent on unproductive PFP proposals. Principal departments have addressed this issue via the introduction of EoI, reducing the overall cost of procurement.

Chapter 4

As identified, within various markets around the world different principals require different inputs into the OBC. Some countries conduct a VFM analysis assessment, while others only address such matters once bidder responses have been received. In such systems the project faces the risk of termination later on in the procurement process, which is costly to the principal and bidding parties.

In such instances it may be accepted that public funding is simply not available but the budget has sufficient short-term flexibility to meet the unitary payments. This, together with the socio-economic benefits the project offers, warrants the investment in private form.

While this may be acceptable as a business case in one market, it may be completely unacceptable in another. Such fine-tuning of the business case must be made on an ad hoc basis and advisers must seek to establish such differences early on.

Treaties such as the EU may surround a project, stipulating methods of tendering. Procurement processes must be designed to such treaties where relevant, which leads to significant variation in the procurement time frame and cost.

Chapter 5

Developing the content of the PQQ is crucial in reducing the time frame of procurement and procurement costs by identifying suitable and available promoting parties. It can also be used to identify specific characteristics associated with the bidding parties that can lead to failure. There have been several instances where the SPV (contractor arm) became insolvent during construction or at the point of completion. Several firms have had the internal resources to address such failures; however, those that did not became insolvent, resulting in the contracting firms' bankruptcy. Fundamental hurdle rates need to be developed, similar in context to Basle II to establish suitable degrees of recourse/capital availability to the SPV and overall deliverability of the PFP. Difficulties lie within the structuring of many of the SPV and associated parent companies,

secondary contracts held with subcontractors and the overall working capital they are able to provide.

ISOPs require quality plans to outline how the service and project-specific elements contained in the information memorandum are to be addressed. Promoters and associated companies that may form the SPV require detailed quality management systems and plans to allow each party to respond quickly and at minimal cost.

Chapter 6

The structuring and content of the ITN is dependent upon the future procurement elements that are to be undertaken post ITN completion. In the case of high-scoring FELCH projects the ITN is preceded by PB, therefore much of the negotiation, risk and value management is undertaken during this phase. However, in lower-scoring FELCH projects an additional element – BaFO – is introduced to allow the bids to further develop upon the risk and value aspects of the bid.

Users need to be aware of such variations and more importantly the effect upon the content.

As the ITN begins to investigate specific risk arising from the operational procedures generated from the business sector in which the PFP is operating, lenders may seek the derivation of management plans. Such plans should be commutative to the potential impact of risk regarding the security of repayment. The probability of such an event occurring is fundamental to such commutative analysis. Details of the bid begin to firm up the risk management policies and strategies, aiding the competitive pricing of risk. This in turn should improve the terms of borrowing, thus reducing the cost base.

Chapter 7

The final stages of the process are concerned with the auditing and final negotiations of the project agreement. Both the principal and PB should try to identify duality in the material and reporting structures outlined by the FBC and due diligence process to reduce the time taken to process the proposal. Concurrent practices may be investigated to promote an alternative structure for the process of PFP project proposals within the public and private sector.

Alterations to the procurement process

As new legislation, acts, statutes are passed, the manner in which projects are procured changes. A prime example would be the proposed EU directive that is currently under review, spelling the end of the preferred bidder stage in PFP procurement. Alterations of this nature could result in one or more of the following scenarios:

- The development of two or three bids that operationally fulfil the project agreement requirements.
- Increases in the future costs and time of bidding.
- A greater number of bidder(s) aborting the procurement process, destabilizing the procurement process and reducing the VFM attained.
- Complications to the due diligence and financial closure process and the ability to secure streams of finance.

- An improvement to the VFM, with the maintenance of competition until financial closure.

The question of the removal of a preferred bidder stage is not a moral or ethical one, rather a question that must be answered by those involved in the process and their understanding of the effects that removal of a preferred bidder would have upon the successful procurement of a project. The fact that both open and closed negotiation procedures may be used throughout the procurement process provides yet another technique in attaining VFM.

Furthermore, the complexity and aims of some of the procurement elements, such as due diligence and attainment of financial closure, may operate more efficiently under a closed system depending upon how the technical, legal and financial packages have been distributed. For example, the introduction of closed negotiation systems near the end of the procurement process can remove degrees of risk to the lender by providing it with greater time to arrange the quantity and type of finance used.

Bundling projects

Due to the large procurement costs associated with PFP, treasury units in the UK and South Africa have placed restrictions on the minimum size of the scheme. Bundling of projects has been promoted as a means of improving procurement and financing efficiency via the incorporation of several project units into a portfolio of project units. (Frank and Merna, 2003). The benefits of this are:

- economies of scale (Ministry of Finance, 2002)
- cross-collateralization
- bidding costs spread over several project units.

The pitfalls are:

- Lower design quality (Building Design, 2003).
- Different project units face different challenges and may impede the progress of the procurement process so they may need to be separated (Building Design, 2003).
- Cross-collateralization may poison the whole portfolio rather than just a single project.

Where departments or authorities have many small units it has been the strategy in the UK to initially allow the principal to gain first-hand experience in the procurement of singular smaller-sized projects before attempting large-scale bundling (e.g. schools). Phased procurement programmes are also recognized as a means of addressing skills/resources shortages in the market whereby phases of development from region to region are coordinated so as not to coincide.

Procuring services

The move by the public sector from the procurer of assets to the procurer of services is by no means a new phenomenon, but it is one which is shrouded in mystery and controversy. Arguments based upon the justification of PFP schemes via VFM and affordability are slowly being replaced with the priority of improving public services. Here VFM and affordability form only a single ordinate to the fulfilment of such an objective.

The question remains: how can services be procured and projects be delivered to improve the current standards achieved?

Innovation in bundling, where the public and PFP are procured simultaneously, is now being investigated and used, providing the public sector with a viable option between public finance and private finance during the procurement negotiations.

Furthermore, this system may be used to allow the public and private finance procurement process to reach a preferred bidder stage, while maintaining competition between the packages of work that remain in the public or private finance domain. Such structures would undoubtedly test the EU directive interpretation to the limits.

Investors in projects and services are faced with an increasing challenge to deliver outputs and returns. It is only through

- diversification in procurement routes available,
- understanding the benefits and pitfalls of each procurement route, and
- the ability to select efficient and competitive procurement routes

that service will be improved. The public sector must match each tool to its tradespeople and leave them to work.

Appendix 1 Affordability and bankability

Affordability

Definition: Where the current principal's budget for the provision of the service meets the payments required to service the newly proposed service.

Affordability of a PFP option can be calculated as follows:

$$\sum (CI_t + RB_t + TPR_t + SF_t - UP_t)(1 + r)^{-t}$$

where *CI* is the capital injection (construction), *RB* is the revenue budget (operation), *TPR* is the third party revenue (operation), *SF* is the sink funds (operation), *UP* is the unitary payment (operation), r is the discount rate and t is time.

This may be expressed in real or nominal terms. The affordability calculation shown above is for a typical PPP undertaken for a school project. However, every type of project must seek to identify all the sources and timing of funding (inflows) and match them to the sources and timing of costs (outflows).

Through the development of the service and transference of risk there is a gap between the budget the principal was previously operating the service on and that which the PFP unitary payment may form. Additional support to the principal may be required to maintain the service under a PFP solution. Depending upon the sources of funding for the payment of the unitary payment, there may be affordability issues within the project. Principals may seek to identify fixed third-party revenue terms to reduce further risk towards the affordability of the project.

For example, in the case of a UK school there are two main sources of funding from the Government for the project:

- PFI credit (HM Treasury agrees with the DfES amount to be made available)
- revenue support (the DfES).

PFI credit is calculated based upon the capital investment required for construction and maintenance of the hard asset. The credit is then made available throughout the duration of the contract, with amounts reducing to reflect the total amount of

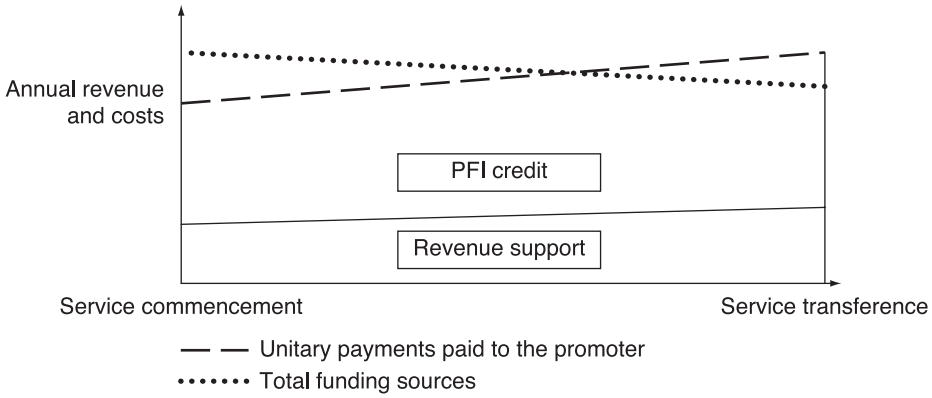


Figure A1.1 Affordability gap of a PFP project

element of the payment that is associated with the capital element of the project (DETR, 1998), See Fig. A1.1.

