DUNCAN CARTLIDGE

PUBLIC PRIVATE PARTNERSHIPS IN CONSTRUCTION

Public Private Partnerships in Construction

Collaborative working and partnering between the public and private sectors, in some form or other, has been fairly common practice in the construction industry for over 100 years. However, its profile has risen only comparatively recently. In the UK, it is little more than 10 years since the most widely known Public Private Partnership, the Private Finance Initiative, was launched and yet it has already been described by some as 'the new economic paradigm'.

PPPs have now become a major method of procurement for many UK Government agencies, such as the NHS, in spite of the opposition from some sides of the introduction of the private sector into the finance, construction and delivery of traditional public sector services. Although controversial, PPP procurement currently accounts for approximately 11% of government expenditure and there is no doubt that it is here to stay.

PPPs have spread far beyond the UK, and governments as diverse as Cambodia and California are now advocating their use. In a whole range of aspects, such as finance, risk management and contracts, PPPs are becoming more mature. Nevertheless, there continues to be a lack of understanding and an authoritative and objective source of information on PPPs in construction.

With its detailed presentation of contemporary issues on a wide range of construction PPP models, including project management, design quality and accountability, and illustrated with case studies, this book provides a valuable, practical resource for a range of professionals as well as students.

Duncan Cartlidge is a Chartered Surveyor and Construction Procurement Consultant, specialising in the delivery and management of built assets and in providing training to a wide range of built environment professionals. He is the author of *Procurement of Built Assets* (2004) and *New Aspects of Quantity Surveying Practice* (2002) and an external tutor for the College of Estate Management, Reading. www.duncancartlidge.co.uk

Also available from Taylor & Francis

Construction Contract, 4th Edition
J. Murdoch & W. Hughes — Hb: 0–415–39368–X
Pb: 0–415–39368–8
Taylor & Francis

Financing Construction: Cash Flow
R. Kenley — Pb: 0–415–23207–9
Taylor & Francis

Property Asset Management, 2nd Edition
D. Scarrett — Pb: 0–419–19310–3
Taylor & Francis

Arbitration Practice in Construction Contracts
D. A. Stephenson — Pb: 0–419–18330–2
Taylor & Francis

Information and ordering details

For price availability and ordering visit our website **www.tandf.co.uk/builtenvironment**

Alternatively our books are available from all good bookshops.

Public Private Partnerships in Construction

Duncan Cartlidge

Taylor & Francis
Taylor & Francis Group
LONDON AND NEW YORK

First published 2006
by Taylor & Francis
2 Park Square, Milton Park, Abingdon, Oxon OX14 4RN

Simultaneously published in the USA and Canada
by Taylor & Francis
270 Madison Ave, New York, NY 10016

This edition published in the Taylor & Francis e-Library, 2006.

"To purchase your own copy of this or any of Taylor & Francis or Routledge's collection of thousands of eBooks please go to www.eBookstore.tandf.co.uk."

Taylor & Francis is an imprint of the Taylor & Francis Group, an informa business

British Library Cataloguing in Publication Data
A catalogue record for this book is available from the British Library

Library of Congress Cataloging in Publication Data
A catalog record for this book has been requested

ISBN10: 0–415–36621–6 (hbk)
ISBN10: 0–415–36624–0 (pbk)
ISBN10: 0–203–01883–4 (ebk)

ISBN13: 978–0–415–36621–2 (hbk)
ISBN13: 978–0–415–36624–3 (pbk)
ISBN13: 978–0–203–01883–5 (ebk)

To Jane

Contents

Figures

Tables

Preface

Since the introduction of Public Private Partnerships (PPPs) into the United Kingdom a little more than a decade ago, there have been controversies and numerous commissions, reports and expert opinions trying to promote the various views of devotees and detractors of this method of procurement. Much of the debate has centred on the public policy issues surrounding the adoption of PPPs in sensitive areas such as health, education and transport. For government, the choice seems a simple one. Traditional methods of procurement and funding of public sector projects resulted in projects being delivered late and over budget, with little regard for long-term costs or value for money. In addition projects could only proceed when central funding was available. Against this background is a growing expectation among citizens that they deserve high-quality public services, whilst at the same time government borrowing and taxes remain low. Despite the many government-led initiatives that have attempted to promote a more efficient and effective approach to public procurement, change has been slow as prestigious projects such as the New Scottish Parliament illustrate. PPPs were introduced into the United Kingdom in 1992 in a move to improve the record of public sector procurement; the aim was to give incentives to the private sector to deliver new public projects on time and to budget and in some cases allow the private sector to run and maintain public assets on long-term contracts. The public sector, it is argued, has no need to own and maintain hospitals, schools and prisons although the services that these assets provide are vital. It is not the aim of this book to enter into a political debate as to the rights and wrongs of the adoption of PPPs, for this has been thoroughly discussed in other publications. One thing is certain – whatever the politics, PPPs are here to stay and, as far as the UK construction industry is concerned, now form a very important and financially significant part of industry turnover.

The PPP market in procurement terms is still relatively immature, but despite this the past five years or so have seen a move away from the 'one models fits all' approach to the development of a series of models such as

ProCure21 and LIFT which have been developed to meet particular public policy delivery requirements.

PPPs are not confined to the United Kingdom, Governments all over the world are adopting this approach in various forms to replace worn out infrastructure or provide better public services.

This book is an attempt to bring together in one place a review of the current PPP construction models that are being used throughout the United Kingdom to help deliver better public services.

Duncan Cartlidge
www.duncancartlidge.co.uk

Acknowledgements

I would like to thank the following for their contribution to this book:

Atkins Faithfull & Gould for various case studies in Chapter 3.
Birmingham City Council, Deloitte and Mott MacDonald for the case study of highway maintenance and management.
Cliff Jones, NHS Estates, Leeds for his advice on ProCure21.
Mohamed Kishk, Robert Gordon University for his contribution on whole life costs.
Crown copyright material is reproduced with permission of the Controller of HMSO and Queen's Printer for Scotland.

Abbreviations

ACCA	Association of Chartered Certified Accountants
ASB	Accounting Standards Boards
BAFO	Best and Final Offer
BDP	Building design partnership
BLT	Build Lease Transfer
BOO	Build Own Operate
BOT	Build Operate and Transfer
BRT	Build Rent Transfer
BSF	Building Schools for the Future
CGF	Credit Guarantee Finance
DBFO	Design, Build, Finance and Operate
DCF	Discounted cash flow
DCMF	Design, Construct, Manage and Finance
DGXV	Directorate General XV
DLRL	Docklands Light Railway Ltd
ECC	Engineering Construction Contract
EIB	European Investment Bank
FBC	Full Business Case
FRS	Financial Reporting Standards
FSP	Final Selection Process
GMP	Guaranteed maximum price
IPPR	Institute for Public Policy Research
IRR	Internal rate of return
ITN	Invitation to negotiate
JCT	Joint Contract Tribunal
KPI	Key performance indicators
LEP	Local Education Partnership
LIBOR	London Inter-Bank Offered Rate
LIFT	Local Improvement Finance Trust
MAPP	Maximum available performance points
MEAT	Most economically advantageous tender
NAO	National Audit Office

NHS	National Health Service
NPV	Net present value
NSW	New South Wales
OBC	Outline Business Case
OGC	Office of Government Commerce
OJEU	Official Journal of the European Union
PFI	Private Finance Initiative
PIN	Prior information notice
PITN	Preliminary invitation to negotiate
PPM	Price Performance Mechanism
PPP	Public Private Partnership
PQQ	Pre-Qualification Questionnaire
PRINCE	Projects in Controlled Environments
PSC	Public Sector Comparator
PSCM	Principal Supply Chain Member
PSCP	Principal Supply Chain Partner
PUK	Partnership UK
RPI	Retail price index
SCM	Supply Chain Management
SEAM	Schools Environmental Assessment Method
SEM	Société d'économie mixte
SPC	Special Purpose Company
SPV	Special Purpose Vehicle
STPCT	Sunderland Teaching Primary Care Trust
TEN	Trans European Networks
TEN-T	Trans European Transport Network
WACC	Weighted average cost of capital
WLC	Whole life cost

Chapter 1

The PPP phenomenon

In April 2004, The European Commission issued a green paper entitled *On Public–Private Partnerships and Community Law on Public Contracts and Concessions* in which Public Private Partnerships (PPPs) were referred to as 'a phenomenon'. Alternative definitions of phenomenon are 'marvel' and 'miracle', which one suspects was not quite what the Commission had in mind when searching for a term to describe the spread of this form of procurement. Rather it is a case of 'bewilderment', 'panic' and 'confusion' on the part of the Commission at the rapid growth of PPPs in Europe, which currently operate in a state of EU regulatory limbo.

PPPs bring public and private sectors together in long-term contracts. According to Zitron, in its widest sense, a PPP can be defined as 'a long term relationship between the public and private sectors that has the purpose of producing public services or infrastructure'. In the context of this definition the public sector, or service purchasers, are agencies such as National Health Service (NHS) hospital trusts, local authorities and central government departments, for example the Home Office. On the other side of the equation, the private sector, or service providers, can be defined as profit making organisations which, for the purposes of PPPs, form multi-disciplinary companies and can include a range of experts, depending on the nature of the PPP, from financial institutions, construction companies, to designers and facilities managers. Although these private sector multi-disciplinary companies (the structures of which will be discussed in detail in Chapter 2), are usually unique to a single PPP project, PPPs are not unique to the construction sector and are being used by government to procure a wide range of services from information technology systems to military hardware. However, for the purposes of this book PPPs will involve the delivery of a public service, or the provision of new infrastructure will normally take the form of a built asset, for example a hospital, school or motorway, which traditionally has been financed and operated within the public sector. PPPs are now one of the three preferred procurement strategies recommended by the Office of Government Commerce (OGC) for public sector projects, the other two being Prime Contracting and Design and Construct in a move away from the traditional strategies that

have resulted in sub-optimal performance. At the same time, there has been a realisation by the public sector that value for money is not lowest price; instead, it is to be found in the optimum combination of whole life costs and quality to meet users' requirements.

Partnership is the key word in PPPs, but what should the partnership deliver for the parties? A partnership in the generally accepted business sense is a form of business enterprise and exists where there is a voluntary association of two or more persons engaged together for the purpose of doing business as a partnership, for profit. Partnerships are assumed to exist where the partners actually share profits and losses proportionately, even though there may not be a written partnership agreement signed between the partners. In cases of partnership creation, most lawyers will advise their clients to have a written partnership agreement in place. When no written agreement exists a partnership will be implied by the law when two or more people are in a business relationship together with the view to making a profit.

The essential elements of a partnership are as listed here:

- All individuals share the risks and rewards of the business.
- Each partner is entitled to share the net profits of the business. A contract need not provide for equal shares which may depend upon how much the partner has invested.
- Partners are jointly and severally responsible for all the debts and obligations of the business without any limit, including loss and damages arising from wrongful acts or omissions of their fellow partners and potential liability to third parties.
- Partners have equal rights to make decisions which affect the business or the business assets.
- All individuals share the ownership of the assets of the business, although they may have agreed that the firm will use an asset which is bought by one of the partners individually.

PPPs cannot then be said to be partnerships in the generally accepted definition of the term and indeed the Institute for Public Policy Research (IPPR) defined PPPs as 'a risk sharing relationship based on an agreed aspiration between the public and the private sectors to bring about a public policy outcome.' Nevertheless the focus of partnerships and partnering in construction has developed a significant profile in the United Kingdom during the past ten years. It was the subject of a series of reports in the early 1990s and then further impetus came from the publication of Sir Michael Latham's report *Constructing the Team* in 1994 and Sir John Egan's *Rethinking Construction* in 1998 where strong emphasis was placed on long-term partnering agreements between the supply and demand sides of the construction industry. Although the distinction should be made between partnerships and partnering, the lines sometimes become blurred and several of the PPPs described later in this book, NHS ProCure21 for example, are very firmly

based on Latham's and Egan's partnering principles. More than a decade after the Latham Report there are many within the construction industry who believe that a 'them and us' culture is still strong when it comes to procurement. Despite the best efforts of Latham and Egan and a whole series of government-led initiatives to improve efficiency in 2005 a National Audit Office (NAO) report, *Improving Public Services through better construction*, claimed that £2.6 billion a year is still wasted because of the poor management of public sector construction projects in the United Kingdom.

The great debate

Whilst this book attempts to steer a course away from being a political polemic on the ethics of PPPs it is not possible to totally ignore the many public debates that have raged and continue to rage on this approach to public procurement. To some within the public sector, the concept of a PPP, in which the private sector is given a long-term licence to deliver public sector services for profit, is an anathema and over the ten years or so from its first introduction the debate continues about the ethics and suitability of this method of asset procurement. In the various debates one fact, is often overlooked namely that PPPs are primarily a method of procurement; however, to some they have also been seen as

- a method to raise finance off balance sheet – see Chapter 3;
- a strategy to achieve greater efficiency;
- a politically motivated tool to engine social change.

One of the most outspoken critics on PPPs has been the trade union UNISON which shortly after the introduction of PPPs launched its Positively Public Campaign in order to '*keep public services public*.' According to UNISON the reasons why the PFI (Private Finance Initiative), for example, should be opposed are because of the following:

1 The death of the public sector ethos with the introduction of private sector contractors.
2 The PFI is driven by a political motive to control public spending rather than to deliver better public services see Figure 1.1.
3 PFI schemes actually cost more than conventionally procured assets due to a range of factors including higher finance costs and high fees for professional advisors, etc.
4 PFI consortia profit from employing their workforce on inferior terms and conditions to those in the public sector and in some cases this has resulted in a two-tier work force within the same organisation.
5 There is no evidence to support the claim that the private sector can deliver public service outcomes more effectively than the public sector and in fact many privately operated projects are underperforming.