Revenue support is generally those funds originally used to operate the school. Both sources are then used to service the unitary charge.

Figure A1.1 shows a revenue shortfall during the later stages of the contract. Due to the nature of the PFI credit, affordability issues tend to occur during the mid to later stages of the project life-cycle years (usually 15 –20 years) as inflation and discounted PFI credit impact the funding available.

A sink fund can be used to address such shortfalls, and where unitary payments are sufficiently index linked, perfectly hedged systems may be formed. In the case of sink funds, the funds are normally invested in highly secure securities, minimizing the risk of principal default. Obtaining a secure interest rate, above that of the inflation via specific financial instruments, would benefit the fund and provide bidders with the necessary security.

Alternatively, the principal may look towards the following areas to reappraise the affordability issues:

- third-party revenue sources
- asset sales
- reappraisal of the service, output specification (haircutting).

Moreover, alterations to aforementioned areas would require the redevelopment of the PSC.

Messina Bridge

This project proposed a single-span bridge linking mainland Italy to Sicily. The 3300 m bridge, able to withstand wind speeds higher than 216 km/h and seismic motion of 7.1 magnitude. Bids for detailed design have been cancelled due to the risk associated with obtaining sufficient financial support from the principal, in this case the Italian government.

The Italian government was prepared to pay for half of the bridge via a BOT form of concession, and to work in partnership with the private sector to share critical risk and enhance rates and returns. It was estimated in 2001 that the bridge would cost US$4.6

billion and take five years to construct with a concession period of over 30 years (HM Treasury, 2003b).

The affordability gap stems from risks associated with the future revenue streams and their inability to service the design, construction, operation and maintenance, finance and profits of the successful promoter. It is estimated that potential traffic flows and potential growth would not allow the scheme to be purely privately financed, but would require some form of principal contribution, either as risk transference or direct capital investment.

This introduces a direct contribution requirement, creating issues of affordability to the Italian Government. However, addressing the affordability issue inherent within this project would not simply be a case of awarding the project to the promoter that required the least NPV contribution from the principal. As the government would have a direct interest in the bridge, which it would no doubt have holdings in, the principal would look to the tariff structuring, predicted revenue returns and duration of the concession to establish VFM.

As an example, the affordability of the crossing and calculation of the principal's contribution to the project is discussed below.

After the project has received the financing based on the future revenue stream derived from the unitary charge to the principal and direct user charges, a series of scenarios can be shown as illustrated in Fig. A1.2.

The affordability gap and the resultant contribution from the principal to the scheme is dependent upon the market risk, traffic volumes, tariff structure and modal distribution of the traffic using the crossing. Three cases have been illustrated to identify the effects of the contribution required from the principal.

In Fig. A1.2 the principal would address the affordability gap in relation to the market risk. Therefore if the project meets or exceeds the traffic volumes then the net contribution from the principal would be low. However, if the traffic volumes

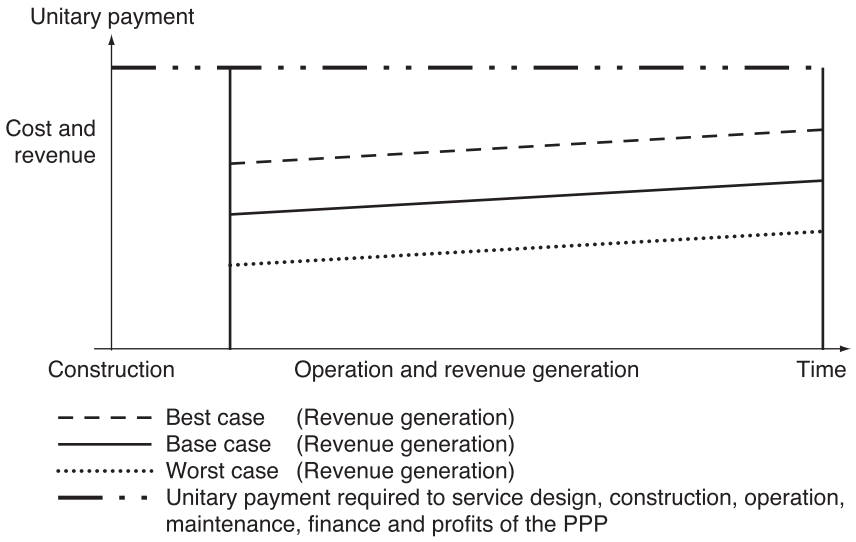


Figure A1.2 Scenario analysis of the affordability/contribution made to the Messina crossing

are lower than forecasted, the principal would have a higher contribution to the affordability gap.

However, the principal could adopt an alternative strategy of injecting a contribution of capital for particular elements of the works carried out during construction. This would affect the affordability of the project by reducing the total repayment and cost structure to an acceptable level for the promoting party.

Alternatively, tax holidays,[53] grace periods[54] and soft loans[55] may all be extended to the successful promoter to improve the financability and the overall affordability of the scheme for the principal. The principal must, however, price such instruments accordingly when evaluating the bid's VFM.

Bankability

Another test for PFP is the financability and bankability of the project, which identifies the market's interest in providing finance based upon the project's cash flow. A preliminary credit analysis is outlined within Fig. A1.3, which assumes a gearing structure or debt; equity structure, and forms the basis for the cost of finance and further credit characteristics of the project. Three credit analysis calculations have been identified for a prison case study, these being:

- DSCR (debt service coverage ratio)
- principal coverage ratio
- interest coverage ratio.

Calculating the three scenarios

The following equations show how to calculate the three credit analyses listed above. In each case Fig. A1.3 refers.

Debt service coverage ratio (DSCR):

$$\frac{\text{Net cashflow after tax (F31)} + \text{Principal repayment (F23)} + \text{Debt interest repayment (F19)}}{\text{Principal repayment (F23)} + \text{Debt interest repayment (F19)}}$$

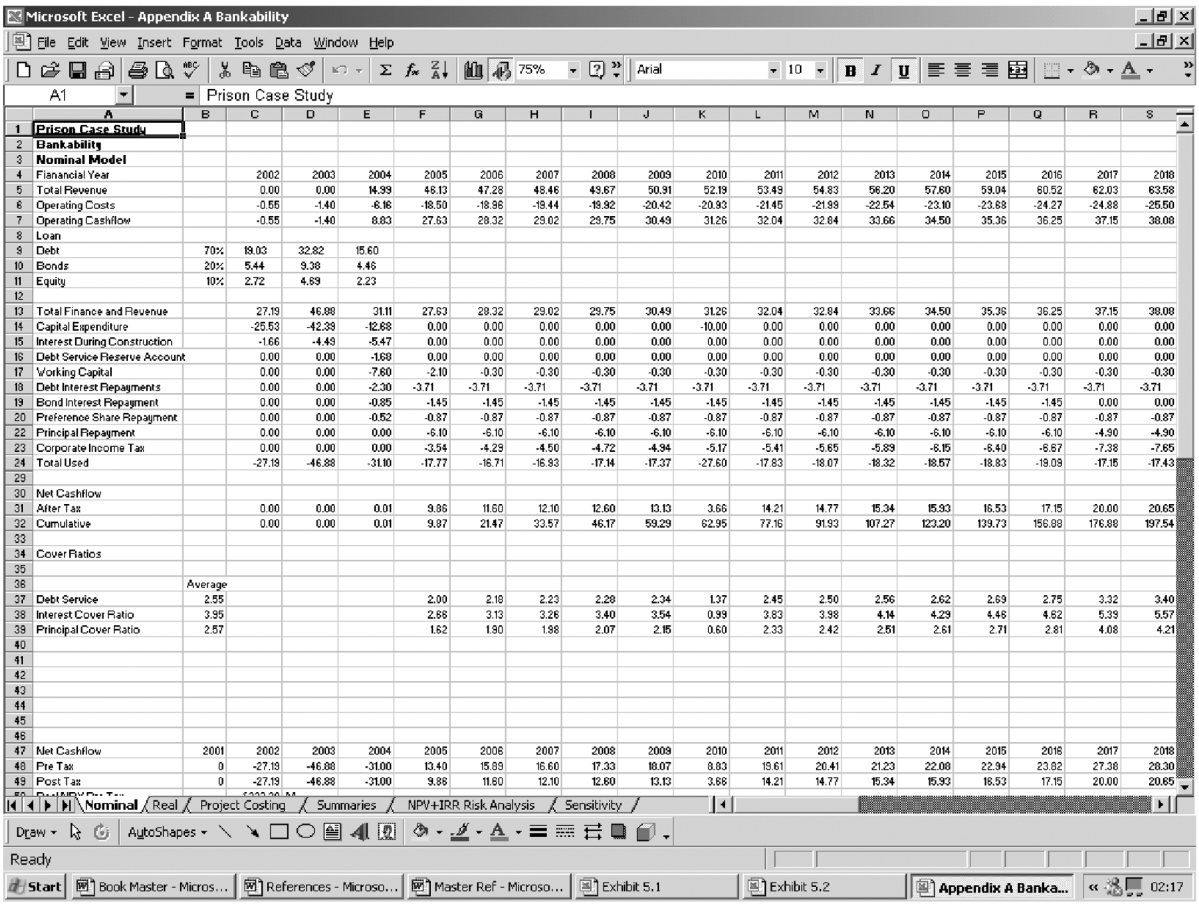
Principal coverage ratio:

$$\frac{\text{Net cashflow after tax (F31)}}{\text{Principal repayment (F23)}}$$

Interest coverage ratio:

$$\frac{\text{Net cashflow after tax (F31)}}{\text{Debt interest repayment (F19)}}$$

[53]Tax holiday – a period in which the promoter does not pay tax on the revenue/income generated by the project.
[54]Grace periods – a period before repayment of the loan must commence.
[55]Soft loan – a loan made at rates lower than the current market rate expected for similar forms of projects with similar credit standing.



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	**Prison Case Study**																		
2	**Bankability**																		
3	**Nominal Model**																		
4	Financial Year		2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
5	Total Revenue		0.00	0.00	14.99	46.13	47.28	48.46	49.67	50.91	52.19	53.49	54.83	56.20	57.60	59.04	60.52	62.03	63.58
6	Operating Costs		-0.55	-1.40	-6.16	-18.50	-18.96	-19.44	-19.92	-20.42	-20.93	-21.45	-21.99	-22.54	-23.10	-23.68	-24.27	-24.88	-25.50
7	Operating Cashflow		-0.55	-1.40	8.83	27.63	28.32	29.02	29.75	30.49	31.26	32.04	32.84	33.66	34.50	35.36	36.25	37.15	38.08
8	Loan																		
9	Debt	70%	19.03	32.82	15.60														
10	Bonds	20%	5.44	9.38	4.46														
11	Equity	10%	2.72	4.69	2.23														
12																			
13	Total Finance and Revenue		27.19	46.88	31.11	27.63	28.32	29.02	29.75	30.49	31.26	32.04	32.84	33.66	34.50	35.36	36.25	37.15	38.08
14	Capital Expenditure		-25.53	-42.39	-12.68	0.00	0.00	0.00	0.00	0.00	-10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	Interest During Construction		-1.66	-4.49	-5.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	Debt Service Reserve Account		0.00	0.00	-1.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	Working Capital		0.00	0.00	-7.60	-2.10	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30	-0.30
18	Debt Interest Repayments		0.00	0.00	-2.30	-3.71	-3.71	-3.71	-3.71	-3.71	-3.71	-3.71	-3.71	-3.71	-3.71	-3.71	-3.71	-3.71	-3.71
19	Bond Interest Repayment		0.00	0.00	-0.85	-1.45	-1.45	-1.45	-1.45	-1.45	-1.45	-1.45	-1.45	-1.45	-1.45	-1.45	-1.45	0.00	0.00
20	Preference Share Repayment		0.00	0.00	-0.52	-0.87	-0.87	-0.87	-0.87	-0.87	-0.87	-0.87	-0.87	-0.87	-0.87	-0.87	-0.87	-0.87	-0.87
22	Principal Repayment		0.00	0.00	0.00	-6.10	-6.10	-6.10	-6.10	-6.10	-6.10	-6.10	-6.10	-6.10	-6.10	-6.10	-6.10	-4.90	-4.90
23	Corporate Income Tax		0.00	0.00	0.00	-3.54	-4.29	-4.50	-4.72	-4.94	-5.17	-5.41	-5.65	-5.89	-6.15	-6.40	-6.67	-7.38	-7.65
24	Total Used		-27.19	-46.88	-31.10	-17.77	-16.71	-16.93	-17.14	-17.37	-27.60	-17.83	-18.07	-18.32	-18.57	-18.83	-19.09	-17.15	-17.43
29																			
30	Net Cashflow																		
31	After Tax		0.00	0.00	0.01	9.86	11.60	12.10	12.60	13.13	3.66	14.21	14.77	15.34	15.93	16.53	17.15	20.00	20.65
32	Cumulative		0.00	0.00	0.01	9.87	21.47	33.57	46.17	59.29	62.95	77.16	91.93	107.27	123.20	139.73	156.88	176.88	197.54
33																			
34	Cover Ratios																		
35																			
36		Average																	
37	Debt Service	2.55				2.00	2.18	2.23	2.28	2.34	1.37	2.45	2.50	2.56	2.62	2.69	2.75	3.32	3.40
38	Interest Cover Ratio	3.95				2.88	3.13	3.26	3.40	3.54	0.99	3.83	3.98	4.14	4.29	4.48	4.62	5.39	5.57
39	Principal Cover Ratio	2.57				1.62	1.80	1.88	2.07	2.15	0.60	2.33	2.42	2.51	2.61	2.71	2.81	4.08	4.21
40																			
41																			
42																			
43																			
44																			
45																			
46																			
47	Net Cashflow	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
48	Pre Tax	0	-27.19	-46.88	-31.00	13.40	15.89	16.60	17.33	18.07	8.83	19.61	20.41	21.23	22.08	22.94	23.82	27.38	28.30
49	Post Tax	0	-27.19	-46.88	-31.00	9.86	11.60	12.10	12.60	13.13	3.66	14.21	14.77	15.34	15.93	16.53	17.15	20.00	20.65

Figure A1.3 Cash flow model of a prison

Analysis of Fig. A1.3 reveals a number of interesting points regarding the financial structuring of the project:

- The repayment length is intense and the tail is substantial, allowing for greater flexibility in future structuring.
- The SPV would struggle to make repayments during the initial refurbishment; this could be resolved by financial engineering, refinancing or restructuring of the financial structure. Such action would be reasonable due to the robustness of future cash flow.
- If structures of this nature are utilized during the bidding procedure then the principal should be prepared for substantial refinancing gains post construction completion/operation.

Appendix 2 Public-sector comparator

Introduction

HM Treasury (1998) defines a PSC as: 'a hypothetical risk adjusted costing by the public sector as a supplier, to an output specification produced as part of a procurement exercise.'

The primary characteristics of a PSC are:

- that it is expressed in NPC or NPV
- it is based upon an output specification
- and it takes full account for risks encountered in procurement.

However, such characteristics of a PSC are continually changing and improving. Changes may stem from the fact that different countries utilize PSC for different purposes, in line with current political investment policies and strategies. For example, Canada utilizes a PSC to compare not only public–private partnership (PPP) projects but also not-for-profit organizations or internal delivery structures. Broadening usage of the PSC within public-sector investment appraisal can therefore lead to adaptation of the primary characteristics listed above.

In view of the fact that funding may be distributed from several different sources (federal political structures[56]), such sources may demand to see the PSC with respect to meeting their own appraisal structures.

However, it should not dilute the fundamental purpose of the PSC, which is to provide a public comparator model to assess the potential commercial and social benefits or pitfalls an alternative model for service delivery may exhibit.

The purpose of the PSC is to provide the following:

[56]When discussing the federally based political structure, for countries such as Germany, Canada, Australia and the USA, the funding may stem from several different layers within the government, each of which may hold its own investment appraisal or PSC structures.