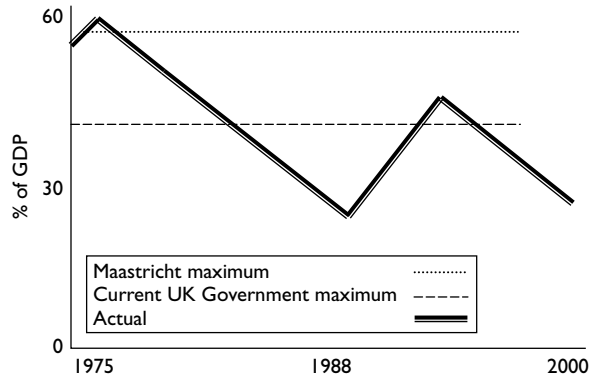

Figure 1.1 Public sector net debt as a percentage of GDP.
Source: HM Treasury.

6 Similarly, it has been suggested that the added value brought about through risks being transferred from the public to the private sector is nothing more than 'pseudo-scientific mumbo jumbo where financial modeling takes over from thinking'.
7 Private sector companies make unacceptably high profits from PPPs and in particular the practice of refinancing PFI deals at an early stage in the project's life has been heavily criticised.
8 Many PPPs reduce the traditional accountability of public sector projects under the cloak of commercial sensitivity.

The issues that have been listed will be addressed in the following pages. In addition to these comments PPPs have also been blamed variously for threatening the delivery of healthier school meals to reducing the numbers of acute beds in new hospitals as well as the spread of so-called 'super bugs' such as MRSA in NHS hospitals. Seldom in the history of construction procurement can there have been such a controversial topic. However, despite the controversy one thing is clear – PPPs are here to stay and putting aside public policy issues, are of major importance, both financially and developmentally, to the UK construction industry (see Table 1.1). During the past few years, construction-related PPPs have risen from virtual insignificance, in terms of the £70 million per annum UK construction total turn over, to be of major importance to both contractors and construction professionals. Exact figures concerning the value of PPP construction contracts are difficult to calculate, owing to the number of contracts in the course of negotiation at any one time. However, figures compiled by the dti show that the value of PPP construction projects over the period 1992–2005 are as given in Table 1.1.

Table 1.1 Value of PPPs in the United Kingdom

PPPs	*£ Million*
Education	2,346 (96 transactions)
Transport	25,200[a]
Office of Deputy Prime Minister	575
Department of Health	12,123 (117 projects)
The Home office	868
Local authorities	1,275
Ministry of Defence	6,658 (46 projects)
The Scottish Executive (all sectors)	2,204
Total	51,408[b]

Notes
a Includes £16,179 million for the modernisation and maintenance of the London Underground.
b Includes signed projects, projects under construction and OJEU announcements.

Although the figures given in Table 1.1 cover the period 1992–2005 the majority of deals were struck after the 1997 Bates Review, and construction-related PPPs have run at approximately £4–£5 billion per annum although by 2007/08 the level of expenditure is expected to drop to a more modest £2 billion per annum.

Although PPP has become a generic term to describe contracts in which the public and private sectors work together, there has developed in the United Kingdom, a wide variety of PPP procurement models and these are described in detail in Chapter 2. In most cases, however, in PPP arrangements private-sector contractors become the long-term providers of services rather than simply upfront asset builders, combining some or all of the responsibilities for the

- design
- construction
- finance (which may be a mixture of public and private sources)
- facilities management
- service delivery of a public service facility.

As with any form of procurement, to work efficiently PPPs depend upon a number of critical success factors, but fundamentally these are the following: true partnership, communication and commitment. The debate goes on however, and a constant theme concerning the rationale for the use of PPPs is that in the medium term, they take some of the strain off

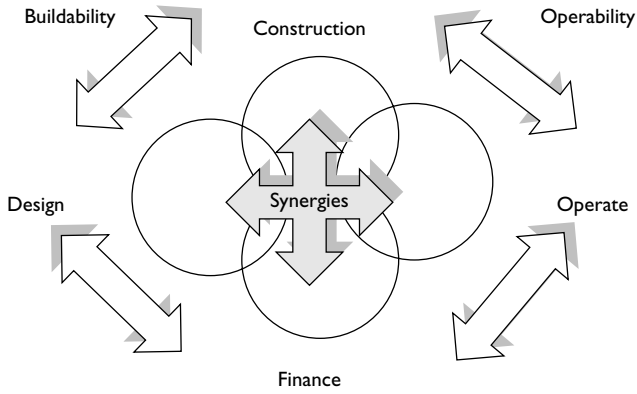

Figure 1.2 PPP synergies.

public borrowing and add much-needed certainty to cost and the delivery of public sector projects. In fact to many, cost and time certainty are the two biggest attractions to the public sector of PPPs. Compared the traditional and often-fragmented approaches to construction, procurement PPPs, depending on the model used, offer the advantages of synergies between traditionally diverse processes in the delivery and operation of built assets, for example, as illustrated in Figure 1.2,

Synergy between the design and construction. This is not a new concept and buildability can also be achieved through other forms of procurement, such as design and build. Most PPP projects are able to deliver this well with designers working alongside the contractor.

Synergy between the construction phase and the operational phase. This is mainly to do with the suitability and reliability of the construction taking into account whole life costs over the expected life of the project as well as sustainability issues.

Not unnaturally, there is growing evidence that companies that can combine, design, construction and hard facilities management in-house, are increasingly successful in the PPP market.

PPP nomenclature

Within the construction industry the nomenclature used to describe PPPs is sometimes confusing and misunderstood and often the term PPP is used synonymously with the PFI, although of course the PFI is only one of the many PPP options available (see Figure 1.3). The PPP concept covers a wide range of different types of partnerships and service delivery including the

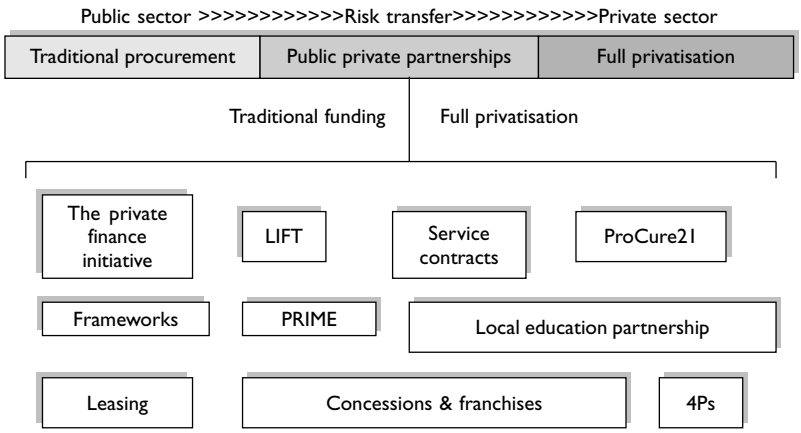

Figure 1.3 PPP models.

following broad categories:

Divestiture The introduction of the private sector ownership into state-owned businesses using the full range of possible structures (whether by flotation or the introduction of a strategic partner), with sales of either a majority or a minority stake, for example the UK privatisation programme of state-owned monopolies during the 1980s and 1990s. In this programme, publicly owned and managed utilities such as gas, water and electricity were valued and then sold to the private sector with the UK government retaining a so-called 'golden share' in the organisation, giving them a final say in any major decisions and shielding the newly privatised companies from hostile bids, although subsequently, in 2003, the European Court of Justice ruled that golden share arrangements were illegal. In the United Kingdom, over the years since the privatisation programme, the golden shares have been given up, although the government still retains them in BAA, BAE Systems, British Energy and Rolls Royce. The two major characteristics of this form of PPP therefore are public sector part-ownership of the service providing organisation and greater flexibility and uncertainty about investment levels, as compared with the PFI for instance, over the licence period.

Concession arrangements where the public sector contracts to purchase services on a long-term basis. These include the PFI, and franchises where a private sector partner takes on the responsibility for providing a public service, including maintaining, enhancing or constructing the necessary infrastructure.

Selling government services into wider markets and other partnership arrangements where private sector finance are used to exploit the commercial potential of government assets.

As illustrated in Figure 1.3 sectors are now developing their own PPP models to meet specific needs, for example NHS LIFT (Local Improvement Finance Trust) for new primary care and community-based facilities and the Local Education Partnership (LEP) for schools. Given the record of construction procurement in the United Kingdom there is a growing realisation that cooperation with the private sector in PPP projects is able to offer a number of advantages including

- acceleration of project delivery;
- faster implementation;
- reduced whole life costs;
- better risk allocation;
- incentivisation of suppliers;
- generation of additional revenues.

For example, at the start of the 1990s the Prison Service was viewed as an organisation steeped in traditional practices with a culture that did not respond to change. Traditionally, prisons were built by the private sector but to strict guidelines and standard designs and when completed were operated (staffed) by the public sector. A strong impetus for the move to the PFI to procure prisons was the wish to change attitudes within the service. In the United States, private consortia had been involved in the construction and operation of custodial services for about ten years. In 2003, Correctional Services in England and Wales were reorganised to take account of the increased use of private sector involvement (see Figure 1.4).

Prisons were therefore one of the first sectors to be procured using the Design, Construct, Maintain and Finance model. To date there are nine privately built and operated prisons in the United Kingdom. From a value-for-money perspective PFI prisons appear to be a success delivering

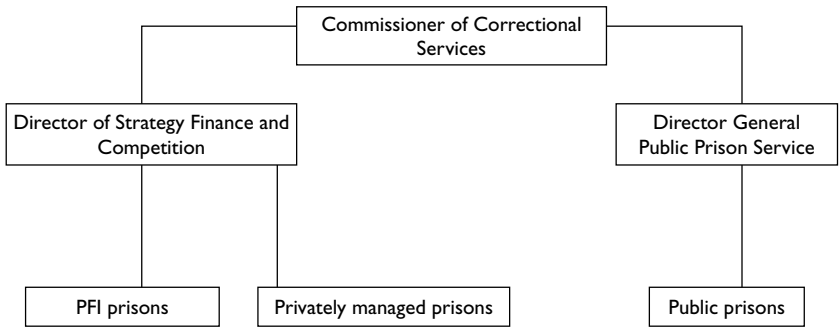

Figure 1.4 Impact of the PFI on prisons.

Source: Office of Government commerce.

custodial services at around 10% cheaper than using traditional models, with the construction phase being completed in about half the time (between 18 and 24 months) of a conventionally procured prison. Prisons are the jewel in the crown in terms of delivering value for money compared with traditional procurement routes.

Of all the PPP models the PFI predominates accounting for approximately 85% of all PPP deals, but whichever PPP model is selected it is important to remember that public bodies retain a critical role in the management and regulation during the design, construction and operation phases. For example, whether PPP or conventionally procured, prisons, schools and hospitals all have to comply with standard sector procedures for service delivery, etc. Therefore, measurement and assessment of performance is critical, and central and local government agencies become increasingly involved as regulators and focus on service planning, performance monitoring and contract management rather than on the direct management and delivery of services. Whatever the motives for the increasing popularity of PPP arrangements, collaborative working between the public and private sectors is not a new concept.

Before PPPs became high profile in the 1990s the following approaches, as discussed in the following sections, to allow private sector participation in public sector service delivery were and still are common.

Service contracts

Public agencies utilising private sector companies to carry out, for example, the maintenance and repair of equipment. This type of arrangement is generally awarded by competitive tendering and in PPP terms is relatively short and addresses short-term technical issues with contracts being re-tendered every five years or so, rather than overall strategy and management of a facility. The risk for investment remains with the public sector in the approach.

Operation and management contracts

Similar to the previous approach except that the private sector has the responsibility for both the service and management of a facility. Again short in PPP terms, this type of arrangement can include incentive schemes where service levels or output meet predetermined targets. Incentivisation is thought to be one of the main ways in which PPP approaches can deliver added value. The commercial risk remains in the public sector.

Leasing

More akin to PPPs, leases are suitable for systems or assets which generate independent revenue streams. The contracts are usually for longer periods

than the two previous examples and can be upto 15 years and, more significantly, the commercial risk is transferred to the private sector. Put simply, the private sector operates and maintains a system for a lease payment that is paid to the public sector. Provided that service levels are maintained the lessor is free to reduce operating costs and increase profits.

As well as private involvement in the delivery of public services, similarly, there is nothing new in governments borrowing money from the private sector to finance the provision of public services and, in particular, the acquisition of capital assets. Nor is there anything new in governments using the private sector to deliver public services. Indeed, all public services are delivered by private persons, who may, or may not, be public sector employees. There has always been a mixture of in-house and bought-in provision. What is new is that long-term contracts, typically 25–35 years with the ownership and management of dedicated assets are left within the control of the private sector. PPPs bring public and private sectors together in long-term contracts. The uniqueness of PPPs lies in the partnership of two sectors, public and private, which have during the past 60 years or so, in the United Kingdom at least, followed very different paths, with very different objectives. In broad terms the benefit for the private sector includes the predictability of guaranteed long-term income streams and for the public sector, cost and time certainty in the delivery of a new or refurbished built asset. In addition, given the unenviable track record of the UK construction industry, the public sector client does need to start paying for the facility or service until it is ready for use.

At the other end of the procurement spectrum illustrated in Figure 1.3, the private sector assumes all of the responsibilities (full privatisation). At the centre of these two extremes are PPPs with risks and responsibilities shared between the public sector and its private partners according to their strengths and weaknesses. With PPP schemes the risks are shared more equitably between the public sector client and the private consortia, the reasoning being that

- risks are apportioned on the basis of the party best able to manage them;
- the extra costs that accrue to raising finance in the private sector are offset when the private consortium accepts the financial consequences of accepting the responsibility of certain risks.

The development of PPPs

There is nothing new with the involvement of the private sector in the delivery of public services. PPPs in the form of Build Operate and Transfer (BOT) were used as early as 1858 for the construction of the Suez Canal.

This £19 million revenue-producing waterway was financed with a mixture of European and Egyptian financial support and was based on a concession to design construct and operate. La Compagnie Universelle du Canal Maritime de Suez was formed to construct the canal. The company, which was owned by both French and Egyptian interests, built the canal and administered it for 99 years after which time, the ownership passed over to the Egyptian government. According to Zitron, in 1638 the Royal Navy considered, but subsequently rejected, the possibility of using a private consortium to store and provide meat for their men and in France the Canal du Midi was completed in 1681 with the use of private finance. In addition during the second half of the nineteenth century, many publicly accessible roads and railways in Europe and the United States were developed using private finance on the basis of a concession; However, by the mid-twentieth century the privatisation of public facilities experienced a downturn.