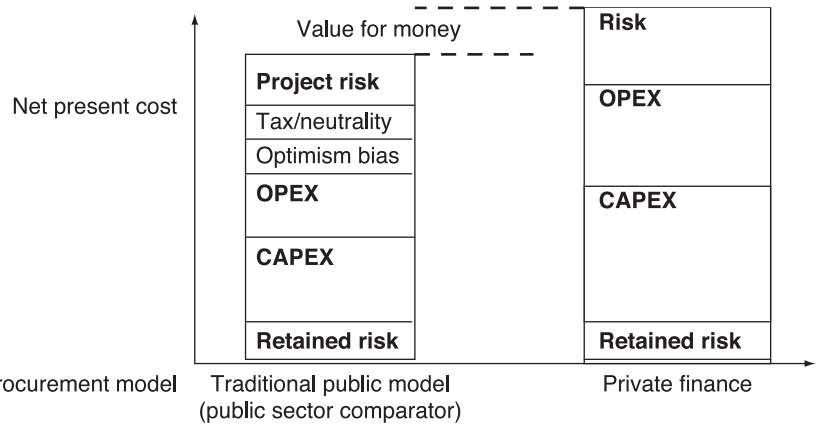


Figure A2.1 Conceptual model of the PSC[57]

- Act as a management tool for the risk analysis, allocation and negotiation process and to the output specification and performance standards.
- Encourage broader competition via structured disclosure procedures integrated within procurement procedures.
- Develop full life-cycle costing.
- Establish the positive or negative value for money that alternative service delivery models have to offer.

Conceptual model of the PSC

Figure A2.1 illustrates conceptually how VFM is calculated and what elements are considered during the development of a PSC.

Traditional public model (PSC)

Refer to Fig. A2.1 in conjunction with the definitions below.

Retained risk

This is risk retained by the public sector – referring to the risks that are managed more efficiently within the public sector, within a traditional public procurement contract.

Capex/Opex

The capital and operational expenditures are generated based upon the base case model. The expenditures do not make any allowances for risk or uncertainty to prevent double counting.

Optimism bias

There is evidence that there is a widespread tendency for appraisers to be over-optimistic when preparing proposals (HM Treasury, 2003). The optimism bias is associated with the estimates submitted for public works during the business cases. The optimism bias is added to the capital element of the PSC.

[57]Note in this example the private finance solutions NPC is greater than that of the PSC. The VFM of the scheme stands in favour of public-sector provision of the service.

Note the adjustment caters only for the risk associated with inaccuracy of the assumptions and estimates held by the traditional business case to that of the final outturn cost.

Tax neutrality

The purpose of adjusting the PSC to allow for taxation is to allow for differential tax receipts and any bias that may stem from them. Adjustments are made to the PSC to allow for taxation, which impedes the efficiency of private-finance solutions. In the UK a system has been devised to estimate the expected cost of taxation on a PFP. This systems investigates:

- degree of soft services
- capital value of the PFP
- the tax treatment of the project expenditure
- riskiness of the project (KPMG, 2002).

Based upon the variables, the user of the guide assigns a percentage increase to the overall net present cost of the scheme. In situations where the tax difference between the public and private option may be material to the appraisal, such costs need to be stripped out of the models. However, the problem with incorporating the taxation within the model can be troublesome during the outline business case or feasibility stage of a PFP because several elements relating to the tax treatment are unknown, especially in low- to medium-scoring FELCH projects.

Project risk

Risk within the project can be categorized as follows:

- Pure risk (chance of occurrence multiplied by the financial consequence, should it occur).
- Spread risk (uncertainty associated with the market and technical estimates made within the project) (Ministry of Finance PPP Knowledge Centre, 2002).

Pure risks

Pure risks can be adequately managed and totalled within a risk register. A typical calculation is shown in Table A2.1. All the pure risks values are totalled and added to the traditional procurement option. The risks transferred and probabilities of occurrence are based upon the historical performance of contracts previously used to deliver projects and services.

Spread risks

Spread risks are those risks concerned with the uncertainty surrounding the estimated amounts (KPMG, 2002). Probability, sensitivity and scenario analysis may be used to interrogate the effects of spread risk upon the project.

The derivation of information surrounding the risks incorporated within PFI and PSC have been addressed in a series of reports (see Construction Industry Council, 2000;

Table A2.1 Calculating a pure risk

Risk	Description	Allocation	Probability: %	Financial impact: £	Value: £
Technical	Compliance with output specification	Principal	5	6 090 000	304 500

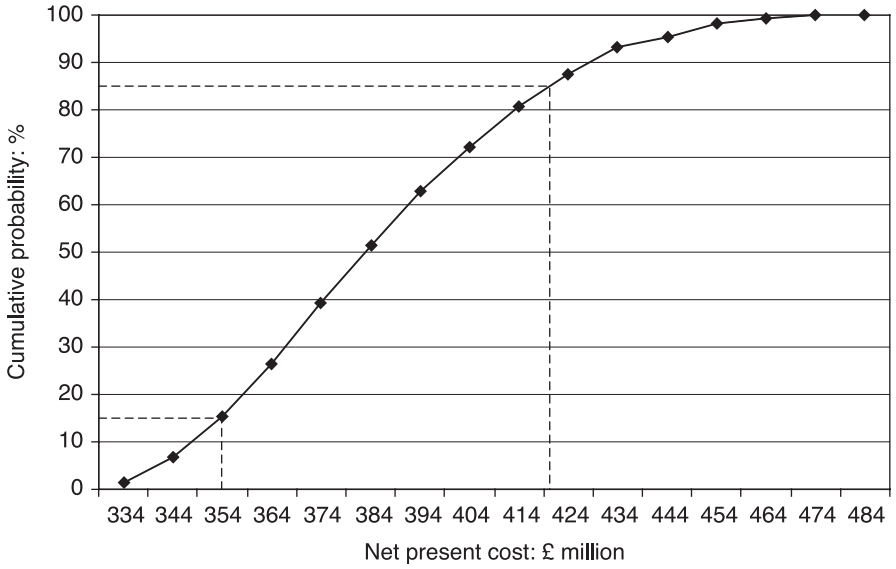


Figure A2.2 Cumulative probability of the net present cost of a crossing with pure and spread risk

Audit Commission, 2003; NAO, 2003). Information surrounding such risks along with their distribution provides weight to the strength and practicality of probabilistic and deterministic calculations conducted.

For example, a crossing has been modelled using network-based simulation software. Project activities are identified along with a series of base-case costs. Lump sum optimism biases and tax adjustment are assigned. Pure risks are then assigned to the activities. Spread risks are identified along with the activities they affect. Ranges and probability distribution are assigned for each spread risk and a Monte Carlo simulation is performed to identify the cumulative probability distribution. (See Fig. A2.2.)

From the probability distribution a 70% percentile can provide a one standard deviation indication into the probable outcome of the project. Referring to Fig. A2.2, it can be seen that a 15% cumulative probability represents an NPC of £354 million and an 85% cumulative probability represents an NPC of £424 million – a spread of £70 million.

Spread risks are used to illustrate variation to the NPC. When the PSC is compared to that of the private solution a robust assessment of the VFM of the scheme is created. The introduction of spread risks allows the user to understand which risks and uncertainties within the project dramatically affect the VFM that a private or public solution may offer.

Private finance alternative

For the PFA there are two periods of development, namely during the OBC by the principal and when the NPC is generated by the bidders during ISOP/ITN.

If the principal develops a PFA then the principal must take a view with regard to the valuation of risk and the risks that are to be transferred under the proposed control structure.

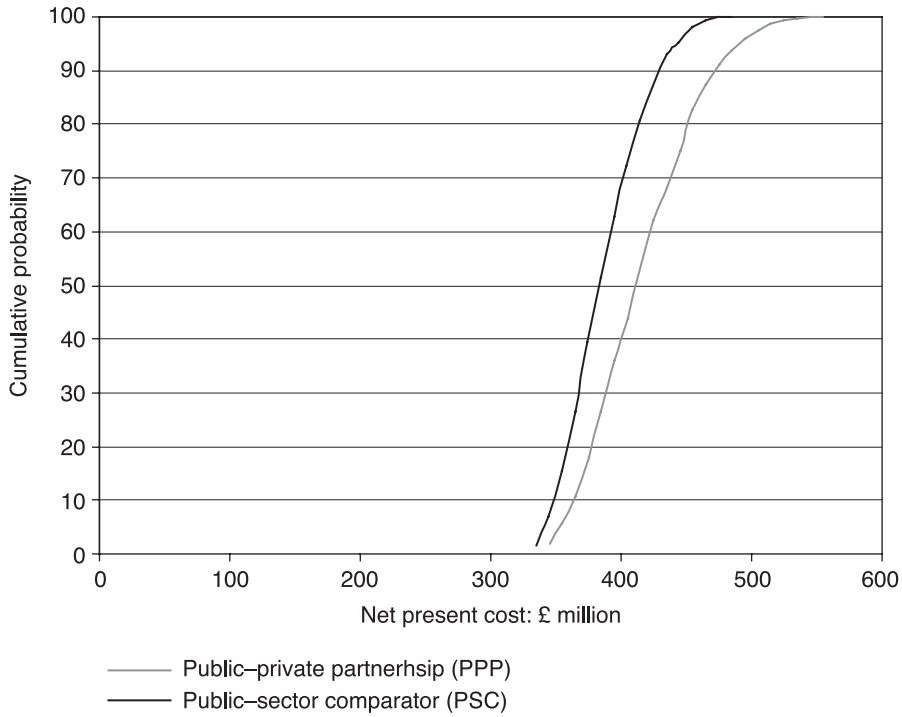


Figure A2.3 NPC of the crossing for the PSC and PFA

If the PSC is derived during the ISOP/ITN by the bidders the principal simply compares the bidders' NPC for the provision of the service to that of the PSC. However, such structures do not allow the principal or PRG to form a detailed understanding of the project before they commit to the extensive procurement period and costs. This can lead to future failure in the procurement process and should therefore be recommended only where the market conditions allow the private sector to compete effectively against the public (cost of finance) and a proven track record of delivering VFM exists.

Calculating risk-adjusted value for money

Using the crossing example illustrated in Fig. A2.2, a public-sector model is produced (known as the PSC) and compared to that of the private model.

From Fig. A2.3, after taking into account the risks modelled, the PSC provides VFM over that of the PPP. In this instance a public solution would be the recommended course of procurement. However, the factor of VFM varies over the cumulative probability.

Table A2.2 VFM of PSC

£: million	15%	85%
PSC	354	424
Private	374	464
VFM of PSC	20	40

The PSC can offer £20–40 million VFM over that of the PPP solution (Table A2.2). There may be instances where the two lines cross over and where under certain circumstances the public or private model outperform one another. Further investigation may be required before a decision can be justified with regards to VFM.

Appendix 3 Cost–benefit analysis

Figure A3.1 is a street-lighting PFI scheme where the existing stock of streetlights was to be replaced. There were three options analysed:

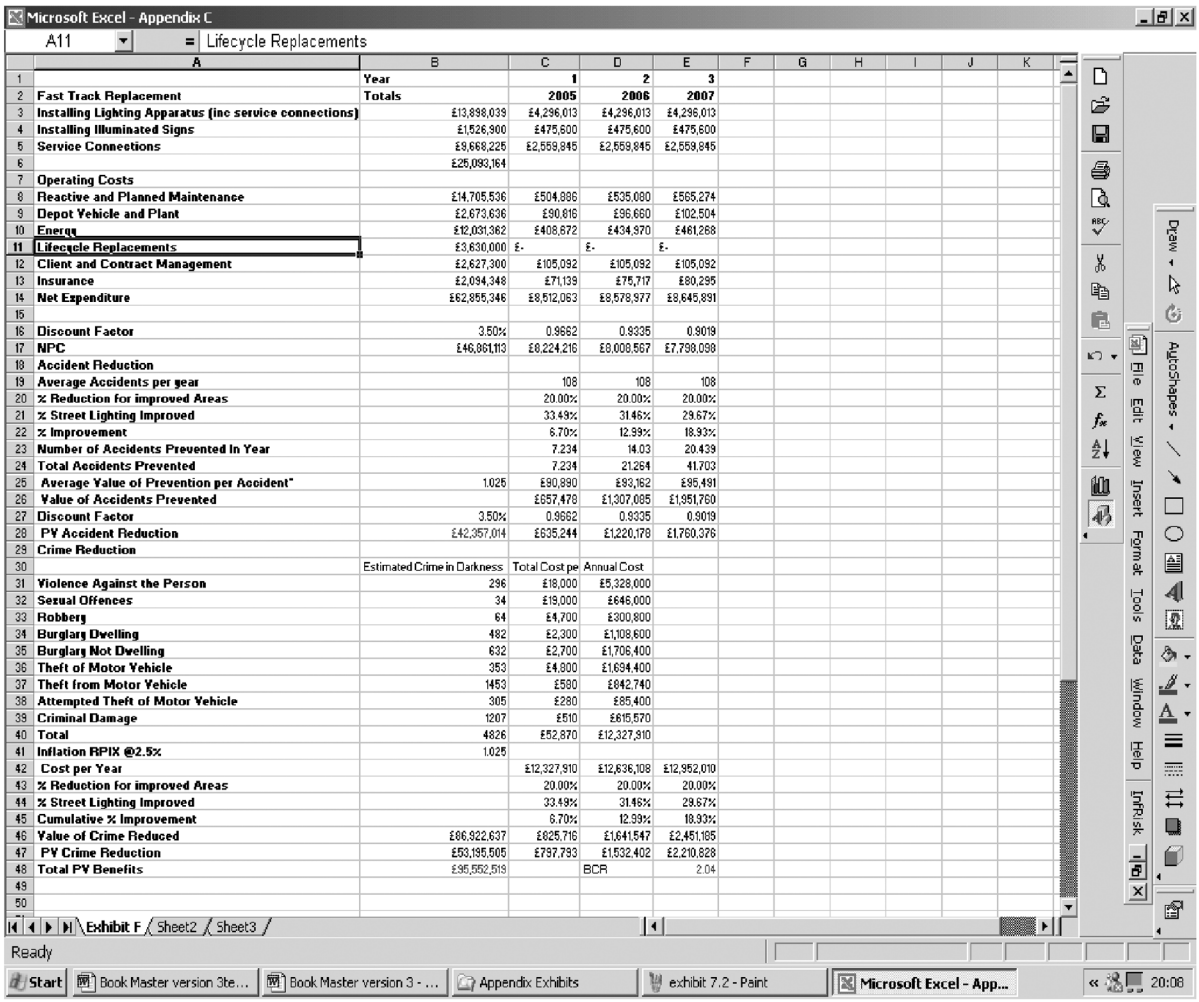
(1) do minimum (reference project)
(2) fast-track replacement
(3) full replacement.

The types of benefit included in the analysis were the reduction in crime, due to improvements in lighting stock and reductions in road traffic accidents (RTAs). For each benefit an associated valuation was established; in this case the valuation was derived from published figures from the respective principal department.

- Crime (total) £12 327 910 (see cell D39).
- RTAs (average per incident) £90 890[58] (see cell C25).

These figures were then multiplied by the expected levels of reduction (20%). The costs and the benefits were then discounted and the net present value (B48) and net present cost (B28) computed. These figures were then divided by each other to produce a cost–benefit ratio (E48). The ratio of each option could then be compared to appraise the value of each option.

[58]Note in this instance a critical success factor to the investment in lighting stock was the reduction of crime and RTAs.



	A	B	C	D	E
1		Year	1	2	3
2	Fast Track Replacement	Totals	2005	2006	2007
3	Installing Lighting Apparatus (inc service connections)	£13,898,039	£4,296,013	£4,296,013	£4,296,013
4	Installing Illuminated Signs	£1,526,900	£475,600	£475,600	£475,600
5	Service Connections	£9,668,225	£2,559,845	£2,559,845	£2,559,845
6		£25,093,164			
7	Operating Costs				
8	Reactive and Planned Maintenance	£14,705,536	£504,886	£535,080	£565,274
9	Depot Vehicle and Plant	£2,673,636	£90,616	£96,660	£102,504
10	Energy	£12,031,362	£408,672	£434,970	£461,268
11	Lifecycle Replacements	£3,630,000	£-	£-	£-
12	Client and Contract Management	£2,627,300	£105,092	£105,092	£105,092
13	Insurance	£2,094,348	£71,139	£75,717	£80,295
14	Net Expenditure	£62,855,346	£8,512,063	£8,578,977	£8,645,891
15					
16	Discount Factor	3.50%	0.9662	0.9335	0.9019
17	NPC	£46,861,113	£8,224,216	£8,008,567	£7,798,089
18	Accident Reduction				
19	Average Accidents per year		108	108	108
20	% Reduction for improved Areas		20.00%	20.00%	20.00%
21	% Street Lighting Improved		33.49%	31.46%	29.67%
22	% Improvement		6.70%	12.99%	18.93%
23	Number of Accidents Prevented In Year		7.234	14.03	20.439
24	Total Accidents Prevented		7.234	21.264	41.703
25	Average Value of Prevention per Accident*	1.025	£90,880	£93,162	£95,491
26	Value of Accidents Prevented		£657,478	£1,307,085	£1,951,760
27	Discount Factor	3.50%	0.9662	0.9335	0.9019
28	PV Accident Reduction	£42,357,014	£635,244	£1,220,178	£1,760,376
29	Crime Reduction				
30		Estimated Crime in Darkness	Total Cost pe	Annual Cost	
31	Violence Against the Person	296	£18,000	£5,328,000	
32	Sexual Offences	34	£19,000	£646,000	
33	Robbery	64	£4,700	£300,800	
34	Burglary Dwelling	492	£2,300	£1,108,600	
35	Burglary Not Dwelling	632	£2,700	£1,706,400	
36	Theft of Motor Vehicle	353	£4,800	£1,694,400	
37	Theft from Motor Vehicle	1453	£580	£842,740	
38	Attempted Theft of Motor Vehicle	305	£280	£85,400	
39	Criminal Damage	1207	£510	£615,570	
40	Total	4826	£52,870	£12,327,910	
41	Inflation RPIX @2.5%	1.025			
42	Cost per Year		£12,327,910	£12,636,108	£12,952,010
43	% Reduction for improved Areas		20.00%	20.00%	20.00%
44	% Street Lighting Improved		33.49%	31.46%	29.67%
45	Cumulative % Improvement		6.70%	12.99%	18.93%
46	Value of Crime Reduced	£86,922,637	£825,716	£1,641,547	£2,451,185
47	PV Crime Reduction	£53,195,505	£797,793	£1,532,402	£2,210,828
48	Total PV Benefits	£95,552,518		BCR	2.04
49					
50					