In 1979, the UK government introduced compulsory competitive tendering for local authorities and for both the United Kingdom and the United States the 1980s proved to be years of radical and political change. Traditional economic and political practices were replaced by new often controversial policies, although in theory many of the ideas, and market-oriented supply-side policies advocated were based on the old principles of laissez-faire capitalism. The two main elements of the economic strategy were as follows: first, on the demand side was a policy of firm monetary control in order to reduce inflation, and the second was the introduction of radical market-orientated policies. These policies were designed to encourage and reward individual enterprise and initiative, increase reliance on market forces and competition, remove and streamline outmoded restrictive legislation and red tape enabling a reduction in government intervention.

Prior to 1989, governments were not keen to allow private capital in the financing of public sector projects. In the United Kingdom the position was set out in the so-called 'Ryrie Rules'. The Rules presupposed that some projects, such as road building, should be undertaken by the public sector and that, where private sector finance was involved, public expenditure cover would be required. The Ryrie Rules were formulated by a National Economic Development Council working party in 1981 under the chairmanship of Sir William Ryrie, then Second Permanent Secretary to the Treasury. The rules sought to establish criteria under which private finance could be introduced into the nationalised industries. The rules stated that 'decisions to provide funds for investment should be taken under conditions of fair competition with private sector borrowers; any links with the rest of the public sector, government guarantees or commitments, or monopoly power should not result in the schemes offering investors a degree of security significantly greater than that available on private projects' and that 'such

projects should yield benefits in terms of improved inefficiency and profit from the additional investment commensurate with the cost of raising risk capital from financial markets'.

The Rules were revised in February 1988 to take account of the privatisation of the previously nationalised industries and the introduction of schemes such as contracting out, opting out, mixed funding and partnership schemes. The two fundamental principles of the guidelines were private finance could only be introduced where it offered cost effectiveness or value for money and privately financed projects for public sector programmes had to be taken into account by the government in its public expenditure planning – in other words such projects had to have public expenditure cover as a guarantee.

The objective of the Ryrie Rules was to stop ministers from insulating private finance from risk so that it could be used to circumvent public expenditure constraints. The Ryrie Rules were formally retired in 1989. Subsequently, the Treasury promoted private finance as additional and not just as a substitute. In 1992, the PFI was launched which to many was seen as a natural progression to the programme of privatisation that was undertaken in the United Kingdom during the 1980s and 1990s. Initially a public relations disaster, universally criticised from all sides and in particular by the UK construction industry, the PFI spent several years in the doldrums until the incoming Labour government of 1997 gave the process more focus.

In 1999, Sir Peter Gershon was invited to review civil procurement in the central government. The subsequent report highlighted a number of weaknesses in government procurement systems as follows:

- organisation;
- process;
- people and skills;
- measurement;
- contribution of the central government.

Gershon's aim was to modernise procurement throughout the government, provide a greater sense of direction in procurement and promote best practice in the public sector. Gershon's proposals for dealing with these deficiencies led to the creation of a central organisation entitled the Office of Government Commerce.

The uniqueness of PPPs is illustrated in Figure 1.5 and is characterised by

- long-term contracts;
- the management of dedicated assets left within the control of the private sector;
- payments on the basis of delivery, availability and usage.

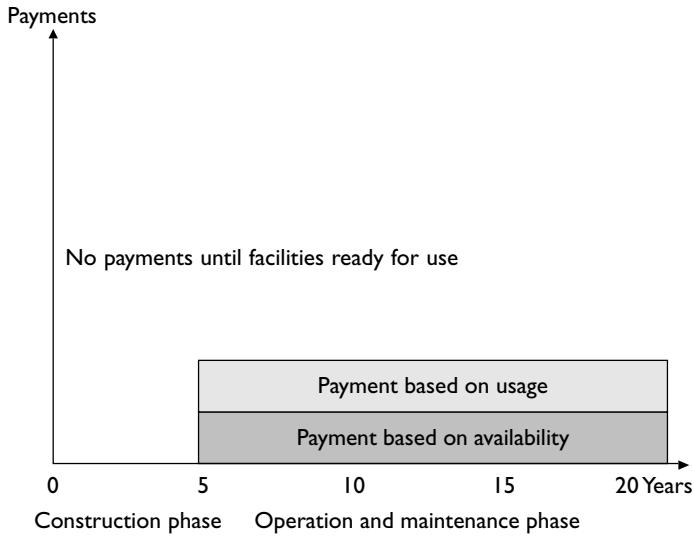

Figure 1.5 PPP procurement.

Source: PricewaterhouseCoopers (2003).

Since the establishment of the welfare state in the United Kingdom in the 1940s the public sector at national and local levels has retained the responsibility for the provision and delivery of a range of services such as healthcare, education, transport etc. that impact on the daily lives of every citizen. Legislation such as the Education Act (1944) and the National Health Service Act (1946) extended and integrated existing state provision in their respective fields, creating national systems which were free at the point of delivery. Until recently, government departments and agencies relied with varying degrees of success on traditional high-risk public procurement and funding models to provide the built assets necessary to deliver these public services. Typically, using traditional approaches government agencies draw up short- and medium-term plans prioritising needs and then attempt to arrange the finance (from central government sources), design and the construction of individual projects. The public sector agencies commonly utilise the services of the private sector for the design and construction, with the award of individual contracts being determined by a competitive bidding process based on lump-sum contracts, often on the basis of drawings and a bill of quantities. Once the built asset has been completed, however, private sector participation, with a few exceptions noted in the following pages, ceases and the new facility is then operated and maintained by the public sector agency together with other assets under its care. The difficulties with

this fragmented approach to procurement have been three fold:

- First, projects can only proceed once the public funding is in place and this can be problematic. Agencies have to bid annually, recently changed to three yearly, for funds from the Treasury and inevitably many projects fail to secure funding and do not go ahead. If funding is secured, design and procurement is usually on the basis of cheapest bottom line price rather than value for money, with little or no consideration given to long-term running, maintenance or decommissioning costs.
- Second, once funding is approved the project delivery is often unreliable both in terms of cost and time certainty. The reports on the inefficiencies of the procurement of prestigious public sector construction projects are legion. All of the examples are too numerous to list, but just a few notable ones are shown in Table 1.2.
- Third, the maintenance of built assets is also dependent on central government funding, which like the funding of capital projects is unpredictable. Often funds for capital building programmes have to be diverted to carry out essential maintenance or repair work.

One could be forgiven for coming to the conclusion that given these examples, there is a prima facie case for involving the private sector in the construction and delivery of public services. The legacy of traditional procurement and funding strategies can best be illustrated by examining the NHS hospital building programme over the past 50 years. The NHS owns one of the largest and most complex property portfolios in Europe, with standing building stock worth £23 billion (disposal value) and £72 billion (replacement value, much of which is old and have been kept in service much longer than was originally envisaged, against a background of increasingly rapidly changing clinical techniques. Using traditional approaches to procurement and funding out of 45 NHS major district hospital construction projects built between 1985 and 1996, the original tender price was exceeded by 10% on 23 of these projects and by more than 20% on 14 of them. In addition 17 of the projects overran on time by over 10% and in 10 of the projects by more than 20%. More specifically, Guy's Hospital Phase 3 was approved in principle in December 1986 at a cost of £35.5 million with a planned completion date of December 1993 – the

Table 1.2 Traditional procurement performance

Project	*Delay (years)*	*Overspend (£)*
Scottish Parliament	3	390 million
Trident Faslane	2.5	114 million
Jubilee line extension	2	1.4 billion

reality was, completion almost three and half years late and a final cost of £160 million, an increase of 450%. The uncertainties of completion and final cost are the main difficulties of traditional procurement and make even short-term planning very difficult. It is clear therefore that the traditional approach to public sector procurement, of keeping clear blue water between the public and private sectors was not working efficiently. During the preparation of the Outline Business Case (OBC) for The New Royal Infirmary in Edinburgh, one of the first PPP hospitals, independent construction companies advised the Trust that if conventional procurement strategies were used, the project would take between 8 and 10 years, as compared with 4 years for a PPP design and build deal. Traditional procurement, has in many cases, delivered suboptimal performance not only in construction, but also in property maintenance. Take for example the costs associated with a modern hospital. The ratio of capital cost : building maintenance: staff costs over the life cycle are known to be 1 : 2 : 10, that's to say the costs involved in operating and running a hospital during its life are double the initial capital cost of construction and yet using traditional funding and procurement models, life time costs have been largely ignored, as have ways of mitigating the considerable impact of staff costs during the design and procurement. Prior to the redevelopment of West Middlesex University Hospital, using a PPP, the hospital trust estimated there was a backlog in maintenance of £22.8 million and in 1997 it was estimated that the bill for the backlog maintenance across the NHS as a whole was £3 billion.

PPPs allow projects to be funded throughout the economic cycle, which is attractive to governments taking a long-term view and anxious to keep public borrowing in check, whereas to keep within funding limits, traditionally public procurement, driven on by an ethos of public accountability, has had to focus on cheapest bottom line solutions, rather than whole life costs and value for money. In addition traditional procurement models leave the public sector client vulnerable to high levels of risk which, it has been proved, it is ill equipped to manage. Figure 1.6 illustrates just some of construction procurement options that are available, including traditional procurement, in which the public sector client retains all the responsibility for financing, constructing, operating and maintaining assets together with the responsibility for a large percentage of associated risks. In addition to the procurement strategies shown in Figure 1.6, there are a number of strategies with varying degrees of risk transfer and cost and time certainty, for example lump sum fixed price contracts, in which the contractor undertakes the whole of the work for a specific sum – the contractor carries nearly all the risks as in this form of procurement since

1 the client pays the same regardless of how much work is needed and
2 the contractor is motivated to obtain the most cost-effective approaches.

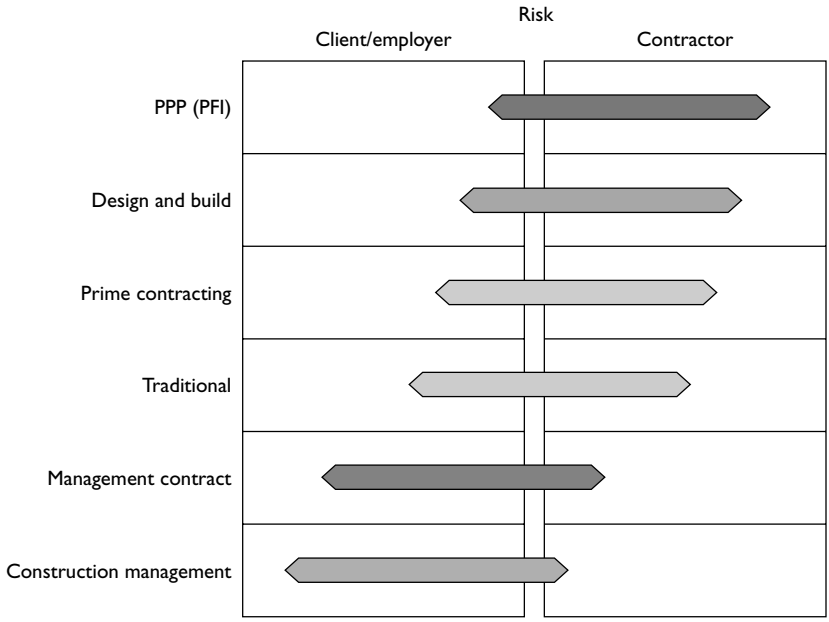

Figure 1.6 Risk allocation and procurement strategies.

At the other end of the spectrum are cost reimbursement/cost plus contracts where the client carries nearly all the risks:

- the client pays for work done plus a sum to cover for the contractor's overheads and profit; and
- the contractor may not be motivated to carry out work efficiently or cost effectively.

In reality, the majority of traditional public sector contracts have been based on models in the middle of these two extremes. Even though conventional procurement is shown to share the responsibility for the management of risk fairly evenly, this approach has still caused problems for public sector procurement managers. With conventional procurement, which is used in both the public and private sectors, the client bears the majority of the risk. For example, additional costs on top of the initial estimated capital cost or running costs are the responsibility of the client (public sector agency). The public sector project team is incentivized only to produce a project for the cheapest possible initial cost without regard for the long-term costs of maintenance or running expenses. Note that PPP/PFI procurement results in a large proportion of risk being transferred to the

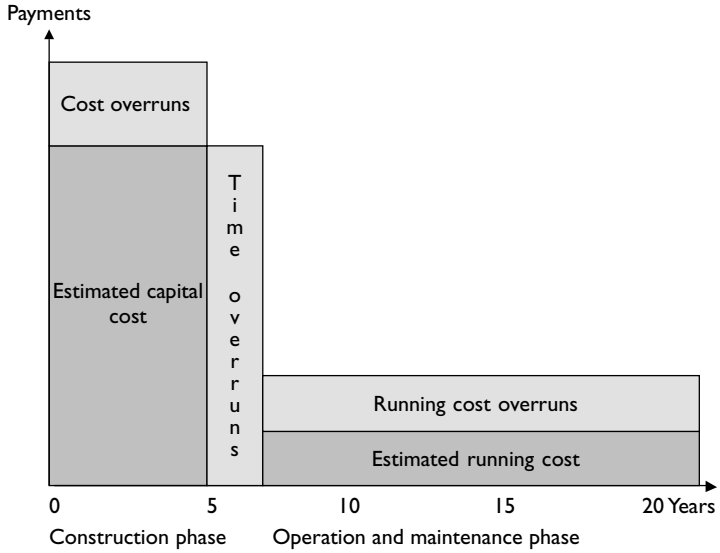

Figure 1.7 Traditional procurement risks.

contractor or private sector – the implications of this will be discussed in more detail in Chapters 2 and 5.

In construction procurement terms, poorly managed risk most often manifests itself in delays in completion and additional costs to the client due to extra and unforeseen works or simply poor planning. Acceptance of a procurement strategy with high levels of risk is not only likely to impact on the capital costs but also on life cycle costs which are passed on to the client see Figure 1.7.