Figure A3.1 Cost–benefit analysis of a street-lighting PFP

Appendix 4 The control structure

Introduction

For each mechanism contained within the control structure it is recommended practice to devise a separate programme identifying which elements must be developed throughout the procurement process.

Payment mechanism

The payment mechanism is interlinked with all the control mechanisms via the project agreement. The payment mechanism's primary task is to identify circumstances in which the SPV deserves payment for the consideration they have shown. This consideration is tested and measured by the output specification and performance standards to determine the degree of financial consideration the principal should grant the SPV.

Project agreement

The payment mechanism is linked to the project agreement via the right of the principal to make deductions upon the SPV for failure to deliver services of appropriate substance and standard. The systems used to measure/quantify failures in substance and standard are contained within the output specification[59] and performance standards as stated above.

Payment mechanism example: a road network

Specific nations holding greater proportions of their total investment in the road network via the maintenance rather than new construction (Nakagawa and Matsunaka, 1997) may seek to readdress/improve upon elements of road design and life expectancy.

Performance standards (operational and output based)

A DBFO project agreement was awarded to a promoter for the construction and operation of a 40 mile motorway for a 25-year concession. The principal identified a

[59]The output specification can also be supported by input specifications.

potential payment mechanism structure that would address its aims and objectives for the concession to be granted. This structure addressed the following areas:

(1) Capped and floored shadow tolls which can either be weight transported or traffic flow based.
(2) Unavailability of service (congestion, repairs, accidents and closures).
(3) Unavailable but used.
(4) Temporary services.
(5) Rectification periods.
(6) Repetition deductions and escalation deductions.
(7) Project-specific instances (seasonal variation, peak flows, area adjustment).

In previous payment mechanisms the principal paid the SPV for the service provided based upon the traffic flow resulting in the generation of a shadow toll. The shadow toll/revenue stream was backed by the principal, which enhanced the credit rating of the project compared to that of a tolled motorway that is market-led. This removed substantial degrees of market risk from the project, especially where the principal provided a floor regarding the minimum traffic flow.

However, greater pressure to place specific operational performance risks upon the SPV required further development of the payment structure.

(1) *Capped and floored payment structures*
As the principal provided a floor for a minimum payment to the SPV, the principal structured further increase in payment purely to address costs associated with increases in maintenance costs, and increases in unavailability deductions caused by higher maintenance regimes.

The second area could have been catered for by allowing increases in the number of rectification periods or by diluting the unavailability deductions.

Identification of reasonable caps and floors for the system should address the growth factors in line with the life of the commercial mechanism, in this case the concession period. (Figure A4.1 refers.)

(2) *Unavailability*
This refers to areas of the motorway that are unavailable due to accidents, congestions, highway works or maintenance. What constitutes an unavailable motorway needs to be identified/quantified and transposed into a deduction mechanism. Areas to be

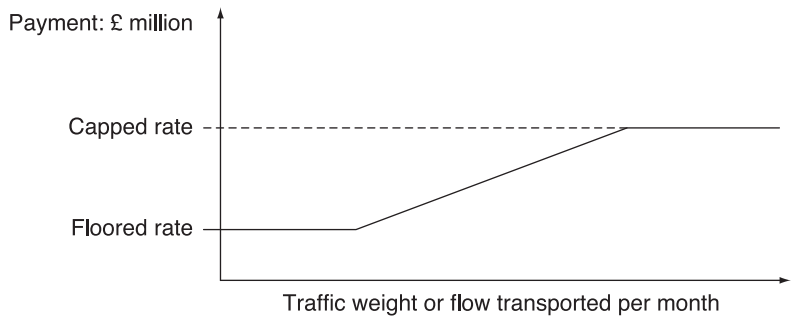


Figure A4.1 Capped and floored payment rates for a motorway PFP

considered are as follows:

- *Safety*. A specific degree of the payment is dependent upon the number of accidents/incidents that occur on the roads. The deduction should be designed to promote high-performing traffic management designs.
- *Congestion*. Payment deduction for congestion can be made to promote future development of the motorway. Structuring a mechanism to address congestion is difficult because:
  - it requires investigation into the cause of congestion and effect of congestion, which can be time consuming and expensive to monitor over extensive areas of a network
  - the motorway can experience seasonal and time traffic flow fluctuations
  - it can be self-modulating (for example, as travellers become aware of congestion they may choose to use other forms of transport, travel at a different time or use alternative routes).
- *Maintenance*. Those works that are planned and unplanned, with specific rates of deductions being made for unplanned works.
- *Road surface*. Where the road surface does not meet the necessary standards unavailable deductions can be introduced. Road surface testing is common and there are several standards available to test the performance of road surfaces.

(3) *Unavailable but used*
Where the service has been identified as unavailable but it is still safe for the public to use, deductions made can be reduced to a lower rate. Models for doing so are often 50% of the deduction derived by the unavailability deduction. However, the incentive must remain for the SPV to rectify the failure in economically satisfactory periods of time.

(4) *Temporary service*
Where the SPV makes temporary provisions to reduce the effects of disruption to the traffic flow during works or rectification, the principal may reduce the deduction made, in light of the mitigating efforts of the SPV. Often temporary works results in a deduction of 30% of the unavailability deduction.

(5) *Rectification periods*
Where a failure has occurred that relates to the output specification or the capital element of the project through damage or failure of the material, the promoter has a period in which the service can be rectified and deductions are not made. This period is from the point of reporting the defect. For example, a crash barrier requires replacement. Procedures exist, allowing the public or police to report the incident, to which the promoter must respond. The promoter then has a set period in which to rectify the problem. If the promoter fails to do so, the principal may take the following action:

- Repair it themselves and recover the costs via deductions.
- Make deductions for failure.
- Accumulate deductions, which can lead to termination of the project agreement.

(6) *Repetition deductions*
If the SPV continually fails to deliver the service, action may be taken by the principal, via escalating deductions, termination of project agreement, restructuring of the output specification and performance standards. Often the repetition deductions are

higher than the initial deduction as it signifies SPV inability to take affirmative actions to those issues that are important to the principal.

(7) *Project-specific*
Seasonal fluctuations or high rates of flow that impede the operability of the payment mechanism were then to be negotiated and explored during the preferred bidder stage.

The motorway passes via several cities, with junctions prone to congestion during specific periods. The promoter could address this by delivering solutions resulting in minimal performance deductions and produce a variant bid that may operate on an area adjusted system, whereby specific areas of the motorway operate under alternative payment mechanism regimes. This would allow higher risk of unavailability within specific areas of the network to be addressed. Such consideration would undoubtedly result in more unified design solutions and lower unitary charges/shadow tolls paid by the principal.

Output specification
Payment mechanisms utilize the output specification to measure failures with regard to the capital elements of the PFP. Aspects associated with failure to meet the standards for the capital elements of the project would result in deductions from the unitary charge paid by the principal to the promoter.

Example: a school
An output specification for a school states that the internal envelope of the school should operate within a specified temperature range. During the operation of the concession the heating system failed. This made the school unavailable and appropriate deductions were made. The promoter had a rectification period, after which if the failure persisted further deductions were made.

However, the principal used the facility during the failure, which allowed the promoter to receive payments for the services on an unavailable but used rate. The failure was logged and scored, with persistent failure resulting in higher deductions being applied, with the potential for termination if the number of failures within a defined period reached a certain score.

However, the promoter, aware of such risks, opted to utilize localized heating units, which reduced the risk of the whole school envelope becoming unavailable. Also the principal granted the SPV a bedding-in period, which restricted the payment deductions made upon the SPV for the first six months of operation. This aided liquidity risks that occur post construction completion and allowed the operator and principal parties to become familiar with the day-to-day operation of the facility.

Example: payment deduction made on an accommodation project
The payment mechanism selected segregates the service into specific areas; in this case the areas have been defined by the rooms.

A specific accommodation block within a university has been modelled and a weighted scoring system applied. The weighting factor has been established during meetings with the relevant user groups.

The area rate deduction for an accommodation project is calculated as illustrated in Table A4.1.

Table A4.1 Accommodation project rating scores

Area	Weighted factor	Number of areas	Availability*	Weighted area score
High:				
Toilets	10	3	1092	32 760
Laboratory	10	4	1092	43 680
Lecture theatres	9	5	1092	49 140
Computer clusters	9	2	1092	19 656
Medium:				
Lecturers' rooms	7	6	1092	45 864
Staircases	6	3	1092	19 656
Corridors	6	8	1092	52 416
Reception	7	1	1092	7 644
Low:				
Storeroom	5	4	1092	21 840
Recreation room	5	2	1092	10 920
Total				303 576

*Availability calculation: three sessions in one day, 364 operational days in a year.

An annual rate for the provision of the block and its associated services is developed by the principal and in this case is established based upon the affordability calculation.

$$\frac{\text{Annual unitary charge}}{\text{Annual weighted area score}} = \frac{862\,000}{303\,576} = 2.84$$

Therefore the annual rate is equal to £2.84.

If a failure occurred by the SPV to meet the output specification or performance standards resulting in an unavailable area, an unavailable deduction will be applied.

For example, if two lecture theatres were unavailable for two weeks or 21 sessions, the deductions would be calculated as shown in Table A4.2.

Output specification (OS)

Output specifications (OS) outline what must be achieved but not necessarily how it is to be achieved. In many texts associated with PFP, OS are seen to be an alternative to traditional specifications, allowing the promoter to explore numerous specifications. However, this is by no means the most appropriate method, with many services combining the use of both input- and output-based specifications.

Table A4.2 Lecture theatre deduction calculation

Description	Data
Area	Lecture theatre
Number	2
Weighted factor	10
Available sessions missed	21
Annual rate	£2.89
Deduction	£1,213.80

Developing an output specification

Figure A4.2 illustrates how the output specification is developed during a high-scoring FELCH project.

The OS is fundamental in the development of the PSC and operation of the control structure as it is directly linked to the payment mechanisms and project agreement. Just as the PSC goes through a development cycle so too must the OS, which is entwined with the procurement process.

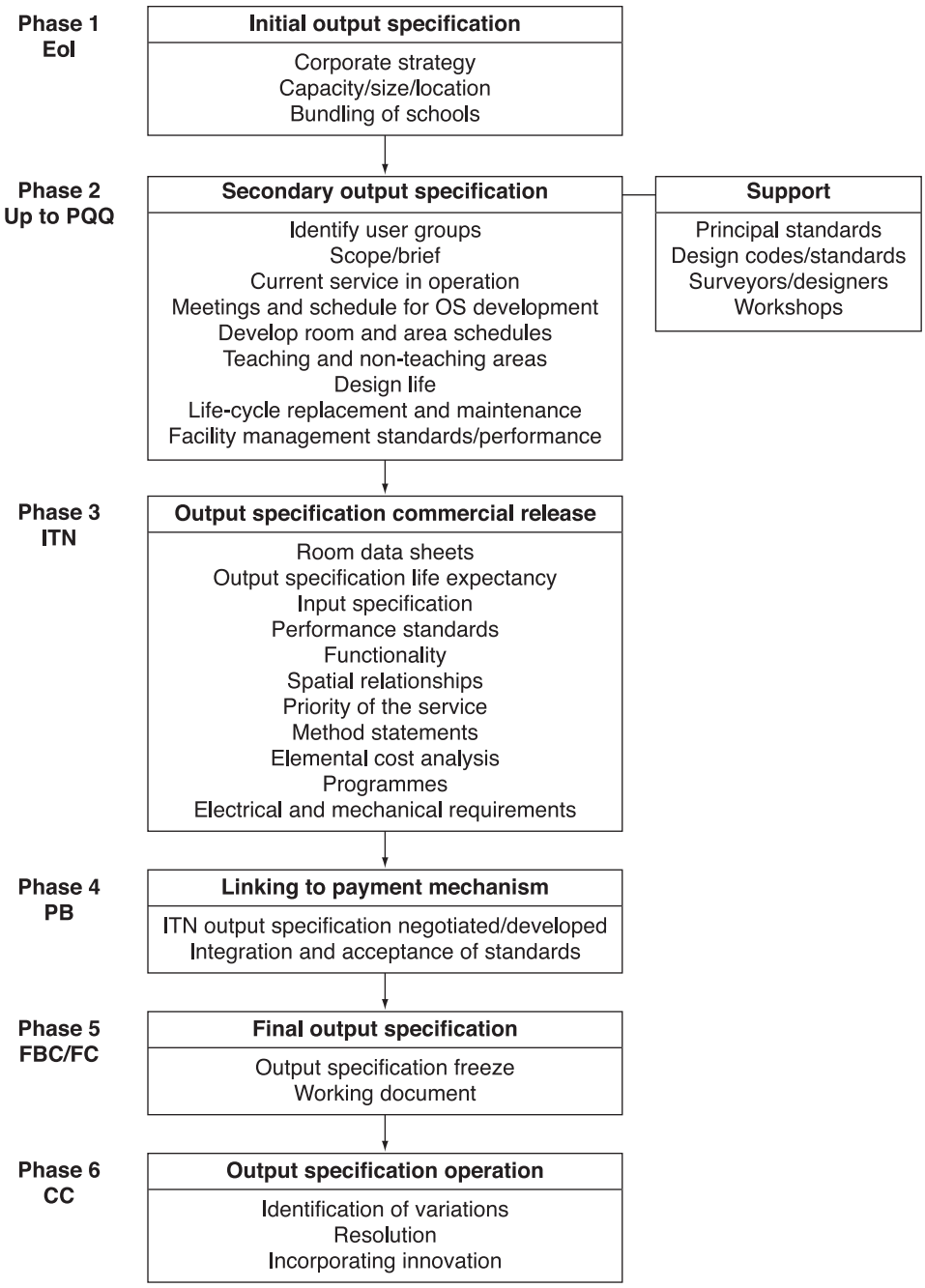


Figure A4.2 Developing the output specification

Example: A school facility

Initial output specification

From the EoI the investment model is established with an idea of the new school's capacity. From the capacity and the identification of the services to be delivered in the future an output for the schedule of areas is developed. Cost estimates are committed based upon historical information, used for the development of the PSC.

Below are a series of headings used to establish the extent of the service to be provided. Based on the response associated with each heading, a theoretical school and its associate inputs are generated.

Output specification development phase 1 (EoI)

Capacity required
- Teaching staff numbers
- Staff distribution, male/female
- Support staff/part-time
- Pupil numbers (corporate strategy)

Car parking
- Staff, visitor parking, cycling, buses and cars

Travel arrangements and access
- Travel distribution, current and future
- Design of the access to and from the school

Times of school opening
- Operational periods within the day
- Clubs and organizations that may operate from the school
- Seasonal events

Curricula specialization
- Areas of specialization/awards and grants targeted

IT provision
- Cabling requirement
- Targeted availability
- Specialist systems and areas of operation, for example, library

Equipment transferred
- Furniture, fixtures and equipment (FFE) transfer
- FFE checklist

Catering
- Number of meals to be provided per day
- Anticipated uptake of meals

Sports facilities
- Grass land, tennis courts, Astroturf, multi-purpose tarmac area, swimming-pool, theatre
- Sharing of facilities, community use

Security and health and safety
- Fencing, CCTV, secure entrances, swipe cards, CDM Regulations

Telephone systems
- Internal systems, direct links to the Authority and public lines

Library
- Electronic tagging and cataloguing
- Automatic security system required

Current Rooms
- Storage facilities, toilet facilities, admin. and meeting, library

- Sports, assembly points, offices and catering
- Languages, maths, science/labs, art, ICT, technology, music, drama, humanities and special needs.