In an attempt to explain the sometimes massive cost and time overruns in prestige public projects Mott MacDonald were commissioned by the HM Treasury to carry out an investigation as to why this might be so. The conclusion of the report was that in general the public sector procurement managers have been over optimistic and naive in their estimates of cost and time of large and complex construction projects. Faced with these patterns of inefficiency, the rationale for the introduction of alternative forms of procurement, with less risk for the public sector and that harness the expertise of the private sector, such as PPPs, seemed to need no explanation. Claims for the superior performance of non-state (private) institutions have been cited in relation to two key values. First, private sector organisations are viewed as being more efficient than public sector ones as a result of being more disciplined by market forces and competition. By comparison public

sector institutions are viewed as being excessively bureaucratic, controlled by administrative or professional interests and unresponsive to the pressures for efficiency which market-based organisations faced. Yet the opinions as to why PPPs are proving to be so popular with governments worldwide are truly diverse. Government has an obligation to deliver public services, but government does not need to finance, build and maintain the infrastructure necessary to do this. Therefore at one level PPPs are a method of outsourcing the delivery of public services in which the government assumes the role of the purchaser of these services from the private sector supplier.

The European Commission takes a more pragmatic assessment, suggesting that PPPs are driven primarily by limitations in public funds to cover investment needs but adding that PPPs also boost efforts to increase the quality and roles for the private sector in PPP schemes,

- to provide additional capital;
- to provide alternative management and implementation skills;
- to provide value added to the consumer and the public at large;
- to provide better identification of needs and optimal use of resources.

The IPPR in its seminal report *Building Better Partnerships* came to the conclusion that the rationale for using PPPs instead of traditional approaches appeared to be confused, with muddled and contradictory statements by different government agencies.

Are PPPs privatisation?

The simple answer is no. Privatisation is distinct from PPP, despite the claims made by organisations such as UNISON. Privatisation is the partial or complete sale or transfer of existing enterprises, assets or rights from public ownership to the private sector. A number of different terms are used to describe privatisation and these may include liberalisation, restructuring and disinvestment. Over 60 companies valued at over £70 billion have been privatised in the United Kingdom since the early 1980s and this has taken place in three broad phases

1 free-standing state-owned companies already operating on a commercial basis, such as British Airways and British Airports Authority;
2 utilities such as British Telecom and British Gas;
3 less commercial industries, such as British Rail and British Energy.

In the UK the consequences of the privatisation programme are generally accepted to have been

- improvement in public finances – even though there is evidence to suggest that many of the public sector assets were undervalued by as

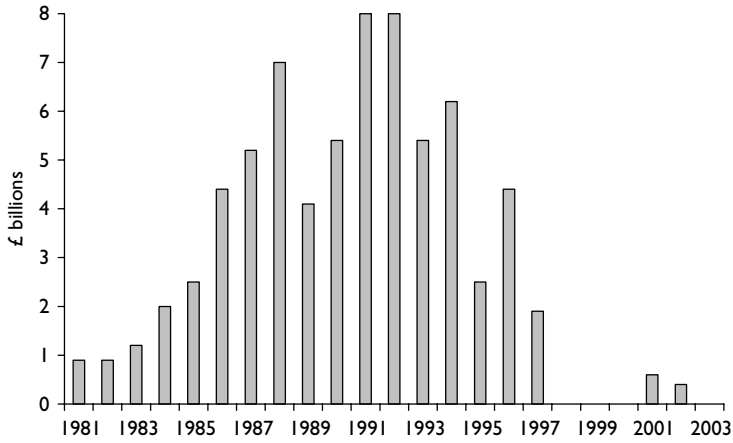

Figure 1.8 UK privatisation revenue.
Source: HM Treasury.

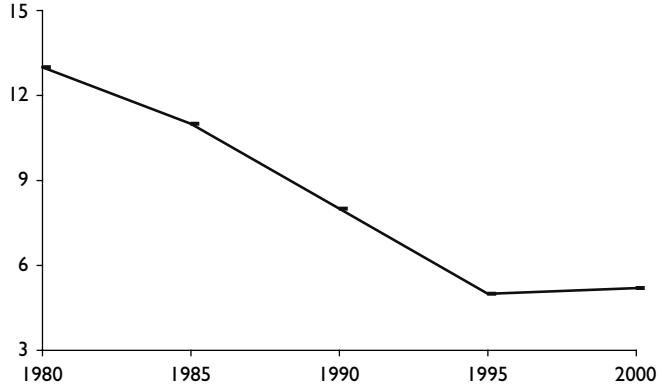

Figure 1.9 Public corporations' contribution to UK economy – % share of GDP.
Source: HM Treasury.

much as 50%, the £70 billion process raised was received gratefully by the UK Exchequer. At the same time the amount that publicly-owned companies contribute to the UK economy decreased (see Figures 1.8 and 1.9);

- enhanced market performance, greater efficiency and competition;
- Widened of share ownership from £4 million in 1979 to £13 million in 2002.

Therefore, despite its sometimes turbulent history, PPP procurement has, in a comparatively short period, become an established procurement strategy that is becoming increasing adopted in international markets. The following chapters will review various aspects of PPP procurement as a deliverer of built assets for public sector service delivery.

Bibliography

Cartlidge, D. (2004) *Procurement of Built Assets*, Elsevier, Oxford.

Cockshaw Sir, A. (2004) Proceedings of 21st Annual Major Projects Association Conference.

Department of Health (2000) *Sold On Health – Modernising Procurement, Operation and Disposal of the NHS Estate*, HMSO.

Department of Health (2003) *Private Finance and Investment*, HMSO.

DTI (2004) *Construction Annual Statistics 2004*, The Stationary Office, London.

Edwards, N. and Harrison, A. (1999) The hospital of the future: Planning hospitals with limited evidence: a research and policy problem. *British Medical Journal* 1999; 319; 1361–1363.

EU Commission (2004) *On Public Private Partnerships and Community Law on Public Contracts and Concessions*, European Commission, Brussels.

European Commission (2003) *Guidelines for Successful Public Private Partnerships*.

Flyvbjerg, B. *et al.* (2003) *Mega Projects and Risk: An Anatomy of Ambition*, Cambridge University Press, Cambridge.

HM Treasury (2000) *Public Private Partnerships The Government's Approach*, HMSO, London.

IPPR (2001) *Building Better Partnerships*, Institute for Public Policy Research, London.

Jones, J. (2000) The private finance initiative: spinning out the defence. *British Medical Journal* 2000; 320; 1460–1461.

Lothian Health Trust (1997) *Full Business Case for the New Royal Infirmary Edinburgh*, Lothian Hospital, NHS Trust.

Mott MacDonald (July 2002) *Review of Large Public Procurement in the UK*, HM Treasury.

NAO (2005) *Improving Public Services through Better Construction*, National Audit Office, London.

NHS Confederation (1998) *Briefing No. 3* (June 2003) adapted from: *The long term costs of owning and using buildings* – Royal Academy of Engineering and Stanhope.

NHS Estates (2000) *ProCure 21 Best Client Manual*, The Department of Health.

Treasury Task Force (2000) *Technote 7*, HMSO.

West Middlesex Hospital Trust (2001) *Full Business Case for the Redevelopment of West Middlesex Hospital*, West Middlesex Hospital NHS Trust.

Zitron, J. (2004) Are PPP Projects Working? MPA 21st Annual Conference Proceedings, Cranfield.

Chapter 2

PPP models

PPPs in the United Kingdom have developed and continue to develop in many forms. Originally a 'one model fits all' strategy, a second wave of PPPs are now being developed to suit the needs of particular sectors, for example, education, health etc. and in some cases sub-sectors such as primary health care. The principal PPP models currently in use in the UK construction sector are listed here and will be discussed in this chapter.

- The Private Finance Initiative (PFI)
- Building Schools for the Future (BSF)
- NHS Local Improvement Finance Trust (LIFT)
- Frameworks
- ProCure21
- Public Private Partnership Programme (4Ps)
- Prime contracting

PPPs are not just about using private finance – a fact reflected in the recent development of Credit Guarantee Finance (CGF) in the United Kingdom, where the public sector provides the underlying debt finance but the risk of default is guaranteed by the private sector. The setting up of the National Development Finance Agency in Ireland and Infrastrutture SpA in Italy also underlines the belief that PPPs are not simply about accessing private sector money, but rather transfer of risk to the private sector.

The procurement process

The procurement process for PPP projects varies according to the model that is used. ProCure21 for example, described later in this chapter can have a relatively short lead in period once a specific project has been identified, although considerable time and expense is devoted to pre-qualification

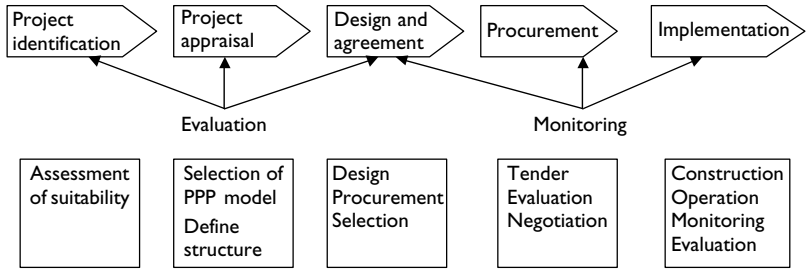

Figure 2.1 PPP project cycle.

procedures prior to selection. In general a PPP project cycle can be broken down into the stages illustrated in Figure 2.1

The Private Finance Initiative (PFI)

In the United Kingdom during the last 15 years or so, three main PFI procurement models have developed. These are,

- joint ventures
- financially free-standing projects
- classic PFI.

Joint ventures

Joint ventures are projects to which both the public and private sectors contribute, but where the private sector has overall control. In many cases, the public sector contribution is made to secure wider social benefits, such as road decongestion resulting from an estuarial crossing. In other cases, government may benefit through obtaining services not available within the time scale required. The project as a whole must make economic sense and competing uses of the resources must be considered. The main requirements for joint venture projects are,

- private sector partners in a joint venture should be chosen through competition;
- control of the joint venture should rest with the private sector;
- the government's contribution should be clearly defined and limited. After taking this into account, costs will need to be recouped from users or customers;
- the allocation of risk and reward will need to be clearly defined and agreed upon in advance, with private sector returns genuinely subject to risk.

The government's contribution can take a number of forms, such as concessionary loans, equity transfer of existing assets, ancillary or associated works or some combination of these. If there is a government equity stake, it will not be a controlling one. The government may also contribute in terms of initial planning regulations or straight grants or subsidies.

Financially free-standing projects

The private sector undertakes a project on the basis that costs will be recovered entirely through a charge for the services to the final user, for example the Queen Elizabeth II Bridge in Kent/Essex. The government may contribute value to the project in terms of initial planning and statutory procedures, or determining the route of a linking road etc. When the private sector is wholly responsible for a project needing government approval and can recoup costs through charges at the point of use, it is not necessary to compare the project with a model such as the Public Sector Comparator (PSC). Assuming that the usual planning and other necessary permissions have been obtained, the scheme can go ahead. At the end of the concession period the ownership of the asset may be handed to the public sector. A disastrous example of such a project is the Skye Bridge in Scotland where the concession period was so short, 15 years, that the contractor had to set an unrealistically high toll charge for users to recoup costs. Eventually, on 1 January 2005 the remaining 8 years of the concession period was bought from the private consortium Skye Bridge Limited, by the Scottish Executive for £27 million pounds and the bridge is now toll free.

Classic PFI

The PFI is the widest-used, most controversial and best-known form of PPP, currently accounting for approximately 80% of all expenditure on PPPs in the UK construction sector. PFI deals have been used in some of the most complex and expensive PPP projects to date such as the 872-bed New Royal Infirmary, Edinburgh (NRIE). Utilising one of the most popular PFI models, Design, Build, Finance and Operate (DBFO), Consort Healthcare a private sector consortia, (also referred to as Special Purpose Company (SPC)) comprising service group BICC, The Royal Bank of Scotland and Morrison Construction, designed and built the NRIE between 1998 and 2002, including arranging and providing the debt finance. Since its opening in 2002 Consort Healthcare maintains the non-clinical hospital services such as car parking, catering, cleaning, planned maintenance etc. The public sector client, Lothian NHS Trust, retains the responsibility for the clinicians and clinical services including all medical staff. In return for providing and running the hospital building and all the ancillary services, Consort Healthcare now receives a predetermined performance-based unitary payment for the duration of the PFI contract, (30 years plus) providing of course, that output and performance

targets and standards are maintained and the NHS Trust continues to enjoy a state-of-the-art hospital, including any commitments by Consort to refresh and update certain specified technology and equipment during the contract period. The total value of the contract is £250 million over 33 years which includes not only the capital cost (£65 million) and finance costs but also cost to Lothian NHS Trust of the unitary charge. At the end of the contract period the hospital will be handed back, at no cost, to the NHS trust although in reality a new contract will almost certainly be negotiated with Consort or another private sector consortium for a further period. Figure 2.2 illustrates the key responsibilities during the construction and operation phases of a PFI project.

Figure 2.3 illustrates the contract structure for the PFI project to rebuild and refurbish the West Middlesex University Hospital. The Trust's choice for the project was ByWest, a limited company specifically formed by the PFI consortium as a vehicle to enter into the project agreement with the Trust in order to meet its operational requirements. Each shareholder has board representation from their investment arm or subsidies. The shareholders and their various levels of shareholdings are as follows:

- West Middlesex Hospital Projects Ltd (WHP) The Special Purpose Vehicle/Company (51%): during the construction phase WHP was owned by 99% Bouygues and 1% by Ecovert and during the operational phase; 1% by Bouygues and 99% by Ecovert.
- Charterhouse (49%)

Bywest UK were wholly responsible for the execution of the entire design and build project and were advised by a range of consultants including architects, medical planners, mechanical and electrical engineers etc.

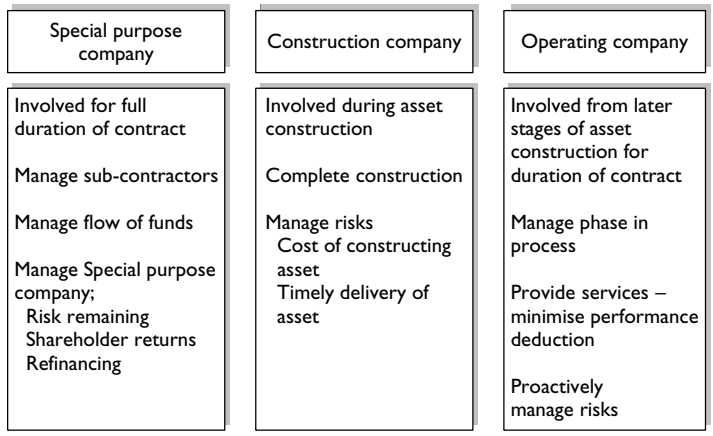

Figure 2.2 Key responsibilities – PFI construction and operations.

Source: Serco Group plc.

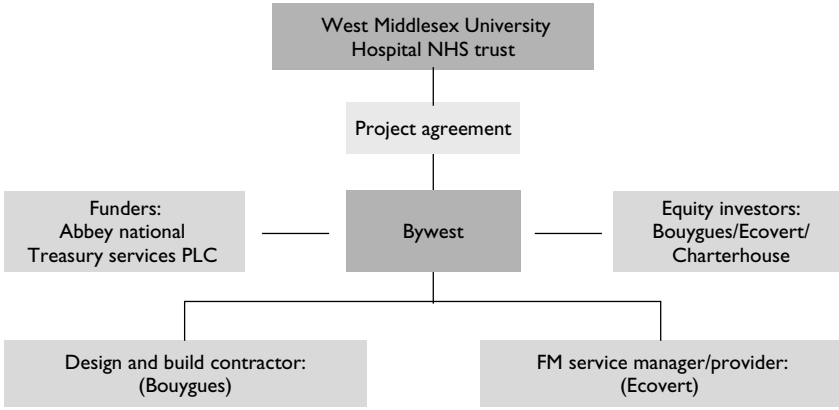

Figure 2.3 West Middlesex Hospital PFI contract structure.

DBFO is the classic and perhaps most widely used PFI model, with a contract structure usually similar to the one illustrated in Figure 2.3. In common with many aspects of construction procurement, PPP/PFI value is now being assessed in different ways other than the traditional benchmarks of simple bottom line capital costs. A common mistake made by the casual observer when assessing whether PFI deals are good value is to compare the headline capital costs of traditionally procured facilities with the total through life costs of PFI deals. In order to assess totally life costs evaluation of PFI projects is carried out in accordance with The Green Book during the development of the Outine and Full Business Cases as discussed in Chapter 4.

In order to obtain approval early PFI projects were required to demonstrate two principal advantages over conventional public procurement strategies:

- Value for money compared with traditional service provision. The mechanism used to demonstrate value for money is referred to as the Public Sector Comparator (PSC), a model that purports to show in black and white balance sheet terms, which of the two approaches (the PFI or traditional lump sum procurement) delivers the better value. The PSC, which is used for a wide range of PPP models will be discussed fully later. Although widely used the PSC has been widely criticised and is considered by many involved with PPPs to be a crude device that can be easily manipulated to give the desired outcome. Fortunately the PSC is no longer used as the sole litmus test for value for money and it is now recommended by the OGC that a more holistic approach is adopted when assessing which procurement path to select.

- The second important hurdle for PFI projects to clear is a demonstration that significant risk has been transferred from the public to the private sector operator (i.e. without a guarantee by the taxpayer against loss). One of the basic premises of PPPs is that the private sector is better able to manage public sector facilities because of its superior management expertise and experience and therefore the private sector is expected to manage project risk that has traditionally been undertaken by the public sector. The trade off of risk against higher funding costs will be fully discussed later in the chapter.

Table 2.1 illustrates a typical sequence for the PFI procurement process as recommended by the OGC. Although it has been criticised for being too inflexible and too long it still forms the basis of the PFI process. Currently, new

Table 2.1 PFI procurement sequence

Stages	*Sequence in Process*
1	Establish business case – It is vitally important that the PFI project is used to address pressing business needs. Consider key risks
2	Appraise the options – Identify and assess realistic alternative ways of achieving the business needs
3	OBC – Establish the project is affordable and 'PFIable'. A reference project or PSC should be prepared to demonstrate value for money including a quantification of key risks. Market soundings may be appropriate at this stage
4	Developing the team – Form procurement team with appropriate professional and negotiating skills
5	Deciding tactics – The nature and composition of the tender list and selection process
6	Publish OJEU – Contract notice published in OJEU
7	Prequalification of bidders – Bidders need to demonstrate the ability to mange risk and deliver service
8	Selection of bidders – Short-listing. Method statements and technical details may be legitimately being sort
9	Refine the proposal – Revisit original appraisal (Stage 3) and refine the output specification, business case and PSC
10	Invitation to negotiate (ITN) – Could include draft contracts. Quite lengthy – 3 to 4 months. Opportunity for short listed bidders to absorb contract criteria and respond with a formal bid
11	Receipt and evaluation of bids – Assessment of different proposals for service delivery
12	Selection of preferred bidder – Selection of preferred bidder with bid being tested against key criteria
13	Contract award and financial close – Sign contract and place contract award notice in OJEU
14	Contract management – Operational and management relationship between public and private sectors

Source: HM Treasury.

EU legislation that is due to come into effect in 2006 is anticipated to impact on this approach – see Chapter 4 for more details on the legislative package.

The first three stages in the PFI procurement process referred to in Table 2.1 are carried out solely by the public sector and crucially involve establishing the need for the project within the strategic context of the public service that is being delivered. A vital outcome of these stages is in determining whether the project is suitable for the PFI approach, for example, is the revenue that is likely to be generated sufficient to attract private sector companies. Having established the viability and relevance of the project the next three stages are involved in establishing a team of people with the appropriate skills to take the project forward, which probably will include private sector experts/consultants before placing a notice in the Official Journal of the European Union (OJEU) to determine the level of enthusiasm in the market place for the project as well as asking for expressions of interest. Pre-qualification questionnaires (PQQ) are issued to all parties responding to the OJEU notice, who meet with the client's requirements. The pre-qualification questionnaire should be designed to

- measure the capacity and capability of candidates to undertake the project in its entirety;
- receive a response to specific key questions on the proposed project.

After the PQQs are received, the submissions have to be evaluated and scored against a set of preset criteria, for example,

Criteria	*Percentage (%)*
Candidate	20
Construction	30
Facilities management	25
Design and technical	17
Service delivery/planning	8
Total	100

In addition to these criteria the legal and financial competences of the submission should also be assessed.

During stages 7, 8 and 9 the organisations who expressed an interest are investigated and first a long list and subsequently a short list of usually three candidates is drawn up. For example, at this stage in the NRIE the trust received 22 expressions of interest of which 8 were long listed and a final list of 3 was drawn up. In the early days of PFI this part of the process could be a very long and drawn-out process. However, as more PFI projects were signed, many of the regular players have begun to establish a track record for project delivery and operation. The down side to this is that currently many organisations without PFI experience find it very difficult to break

into the market as they have no track record and are without the resources to acquire one. The organisations on the short list are scrutinised and a preferred bidder is selected. Although the funders are a vital part of the PFI process, until this stage they tend not to become involved in the details and in fact their influence starts only at the preferred bidder stage, much to the annoyance of many involved in PFI projects, as there is a tendency during the process of due diligence for funders to revisit issues previously agreed upon as their interest tends to be primarily focussed on risk management. Once the funders are satisfied, the project proceeds to financial close and the contract is signed.

In addition to value for money and risk transfer other characteristics of PFI deals such as DBFO are,

- selection based on competition on the net present values (NPVs) of the unitary payment;
- an output-based specification rather than the traditional prescriptive model;
- a long-term contract, usually for a minimum 30 years;
- performance-related payments;
- task integration;
- operation of completed facility.

Unitary payment

Unlike conventional procurement strategies where bids are calculated and assessed on the basis of the current capital cost of building a school or hospital, PFI projects are assessed on the proposed charge of an SPC to finance, build and operate a facility over the duration of the contract. Because of the long term nature of the projects all costs likely to be incurred over the life cycle of the PFI project have to be reduced to NPVs in order that meaningful comparisons may be made. The method adopted to achieve this will be discussed in detail in Chapter 3.

Output-based specification

Unlike conventional procurement where design and construction is based on a set of prescriptive documentation, in the case of a PFI deal it is the role of the consortia to interpret and comply with a series of outputs specified by the client. The consortia will have the responsibility for the design of the new facility. Therefore it is essential that the outputs are described in such a manner that

- Comply with all existing regulations/sector benchmarks etc.;
- Allow the consortia the flexibility, within the constraints of the above, to develop solutions that are innovative. In particular the consortia

should have the opportunity to identify sources of additional income stream from within the project, provided of course that the main service delivery is not compromised;
- Safeguard the end users against sub optimal service delivery.

Clearly then the identification of outputs and the drafting of the specification are of utmost importance to the success of PFI projects as well as all performance-based PPPs. This topic will be discussed further in Chapter 4.

Long-term contracting

Historically, construction projects have been undertaken by what have been referred to as 'temporary multi-organisations'. That is to say organisations – contractors, clients, property professionals etc. – that come together for a specific project with a specified project period. On completion of the project they hand it over to the client and the individual organisations go their own separate ways. With this approach it is entirely possible that the same team of organisations and individuals may never work together again. However, the length of the contractual relationship in PPP projects is such that during its currency there may well be several changes of government, wars etc. This therefore marks a major cultural shift in the way in which built assets are procured and managed over their life time from short termism to long termism or to quote and paraphrase Sir Denys Linton 'an approach that is based upon partnership rather than merely a hope of completing the contract unscathed'. This approach has to be based on, amongst other things, mutual trust, transparency, alignment of aims and objectives and a desire to deliver high quality public services in new and innovative ways.

Performance-related payments

On of the main attractions of PPP/PFI procurement for the public sector is that it gives the procuring body the opportunity to incentivise the private sector contractor to deliver large and prestigious public projects on time and to budget as the public sector will not begin to pay for the assets until such time as they are completed and operational. What's more, once operational continual performance monitoring ensures that performance remains at previously agreed and contracted levels.

Task integration

Unlike conventional procurement the PFI requires tasks, which traditionally have been carried out in a discrete and fragmented way to be integrated. There follows examples of several models used in PFI projects that demonstrate the added value synergies that are possible through task integration.

Build operate and transfer (BOT)

Examples – the Channel Tunnel, Spanish Autopistas, Skye Bridge.

The first official private development under the name Build Operate Transfer, which may be inclusive or exclusive of the provision of finance, was in Turkey in 1984, as part of a privatisation programme to develop new infrastructure. BOT is an integrated approach to public procurement that combines the design, construction and maintenance of a built asset. The process is as follows:

Build A private consortium agrees to build and operate in a public infrastructure project. The consortia then secure their own construction finance, or it may be arranged by the project sponsor, or they may be made available to the private consortium, finance and loans at advantageous terms.

Operate The consortia then owns and maintains and manages the facility for an agreed concessionary period, say 25 years and recoups their investment through charges or tolls.

Transfer After the concessionary period the consortia transfers ownership and operation of the facility to the government or relevant authority.

In its basic form a BOT project is one in which a public sector grants a concession to a private company for a fixed period of time. The private sector company constructs the project to the agreed specification and then operates and maintains it. This gives the private sector the opportunity to recoup the construction costs and to make a profit. At the end of the concession period the project is handed back to the private sector at no cost. The public sector is then free to run the project itself or appoint a contractor. The factor that differentiate BOT from other forms of procurement PPP is that unlike the PFI for example, where the private sector has a guaranteed income stream via the unitary charge, the public sector does not guarantee the income stream or usage in the case of BOT and therefore the risk is transferred to the private sector. Therefore in such a long-term project the uncertainty and risks have to be carefully evaluated at the negotiation stage. In very large projects it has been known for the public sector to make finance available to the consortium at favourable rates, for example for the construction of the Autopistas in Spain in the 1970s. BOT is used almost entirely for large infrastructure projects such as highways and other transportation projects. Typically, the main parties to a BOT project (see Figure 2.4) are,

- the project company
- the government
- the government agency

- the investors, lenders
- the contractor
- the operator
- the suppliers.

The benefits of BOT schemes are as follows:

- large infrastructure projects can be undertaken without risking public funds;
- the public sector benefits from private sector expertise;
- investment, construction and technology risks are shifted to the private sector;
- long-term income streams for the private sector consortia;
- they combine responsibility for the disparate functions of design construction and maintenance, under one single entity;
- project design can be tailored to the construction equipment and materials;
- tailored maintenance, attention to whole life costs, incentivisation, smoother operations.

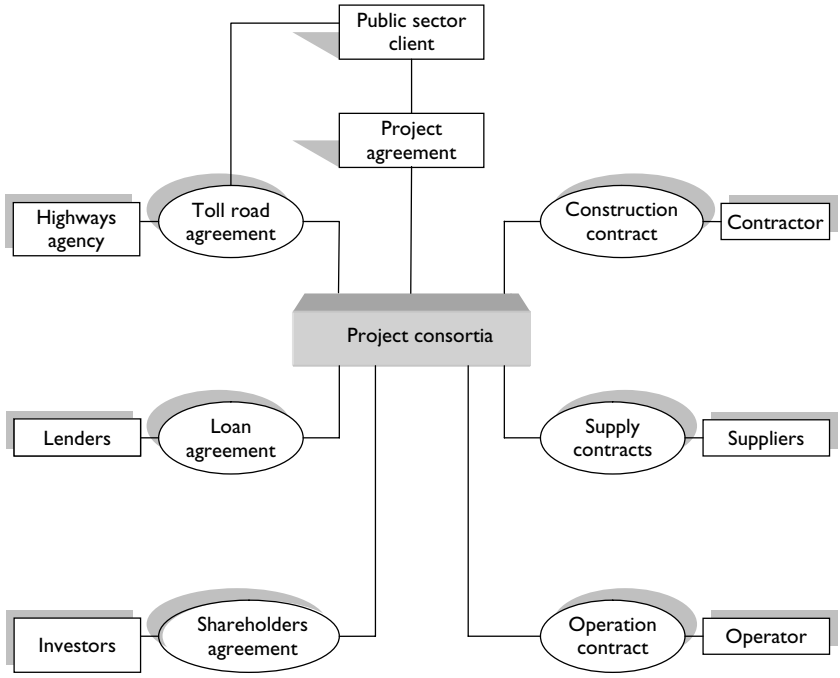

Figure 2.4 BOT structure.