Secondary output specification

After consultation of various user groups a model of the areas and rooms required are generated. Several principal organizations have design guidance to support the development of such models. In this case the model utilizes pupil numbers to develop non-teaching and teaching areas which, combined with historical cost information, generates a baseline cost estimate. Life-cycle replacement and maintenance regimes are estimated and incorporated to form the NPC.

Commercial release

The OS forms a substantial element of the ITN documentation as the evaluation of responses from bidders is often heavily swayed to the technical response. OS reflects the needs of the principal; however, such needs may not take into consideration affordability issues that arise from the broad specifications outlined. Variant bid responses may operate on variations within the scope and structuring of the OS to outline how the functionality of the service can be maintained at a lower cost basis.

Elements contained within bidder responses are outlined below.

(1) *Room data sheet (RDS)*

Figure A4.3 is an example of an RDS for a school dining and assembly area. The sheet contains details of output-based specification, illustrated by the design occupancy, heating and cooling medium, room temperature, noise levels and lighting levels. However, the data sheet also contains input-based specifications such as the number of power points, and further inputs may be made regarding specific equipment and services.

Bidders must either confirm their acceptance of the RDS or provide details of their own.

OS life expectancy

Table A4.3 is an example of the life expectancy of building elements for a secondary school based upon a 25-year concession to deliver the school and facility management services.

Specific building elements have shorter life expectancy than others, usually because of the level of use and nature of the activity undertaken by the building element. For example, as ground conditions pose an extensive risk during construction, the drainage system has a life expectancy of 30 years; to design and commit to greater life expectancy would place extensive costs onto the PFP due to the increase in risk.

Life expectancy and the use of guarantees/warranties need to be explored to address value management issues, exploring how and where the output specification may not cater for materials and design philosophies currently operating.

Life expectancy forms a critical factor in financial structuring and the affordability of the scheme. For example, a DBFO road scheme has extended the duration of the project agreement from 30 years to 44 years, reducing yearly finance repayments but increasing the total amount of finance paid. The net effect of this is a lower unitary

Building Services Room Data Sheet Information										
Project:	**X**						**Location**		**Date**	
Room name: School dining							**Ground floor**		**Sheet no: X1**	
Section 1	**General (output-based)**									
Air change rate/fresh air allowance	Natural ventilation and mechanical supply make-up for canopy									
Design occupancy	200									
Heating/cooling medium	Radiators									
Room temperature (ºC)	18–22									
Room noise level	NR40									
Average lighting level	300 lux									
Fire alarm coverage (tick where appropriate)	Heat		Smoke	✓	Manual					
Network points (T/F/D) Data points	— —									
Power points (twin unless otherwise stated)	8									
Section 2	**Services to specific equipment (input-based)**									
Item	**Electrical equipment**		**Domestic water supplies and internal drainage**			**Specialist exhaust ventilation**			**Equip. heat gain (kW)**	**Comp. air and gas**
	Power supply	**Consump. (kW)**	**Drain connection**	**HWS supply temp.**	**H&C Conn. type and diameter**	**Duty (l/s)**	**Connection type and diameter**	**Min. press. and input rate**		
3	**Notes/Information required**									

Figure A4.3 A school room data sheet

payment made by the principal (addressing affordability issues), but payments are made for a longer period.

Before the extension could be agreed, the life expectancy of the road and its designs had to be upgraded to a 60-year design life supported by further increases in the maintenance service reserve account. Warranties for the condition and performance of the road surface were also sought.

Table A4.3 Life expectancy of building elements in an accommodation PFP

Building elements	Life expectancy (from start of service): years
Building structure	60
External walling	60
Windows/external doors	60
Roof covering	30
Heating systems:	
Source	20
Distribution	40
Electrical installations	30
Lifts	30
Drainage systems (above/below ground)	30
External works (landscape)	30

Financial restructuring of this nature highlights that some infrastructure is more affordable than others due to the size of the scheme and nature of its life expectancy.

Preliminary pro forma elemental cost analysis

From the elemental cost analysis the principal establishes how each bidder has priced the OS and the risks inherent within the capital elements of the work. Figure A4.4 illustrates a pro forma response format for a school; elements associated with the FFF require further development.

Linked to the payment mechanism

The next phase for the development of the OS moves from a conceptual framework to an OS that is practically operable. This is created by linking the payment deductions to failures in performance of the capital elements specified in the OS. To aid the process of linking the two control mechanisms, bidders may use scenario testing,[60] identifying the commercial impact upon the SPV. A series of workshops are held to instruct the bidders on how the payment mechanism will operate.

Based on the pricing of risk derived from the OS, the PB may also be able to identify risks that seriously undermine VFM or the affordability of the scheme. Negotiation regarding the scope and standards contained in the OS further improves the robustness of the OS and the service.

Final output specification

Once both parties have agreed the technical content of the OS, the OS is fixed until financial closure. The point at which the OS becomes fixed is dependent upon the priorities identified by the principal. Projects with a high capital expenditure place a high priority upon the OS and link the terms of payment accordingly. Those projects that incur greater operational expenditure place greater concern on the relationship between performance standards, thus allowing the OS to be fixed much earlier in the process.

[60]Bidders may identify scenarios where the OS and the payment mechanism either have the desired effect or where the two do not match and could be misunderstood.

Description	School cost pro forma				Total	Cost/m^2 GFA
	Element unit quantity	Element unit rate	Element cost	Element sub-total		
Gross floor area (GFA):				m^2		
Substructure						
Abnormals						
Demolitions and site clearance						
Foundations						
Ground-floor slab						
Superstructure						
Frame						
Upper floors						
Roof						
Stairs						
External walls						
Windows and external screens and doors						
Internal walls and partitions						
Internal doors						
Internal finishes						
Wall finishes						
Floor finishes						
Ceiling finishes						
Decoration						
Furniture, fittings and equipment:						
Services						
Sanitary appliances						
Services equipment						
Disposal installations						
Water installations						
Heating installations						
Ventilation system						
Electrical installations						
Gas installations						
Fire protection						
Communications system						
Builders' profit and attendance on services						
Specialialist installations (IT infrastructure)						
Lift installation						
External works						
Site works						
Drainage						
External services						
Sports pitches						
Hard play areas						
Soft landscaping						
Hard landscaping						
External lighting						
Fencing						
Furniture						
Temporary accommodation						
Preliminaries						
Overhead and profit						
Contingencies						
Inflation allowances						
Design team fees						
Statutory fees and charges						
Provisional sums						
Total capital cost £						

Figure A4.4 Cost pro forma for elemental cost analysis

Output specification operation

Certain aspects of the OS may be utilized on a monthly basis, such as the performance standards, which may be used to quantify failures made by the promoter. Contract managers for the principal must be thoroughly briefed regarding the operation and calculation of such deductions.

However, performance deductions due to OS failure may only occur during specific points in time. For example, the life expectancy of building elements may only be used during the later stages of the contract. Such elements are designed to identify a failure and allow negotiations to take place with the promoter to either rectify or discuss alternative courses of actions.

Developing the output specification

As stated in several guidance notes, the preferred option for identifying and translating the requirements of the principal into an operational asset is the output specification. The argument for this rests on the fact that the principal is not instructing the promoter on how to deliver the services required, rather what the outputs from the service must be.

In theory, this promotes and incorporates the innovation and knowledge of the promoter, whereby the promoter seeks to develop tried and tested models, altering the design to allow the output to be fulfilled while minimizing resources expended in the process.

However, such structures can be unsafe, without close guidance and a certain degree of input-based specification. Leaving promoters to their own devices can generate scenarios where bids are misinterpreted, resulting in total failure for the bidder(s). Close communication between the principal and the promoter reduces such risks, stabilizing and improving the level of competition within the market. Further to this, an input-based specification provides scope not only to reduce misunderstanding of the requirements but can also:

- reduce the time taken to process and develop bids
- reduce the cost associated with the procurement process
- clarify issues on risk transference for specific technical elements of the project.

Wisdom in this field may stem from knowing which elements should be input- or output-based to generate the greatest VFM.

Comments

Lower-scoring FELCH projects provide additional phases for the development of the output specification. Specific elements of the output specification are then developed as and when the relevant information is derived during the procurement process. For example, the disposal of land and the principal's position on such matters may not be determined until the later stages of the procurement process. Alternatively, in bundled projects the principal may not determine the true extent or assets that need to be demolished and replaced.

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Index

Page numbers in italics refer to figures and tables. The suffix n denotes a reference to a footnote.