With a BOT approach the public sector relinquishes much of the control and day-to-day management it possesses with more traditionally procured projects. Needs therefore must be identified up front – see Performance/ Output specification (Chapter 4).

The BOT scheme can also include a number of variations including

Build Rent Transfer (BRT) Similar to a BOT or BLT project except that the project site, buildings and equipment are rented to the private sector during the term of the project.

Build Lease Transfer (BLT) Similar to a BOT or BRT project except that a lease of the project site, buildings and equipment is granted to the private sector during the term of the project.

Build Own Operate (BOO) A method of financing projects and developing infrastructure, where a private company is required to finance and administer a project in its entirety and at its own risk. The government may provide some form of payment guarantee via long-term contracts, but any residual value of the project accrues to the private sector.

Design Construct Manage and Finance (DCMF) Adopted by the Prison Service when it embarked on its programme of modernisation in 1992, this model has produced the greatest efficiency savings to date. In most PFI models the public sector retains the responsibility for key staff, teachers in schools, clinicians in health schemes etc. However in prison schemes the private sector consortia also provides the prison staff. As the consortia has also been responsible for the design of the prison the need to follow a heavily prescriptive specification has been dispensed with and innovative new ways to deal with questions such as high levels of security and surveillance were introduced. NAO figures show that compared to traditionally procured and operated schemes, PFI prisons save about 10% or £40 million a year (CBI) over their life span. The public sector retains the demand risk as clearly as the private sector has no control over the numbers admitted to prison.

Operation

Once the construction phase of a project has been completed the major uncertainties for an SPC are during the operational phase and therefore it is vitally important to develop service solutions which take into account the risks transferred to the private sector. Therefore, the way in which the facilities management (FM) is organised can have a major impact on the profitability of a PFI project. According to Bernard Williams, as a discipline facilities management is a latter-day phenomenon, having burst upon the business world in most of the developed

countries during the 1980s and in no time at all, having achieved an extraordinarily high level of recognition and status. The term facilities management originated in America and during the last decade or two the term has gained acceptance throughout Europe too. The management of operational services is gaining increasing recognition as a significant factor in determining the level of corporate success achieved by a variety of organisations, whose primary business is other than the management of real property and facilities management has a major role in the successful and efficient operation of PPP projects particularly when it is remembered that payment is performance related for the duration of the contract.

Facilities management can be defined as 'The creation and support of an operational environment which enhances the ability of clients to deliver and expand their core services.' FM goals can be reached, at a variety of levels, through buildings and systems maintenance to (see Figure 2.5):

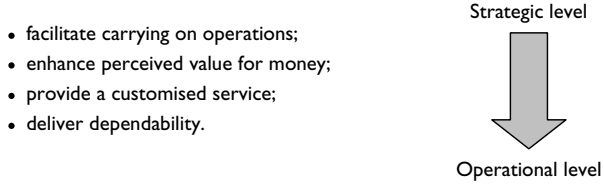

Figure 2.5 Strategic and operational facilities management.

Other definitions come from Becker who describes FM as 'organizational effectiveness.' and Williams who describes FM as 'the process by which premises and services required to support core business activities are identified, specified, procured and delivered'. Put more simply; although FM operates at a number of levels, it is the management of the facilities (built assets) once completed and operational. Clearly then the consideration of FM at the procurement stage should be of great importance. Facilities management involves ensuring that a PPP project will be able to deliver services over the contract period.

'Facilities' subsumes both built assets and support services and Williams suggests that there is no consensus as to what activities FM should or should not embrace but here are a few important areas as illustrated in Figure 2.6;

- Premises – operating costs, maintenance of fabric/services, cleaning/housekeeping, energy costs/ waste disposal etc.;

- Support services – security, catering, storage/archives/transport, communication systems etc.;
- Information technology – both hardware and software.

In the case of PPP projects the facilities required to be provided by the private sector will vary from project to project. To date much of the data that is used by facilities managers appear to rely heavily on output benchmarking, for example, in the case of an office building, a useful high level benchmark is to compare the proportion of a typical organisation's total budget that is absorbed by the costs of facilities.

Facilities costs are second only to staff costs and in most organisations, typically adsorb as much as 15% of revenue costs which in the case of a PFI project will principally be the unitary charge. Each tranche of facilities, that is premises, support services and information technology should be around 5% of turnover or unitary charge, which is the sort of level that a commercial organisation would expect its pre-tax profits to be. However, reduction of any one of these costs may not automatically result in addition to bottom line profits unless the savings can be affected without reducing performance.

A critical factor of FM is the policy decision concerning the source from which facilities services may be procured. Basically the choice is between insourcing, that is employing labour directly within the organisation, or

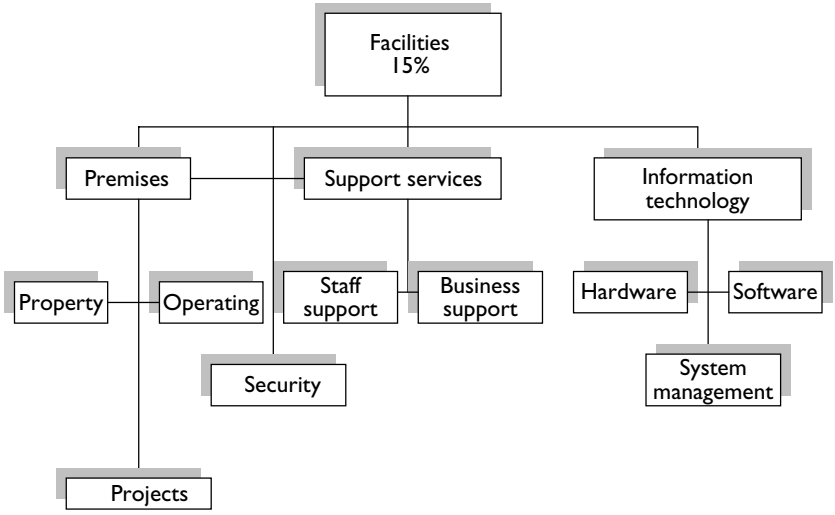

Figure 2.6 The scope of facilities management.

Source: Bernard Williams (2001).

outsourcing, that is to procure services from a range of external suppliers under contract to the main organisation.

During the early 1990s there was a trend to outsource services; however, more recently there seems to have been a swing towards insourcing. Ultimately the choice of whether to outsource or insource will be determined by the perceived benefits of each strategy. However it is thought that while the debate continues over the source of services it is difficult for organisations to develop a more strategic approach to the procurement of facilities services. In addition Hinks suggests that to date there has been an emphasis on operational rather than strategic FM (see Figure 2.5) and what's more, the role of facilities management will vary according to the nature of the business environment. For example to an organisation operating within a relatively stable and predictable environment, dependability may be the top priority and emphasis and attention should be given to this criterion during the procurement stage. However, for another organisation, working in a more volatile market, the ability to adapt and change quickly may be the most important criteria.

What is the process by which quality FM is delivered?

- identify need
- appraise options
- produce specification
- procurement
- monitoring.

How is value determined in the delivery of FM?

- By added business performance;
- By quantifying the potential risks to an organisation for not delivering or not achieving performance levels.

Unfortunately to date most evaluation of the impact of FM decisions and policy seems to centre on quantitative databases/performance indicators over a range of products, as is the case with whole life costs. Even though there is a campaign to move away from the idea of selection by cost to selection by value for money, it would seem that in FM at least, this move has not been made and that procurement is still very much cost based. Take for example one of the most critical FM strategic decisions – whether to procure services in house or whether to outsource. Both Becker and Williams have reduced costs at the top of the list of advantages of outsourcing. However Williams does concede that the move to outsourcing has as much to do in some cases with getting rid of intransigent

managers than any real belief that outsourcing will deliver better value for money.

From a procurement perspective therefore the principle choice to be made in FM provision appears to be a simple one – whether to insource or outsource. The principal reasons for procuring services in house or from an external source appear to be that they can provide

1 improved control through
   - specialist knowledge and familiarity with the built asset
   - retention of staff expertise
   - continuity of standards
   - continuity of business strategy
   - risk management
2 cost savings through
   - reduction in management costs
3 expertise of resources
   - loyalty, reliability and commitment of highly skilled staff
4 flexibility
   - fast response 24 hours a day 365 days a year
5 confidentiality and security.

On the other hand outsourcing can provide

1 cost savings due to few staff
2 highly specialised knowledge not available in house
3 flexibility in terms of location and fluctuations in demand
4 leaves the rest of the organisation to concentrate on core activities
5 reduced risk.

Facilities management for operational purposes is broken down into two groups:

- Hard FM maintenance of buildings, engineering, landscaping etc.
- Soft FM, catering, cleaning, laundry etc.

An important point in relation to soft FM in PPP contracts arising from the work relates to the interaction with hard FM and the allocation of risk. This is a particular issue if the authority itself is carrying out soft FM,

for example carpet cleaning, while the contractor carries out the hard FM, for example replacing carpets that are worn. Where the contractor carries out both functions this risk allocation issue is overcome. However, there is still the opportunity to become involved in internal disputes and this is particularly the case in situations in which hard and soft FM sub-contractors are different. In the case of a PFI project the majority of the SPC are construction focussed and there is a risk that once the construction phase is completed and the profits related to this phase extracted the project will become less of a priority for the construction partner. Also during the operational phase, day-to-day contact is most often with the soft FM sub-contractor who then has the task of trying to hold the SPC to its ongoing responsibilities where they fall outside the responsibility of the on site FM provider. There is also concern that in some cases the soft FM provision is re-tendered every 4 or 5 years thereby leading to a lack of continuity.

Financing a PFI project

One of the most important and controversial aspects of PPPs and especially the PFI is the use of private sources of funding and this will now be discussed.

The charge that raising money for funding PPP projects from the private sector is more expensive that finding funding from public (government) sources has long been a criticism of privately-funded projects. A simple comparison of the combined returns on debt and equity earned by the private sector with a non-risk rate on gilts or government-backed stocks would show that the cost of public debt was lower. However, in the context of PPP projects and in particular PFI deals, this simple comparison fails to take into account the potential to generate value for money which whole life cost accounting and risk sharing can bring to a project. There is a cost to government of using private finance, namely the extra cost of securing funding at prevailing market rates, but it is suggested that a great part of the difference between the cost of public and private finance is caused by a different approach to evaluating risk. Typically, the private sector takes account of risk by discounting future cash flow at a higher rate. A risk premium is therefore made explicit in the private sector cost of capital and the level of return on capital is competitively determined according to the risks assessed in the project. In PFI the project discount rate or expected rate of return for the private sector, takes into account the costs associated with procuring private capital and also seeks to price the wider risks associated with lending to the project. The gilt rate on the other hand, does not make any attempt to calculate risks. This does not mean that the government is able to borrow and spend money free of risk. Instead it means that, with publicly financed procurement, the taxpayer underwrites the associated risk and this is reflected in a lower price of capital to the

public sector. The taxpayer takes on the risk attached to the project and where it materialises, bears the cost as a result. It is therefore inappropriate to compare a risk-free cost of gilts with the cost of private finance.

The involvement of third-party finance is an important factor in the success of PPPs and in particular PFI projects. In the report of the PFI – *Meeting the Investment Challenge* – the government stated it's determination to

- maintain a variety of funding for PFI projects to ensure delivery of best value for money;
- explore the provision of framework funding, particularly in bundled small PFI schemes;
- explore through pilot projects the potential of a form of credit guarantee finance. In response to the claims that debt charges on publicly funded projects are cheaper than those privately funded the government has decided to launch a pilot programme of funding PFI projects through the use of gilts, or government backed shares, that is through its own direct borrowings. Repayment is guaranteed by the private sector, so risk transfer is unchanged.

Attracting third-party funding is a crucial part of most, although not all, PFI and PPP projects. Third-party funding is most obviously a source of capital, but also as pointed out by Zitron it is a form of independent project validation by way of the due diligence process carried out during the latter stages of the deal. Due diligence is an extensive examination of all aspects of the project plan including technical, insurance, legal and financial aspects to ensure that all possible project risks have been identified and factored in.

The market for PFI lending is small with two lenders, Halifax Bank of Scotland and the Royal Bank of Scotland dominating, but a rather larger market for PPPs generally, particularly the larger ones such as the London Underground. Over the last few years the London banking market has developed a willingness to provide very long-term debt for PPP projects, in some cases up to 30 years. At the same time there has been growing interest in project bonds, both wrapped and unwrapped, (discussed later in the chapter). However, to date bank project finance has been the principal source of debt finance. Initially, the early PFI projects debt had to be repaid over 18–20 years but recently this has increased to 30 years to compete with the bond market. Quite often a method of finance is selected as a result of a funding competition – see Chapter 3.

The cost of finance is absolutely linked to the perceived risk. PFI projects generally have two distinct phases of risk – construction, which is high risk, and operation, which is lower risk, as none of the debt can be repaid until the contractor designed facility is completed and operating successfully. The SPC borrows most of the money needed for any project, which in the case

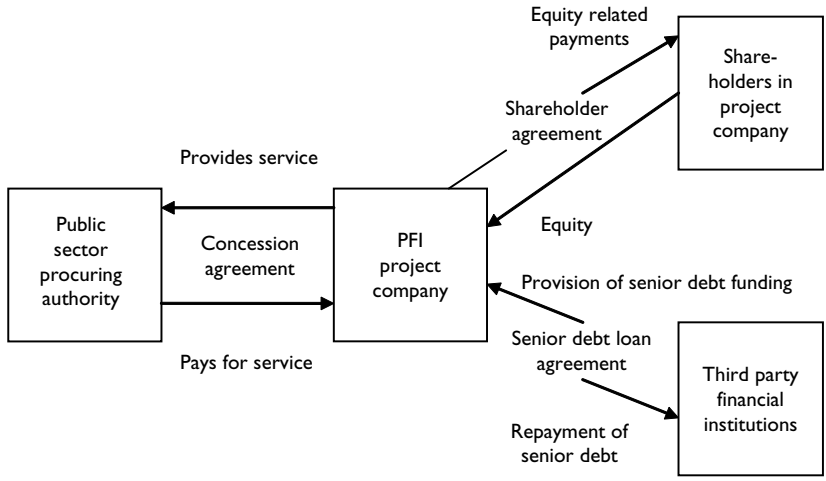

Figure 2.7 PFI financing framework.

of say a large hospital project can be a considerable sum. There are two forms of debt in a PFI project:

1 senior debt and
2 equity.

The private sector has typically financed the senior debt element of PFI projects with a combination of all or some of the following: bank finance, debt raised by the capital markets with or without a credit guarantee and finance provided by the European Investment Bank (EIB), which usually benefits for part or all of the project's life from a bank guarantee. A small number of projects have been financed by the private sector without the involvement of third-party finance. A typical funding arrangement is shown in Figure 2.7.

The role of equity is to absorb risk, but equity is the most expensive form of capital and set against this is the government desire to deliver best value for money, which leads in most cases to highly geared structures which have limited capacity to absorb risk in practice. Equity in the context of an SPC is another word for the shares held in the company; the owners of the shares are the owners of the company and the investment is for profit. Typically this form of investment will comprise approximately 10% of a project's upfront costs. The equity capital is usually provided by those providing the services to the PFI project, for example, contractors, FM providers etc. An equity investor can only benefit from its investment once the project has been completed and the unitary charge starts to be received.

Subordinated or non-recourse debt in the form of loan term bank loans (typically 18 years) or bonds are without recourse to the shareholders and is secured on the assets of the SPC, for example the hospital, roads, school etc. This means that should the project fail the respective parent companies of the shareholders are protected from having to pay the outstanding debt themselves. A strong equity funding market has emerged, both primary and secondary, that is a market that will fund projects from the start and a market that will buy out equity from the initial sponsors. Once again though the number of players is still relatively small the long-term liquidity is likely to be an important factor in the sustainability of the market (see Figure 2.8).

Taking PFI prison deals as an example, the typical ratio of subordinated debt or non-recourse debt to equity is around 90:10. Subordinated debt is effectively between debt and equity and is known as mezzanine debt. It is more flexible than senior debt, having limited and often longer payback periods. Generally debt, in the form of loans from commercial banks such as the RBS is cheaper than equity. Therefore maximising this element of the debt finance lowers the overall cost of capital. In addition funders recognise the risk of an SPC defaulting on its loans and so require shareholders in the SPC to place some of their capital at risk as an incentive to perform. Shareholders' funds or equity are typically provided in two ways, a subscription of shares and subordinated debt, which is a loan from the shareholders to the SPC. Generally, the equity contribution is a combination of both. Equity investments carry a greater degree of risk than subordinated debt as they pay out a return only after all other liabilities of the SPC have been discharged in full and is unsecured. Also if the SPC were to become insolvent then it has a legal responsibility to repay loans or subordinated debt before it pays the shareholders. The cost of borrowing to an SPC may be determined by a credit rating as calculated by a credit rating agency such as Standard & Poor's as follows:

AAA	Highest equity
AA	Highest equity/very strong
A	Upper medium grade/strong
BBB	Medium grade
BB	Somewhat speculative
B	Speculative
CCC	Highly speculative
CC	Most speculative
C	Imminent default
D	Default

Typically, the UK government's rating is AAA whereas a PFI investment during the construction phase carries a rating of BBB. This difference in rating is reflected in higher interest rates. This fact is often seized upon by critics of the PFI as a bona fide case for demonstrating that the PFI is more

expensive than conventional procurement. On the other hand proponents of the PFI point to the fact that as risk is transferred from public to the private sector the high cost of borrowing is cancelled out. As the PFI project moves from the construction to the operational phase the credit rating becomes more favourable. Potential problems however are emerging with Standard & Poor's indicating that ratings may fall if the public sector attempts to transfer unreasonable levels of risk to the private sector. In addition regulations relating to the levels of liquidity required to be held by banks may mean that with the world wide expansion of the PPP markets there will be less funding from this source, and also the cost will be higher.

Recycling equity is the process of selling your stake in one project to help finance the investment in future deals. PFI provides investors with long-term, steady returns and this cash flow can be sold to institutional investors such as pension funds, who match this income stream with their own long-term liabilities. Due to the significant level of investment required to achieve this, equity sales will become an increasing feature in the market and to some degree will help to highlight the maturity of PPP finance markets.

The establishment of secondary market funds to invest directly in existing projects allows SPC shareholders to recycle their equity in order to invest in new PFI projects. The secondary market is the mechanism by which initial investors sell their equity stakes and bonds in PFI companies, often to investment funds. These funds are able to take relatively long-term positions in investments which offer post-construction risk yields. Secondary market funds have been set up by prominent industry players with interest

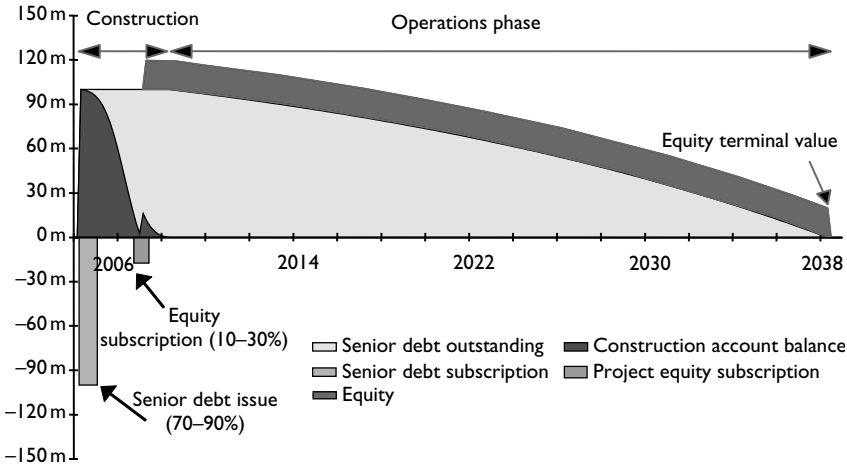

Figure 2.8 Typical PFI cash flow profile.

Source: ABN AMRO.

from pension fund investors. Insurers and pension funds in particular, are interested in taking on equity stakes and debt which have low risk but virtually guaranteed income streams over perhaps another 20–25 years. Many investors are now actively taking a portfolio view of their businesses and considering asset swaps with fellow PFI players. As well as creating 'tidier' shareholder structures in individual projects, one objective is likely to be preparation for a logical next step for the larger PFI investors – repackaging of investments to create sector specific units for subsequent flotation or securitisation. The expectation is that in the future, funding will become more difficult to obtain as a number of funders withdraw from the market and contractors will look to refinance or exit, by selling their stakes from existing projects in order to reinvest in new PFI deals. The Ernst and Young report *PFI Grows Up* points out that as the PFI matures, increasingly, there will be a shift to the trading of PFI investments. The development of refinancing, discussed later in this chapter, and the secondary market means in effect that trading of PFI asset ownership is taking place without reference to the public interest or the possible impact on services. Recent sales by contractors have included Mowlem whose 40% stake in Dockland's Light Railway generated £15.6 million profit and Carillion, who sold its stake in Darent Valley for an £11 million profit.

Bonds and the capital markets

The bond market offers a source of long-dated debt and accordingly, it is now common-place for many bidders to consider raising money in this market as an alternative to the banking sector, especially if the project concerned is so big that there is insufficient liquidity in the banking market to procure attractive margins. The principal driver for any bidder when assessing the benefits of bond over bank debt will be the comparison of the cost of bond versus bank debt and factors which a bidder may consider when deciding whether to finance a bid with a bond – some of these are project specific while others are market specific and vary over time and include

The size of the project and the debt requirement For large projects, both bond and bank finance is suitable but a minimum debt requirement of approximately £50 million has historically been required to make bond finance attractive; anything below this level is considered too small for public bond issues. However, the recent growth in the private placement markets now makes smaller projects, down to £20 million and potentially below, possible with bond funding.

Maturity Traditionally, the bond market has had very long maturities, 50 years plus for some corporate borrowers, and therefore maturity has never been an issue. Long maturities are available from banks, but the

choice of lenders decreases greatly. A longer maturity date on the underlying debt may offer the bidder the best value for money and hence be attractive. If a bond issued on a PFI project is terminated early the Spens Formula provides for termination payments that compensate the bondholders for lost risk margin when a bond is terminated, which in practice is a rare circumstance that only occurs in a small proportion of cases.

Pricing and repayment There are a number of drivers which affect the pricing comparison between bank funding and bond finance. The terms and conditions of some long-dated bonds may include a provision to pay a penalty in the case of voluntary early repayment by the borrower and this is likely to make bonds expensive in comparison to a banking facility and it is assumed that bonds will not be refinanced. The influences are usually market driven and change over time, which means that pricing advantages change over time. Pricing in the bank market is, in the main, driven by competitive pressure on bank margins and the interest rate swap, since most bank-funded PPP transactions involve medium to long dated interest rate swaps. Pricing in the bond market is driven by gilt yields and corporate bond spreads which reflect investors' appetite for different credit risks. While swap and gilt yields tend to move together over time, in the short term, pricing differences can be substantial reflecting changes in demand and supply in the swap market. If there are more people wanting to swap fixed rate liabilities into floating rate liabilities than those wanting to swap the other way round, then swap spreads over gilts will tend to narrow and vice versa.

Deliverability The bond market is subject, like any market where goods are bought and sold, to sometimes turbulent periods of trading. In the past some government departments and their advisors have had concerns about the deliverability of bond financed bids. Some of these concerns were put to rest following the lack of activity after the World Trade Centre attacks in September 2001. The introduction of so-called wrapped bonds, discussed later, has gone a long way to reduce the perceived higher risk associated with bond finance.

Flexibility Bank finance is in general a more flexible funding source than bond finance. The bank market has demonstrated its willingness to accept unusual project risks and of course bank lenders are very familiar with construction risk issues. Banks are also used to dealing with changes to projects, ranging from minor variations, through to debt rescheduling and full-scale refinancing. However, in order to retain liquidity in the market banks are not willing to enter into long-term debt deals and will expect most projects to be refinanced (see Chapter 4) shortly after the construction phase has been completed.

Issue costs Many expenses will apply to both bank and bond finance. Additional costs of the items attributable only to bonds include rating agency fees as well as printing and the marketing cost, although frequently

syndication costs on a bank deal will similarly be charged to the project company. The contractor and the public sector client should ensure that all up-front bid costs are estimated and included in the bid price so that an accurate comparison of the cost of bank versus bond can be made.

Hedging As part of the contract negotiations the public sector sets out its approach to the unitary charges to be paid and provides a formula for any permitted changes in these charges during the life of the contract. By doing this the public sector determines in advance some restrictions on the financing options which will be feasible to the PFI contractor. For example,

- if unitary charges are only permitted to increase annually by the rate of inflation this is likely to lead a PFI contractor to fund its project through an index-linked bond issue which relates changes in inflation;
- if unitary charges comprise a mixture of a fixed element, equal to the amount needed to service the finance raised for the project and a second element which varies with inflation, this will lead a PFI contractor to fund its project with a fixed rate of interest, by way of a bond issue or, if it chooses to use bank finance, the introduction of a hedging instrument to mitigate the interest rate risk with normal bank finance.

Bonds are negotiated debt insurance that pay the bondholder a rate of interest in exchange for the bondholder paying the principal amount of the bond to the issuer on issuance. During or at the end of the term of the bond the issuer repays the principal amount of the bond according to an agreed repayment profile. Full repayment may be made on final maturity or may be made according to an agreed amortisation schedule. Bonds are a debt security, similar to an IOU, but they differ from shares in that shares are an ownership interest or equity, but bonds are merely another form of debt; therefore a shareholder is an owner whereas a bond holder is merely a creditor.

This method of raising finance is ideal for individuals or organisations who

1 need to raise large sums of capital and
2 have access to a regular guaranteed income for the term of the bond.

In the past this has not only been attractive to SPCs in PFI projects, the unitary charge being the guaranteed income, but also to ageing rock stars, who can use bonds to provide capital now with income from back catalogues being used to pay the interest payments. A bond's maturity refers to the specific future date on which the investor's principal will be repaid. Bonds are categorised as follows:

- short-term notes – up to 5 years
- intermediate notes/bonds – between 5 and 12 years
- long-term bonds: maturities of 12 or more years

Bonds pay interest rates that can be fixed, floating or payable on maturity, but most debt securities carry an interest rate that stays fixed until maturity and is a percentage of the face or principal amount. Typically investors receive interest repayments twice a year. For example, a £10,000 bond with an interest rate of 6% will pay investors £600 per annum. When the bond matures, investors will receive the full face value – £10,000. Return is based on risk; the lower the risk, for example government bonds, or gilts, the lower the return and vice versa.

Bonds come in various forms including

- Floating rate that is interest rate varies with the rate of LIBOR – London Inter-Bank Offered Rate – (see Chapter 3) and is reset at the beginning of each interest period;
- Fixed rate, that is the interest rate is set on insurance and does not vary with the underlying interest rate; or
- Index-linked, that is the principal amount of the bond escalates according to the movements in a selected index, commonly the retail price index (RPI).

In addition bonds can be either public – these bonds are listed on an exchange and usually widely distributed – or private – these bonds are distributed by way of a private placement. Private placement will involve an offer to a very limited number of investors and may be unlisted. A private placement also usually requires less disclosure than a public offering. All corporate or project-related bonds are priced to offer investors a higher return than an investment in a comparable government obligation known as the 'Reference Gilt'. The level of this additional return will be influenced by a number of inter-related factors including, in the case of PFI bonds

- maturity;
- interest rate basis;
- underlying project strengths/monoline guarantee – (see section on wrapped and unwrapped bonds);
- size of issue;
- competing supply of bonds from other issuers;
- general market conditions.

As discussed earlier, credit quality is another important consideration for investors in bonds. When a bond is issued the issuer has the responsibility for providing details as to its financial soundness and creditworthiness. This information is contained in a document known as the offering document, prospectus or official statement. Rating agencies assign ratings to many bonds when they are issued and monitor the bond during its life time. The rating reflects an in-depth analysis of the issuer's financial condition and

management, economic and debt characteristics and the specific revenue sources of the bond (see Standard & Poor's rating earlier in this chapter). Bonds rated in the range AAA/Aaa to BBB/Baa are investment grade but the underlying credit strength of PFI projects is usually found in the range of BBB – Baa. Therefore to enhance the credit rating the bonds can be 'wrapped' or insured in case things go wrong with the PFI deal during the currency of the bond.

Wrapped and unwrapped bonds

A wrapped bond is a bond where scheduled payments of the principal and interest are guaranteed by an insurance company known as a monoline insurer. This insurance or credit wrap helps investors and issuers. Investors benefit from increased certainty as both the issuer and the wrapper would need to go into liquidation before they lose their right to recoup monies owed to them, while the issuer benefits from enhanced liquidity and the pricing advantages brought by the AAA rating assigned to the wrapped transaction. Both parties benefit from the expertise and added scrutiny brought by the wrappers. In contrast, unwrapped bonds have no guarantee and the bonds rating will be based on the project itself. The bond pricing will, in turn, be driven by the project's rating. The market in monoline financial guarantors is dominated by four major names: MBIA, Ambac, FSA and FGIG. The financial guarantee industry started in 1971 and since then has grown into a major source of credit enhancement. In the early days the monolines wrapped municipal issues but more recently monolines have expanded into other areas, principally wrapping structured finance, like PFI deals, where margins are higher and there is scope for volume growth. One of the most important marketing weapons for monoline insurers is that their only business is financial guarantees and this gives them a major interest in preserving their credit quality, which is reflected in their AAA ratings. Monolines essentially lend their balance sheets by guaranteeing transactions. The guarantee is usually irrevocable and unconditional and results in the guarantor stepping into the shoes of the issuer in that they guarantee payment in accordance with the original transaction schedule on a timely basis. Therefore, in the event of the default of the underlying issuer, or where the issuer fails to pay the interest payments and/or the principal on a timely basis, the investor has recourse to the financial guarantor, known as the wrapper, in that they will pay the interest payments and/or principal in accordance with the terms of the affected bond issue. In return for this cover or wrapping the issuer pays the monoline a fee. This is the form of a premium that is earned over the life of the transaction. In order to provide this type of cover the monolines operate very conservative investment portfolios in that the key drivers are liquidity and credit quality rather than returns. The advantages

and disadvantages of wrapping bonds are as follows:

For the bond issuer,

- Pricing benefits outweigh the cost of the guarantee when credit rating is increased by wrapping.
- Wrapping helps to maintain issuer confidentiality, as the issuer may not wish to disclose information to investors.
- The issuer benefits from the expertise and experience of the guarantor as they wrap a vast array of transactions.
- Helps to broaden market acceptance of new or complex transactions.

For the bond investor,

- In the event of the issuer failing to pay interest and/or the principal, investors have recourse to the guarantor to make good the payments.
- Investors benefit from the expertise of the guarantor and the comfort that the guarantor is sharing the risk by lending their credit quality to the issue.
- Increased credit rating lowers pricing of bond.

Examples of recent PFI deals financed by a bond issue include the refurbishment of the HM Treasury's Whitehall offices in London which were financed with an index-linked bond issue on financial close in 2000 at an initial interest rate of 3.582% due in 2035, the low interest rate in this case reflecting the perceived low risk investment in this project.

The issue of a public bond

The bond market uses some unique terminology as will be discuss in the following paragraphs. The issue of a public bond is not particularly complicated or time consuming. However, having said this there are several protocols and rules that have to be followed. It also is the subject of a range of unusual terms such as 'roadshows' and 'red herrings' which can seem to an outsider not entirely appropriate. The person responsible for managing and co-ordinating the process is referred to as the bookrunner or underwriter and responsibilities include listing the bonds with the UK Listing Authority and their admittance to the Official List of the Stock Exchange. The lead manager will need to be closely aware of the state of the project as a whole, even in wrapped transactions where the monoline insurer is the principal risk taker.

The offering circular is the primary selling document for a public bond issue. It is issued on behalf of the issuer and sets out the information upon which investors will base their decision of whether or not to subscribe to the bond. The contents and layout of the circular must comply with the

Listing Authority's format and the offering circular also sets out the terms and conditions of the bond. In general the document is factual which fairly describes the project and the risks associated with it so as to allow an informed decision.

Pre-marketing and pricing follow as the mechanism by which an offer price for the bond is set. Just as bank loans are priced at a rate that equates to base rate plus the bank's margin for risk etc., bonds are priced at a rate which equates to the Reference Gilt (government equity) plus a margin. With a new bond issue the lead manager will run a series of 'roadshows', normally in London, Edinburgh and Glasgow to market the forthcoming bond issue and bring investors' attention to it. Shortly after, a document known as the 'red herring' is distributed to potential investors giving full details of the issue. The feedback from this exercise will enable the issue price of the bond to be fixed and soon after, the bond issue is launched.

Bond launch takes place at time and place which has been pre-agreed upon with investors and the Listings Authority via Reuters and Bloomberg. The SPC receives the proceeds of the bond issue in a lump sum payment to financial close of the PFI deal and must be deposited with a bank or banks until required, which of course will earn interest. Bonds are usually for long-term finance but occasionally early redemption of a bond can be required, in which case a system for calculating repayments known as the Spens formula comes into effect. Once the monoline guarantee is effective the monoline insurer is at risk for the whole amount of the bond.

Credit guarantee finance (CGF)

In 2004 a number of pilot projects were announced to test the practicality, attractiveness and applicability of different means of funding the senior debt raised to fund some PFI projects – CGF.

The criteria used for pilot project choice were based on the following:

- projects would have reached preferred bidder stage;
- project would not be confined to one sector but distributed across a number;
- close to financial close;
- projects could have traditionally been going to be financed through either bank or bonds.

The aim of the scheme is to retain all the benefits to the public sector of banks and insurance companies' risk taking in PFI projects, but funding the PFI project's senior debt requirements with loan finance provided directly by the government, fully guaranteed by these private risk takers, which in turn would be funded by the issuing of gilts. It is intended that schemes such as CGF will only be used for a limited number of projects. This approach

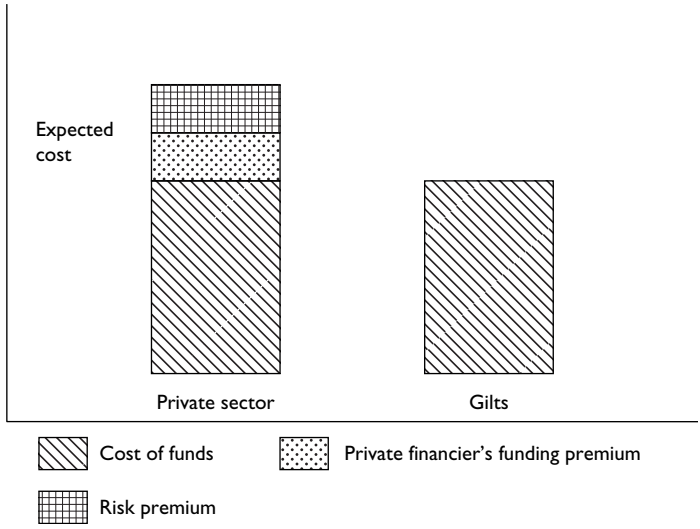

Figure 2.9 Cost of raising finance.
Source: CGR Technical Note 1 HM Treasury.

therefore would seem to combine the lower cost of using government funds with the benefits of paying a risk premium to private financiers to take, allocate and manage risk and by doing so, this approach offers the prospect of a cost saving in terms of the overall cost of finance for the PFI projects involved. Using traditional PFI funding where capital is raised by the SPC the risk premium is typically between 0.3% and 1% and is generally considered to be good value for money for the public sector as the private sector funders' involvement contributes significantly to the project being delivered on time and on budget. The risk premium is not paid when using conventional procurement strategies that are financed by gilts, but on the other hand the risks of delays and overspend are borne totally by the public sector. Figure 2.9 illustrates the additional cost of raising finance in the private sector markets due to high risk ratings. The CGF option is therefore an attempt to continue to pay a risk premium to the private sector for some projects, but reduce the funding premium and hence deliver enhanced value for money. In order to retain the principles of PPP/PFI procurement any CGF option must

- retain the benefits of risk sharing with the private sector;
- avoid the government having to guarantee any of the fund that are raised;

- include the conditions and terms of the CGF in the contract documentation.

The aims of the government in trialling a CGF scheme for PFI projects are as follows:

- to retain the benefits to the public sector of involving banks and monoline insurance companies' risk taking in PFI projects. This is achieved by requiring the private sector sponsors to arrange for a financial guarantee to be provided by creditworthy financial institutions to support loans made to the project by the government;
- to reduce the overall cost to the public sector of PFI deals;
- to minimise transaction costs associated with CGF as well as delays in the procurement process and the necessity for extra due diligence over and above that normally required;
- to ensure a range of funding sources are available to PFI projects.

A CGF scheme will work as illustrated in Figure 2.10.

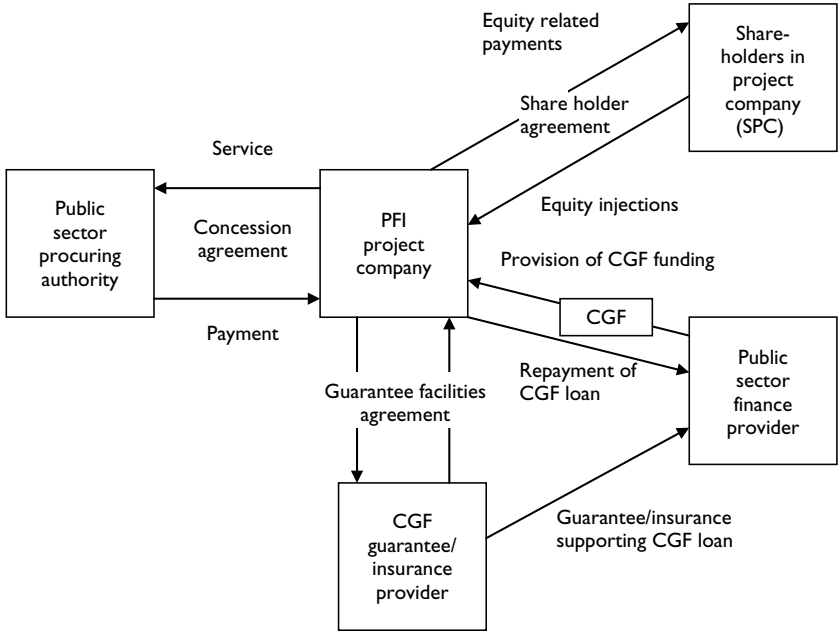

Figure 2.10 Credit guarantee finance structure.

Source: CGF technical note 1 – HMSO.

The proposed system could work as follows:

- The government provides funds to the PFI project by means of cash advances or loans under the terms of the loan agreement between the project company, the public sector procuring entity and the guarantor which are repaid after completion of the construction phase, when the facility is ready to commence service delivery. The loan could either be a lump sum or provided on a draw down schedule.
- In consideration of granting the loans the government will receive an unconditional repayment guarantee from the Guarantor who accepts any associated risks.
- The interest rate on the loan could be based on either a fixed rate based and benchmarked on the relevant gilt rate, or an inflation linked rate, once again calculated on the relevant gilt rate.

When is it appropriate to use the PFI?

The UK Government has repeatedly stated that the PFI is not appropriate for all projects and in fact even at its height PFI expenditure accounted for only about 11% of all government spending. Success when using the PFI begins with a high quality robust business case which includes a clear vision of the purpose and the aims of the project. Assuming that the project definition is clear, the following factors are considered to be critical for the question as to when the PFI should be used:

- Project scope defined and stable – if the scope, that is the required outputs, can be easily defined then PFI can be appropriate; however if not, outsourcing may not be the answer and other models such as strategic partnering or some of the other PPP models discussed later may be more appropriate.
- Significant potential for synergies (see Figure 1.2). Within most projects there are four main areas that interact: design, build, operate and finance; however, traditional approaches to procurement allow little interaction between them. It has been shown that the maximum synergies can be obtained in cases where the private consortia not only designs and builds the project, but also, in the case of prisons, is responsible for staffing and operational matters. In hospital and schools projects for example, it will be the clinicians and teachers who dictate the working practices that impact on project design.
- Potential for risk transfer will be discussed later.
- Real scope for innovation – the PFI in theory presents the private sector provider the opportunity to throw away the mould and take a fresh approach, subject of course to the constraints discussed earlier.
- Alternative uses are possible and significant third-party income streams. A carrot dangled in front of the private sector is the opportunity to use

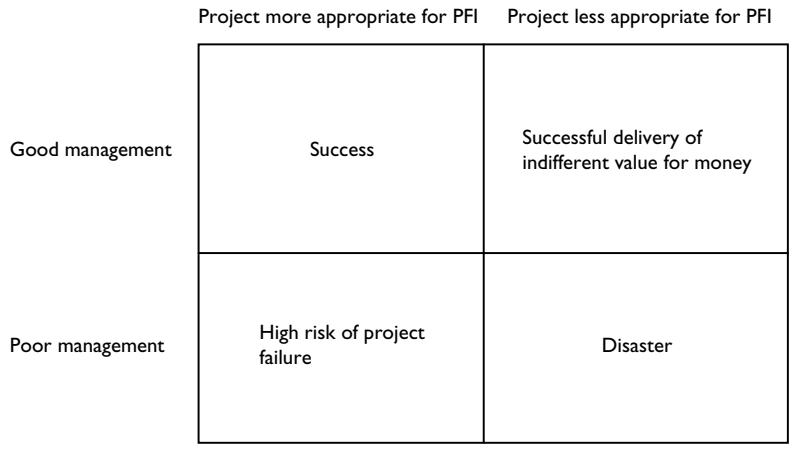

Figure 2.11 PFI success predictor chart.

Source: Copyright IBM (2003).

the built asset to generate additional income; however in practice it has proved to be of little significance.

- Project size viability (capital costs in excess of £20 million) and cost of capital differential not excessive. The gap between the cost of raising funds on the private markets as opposed to the public sector has in recent years decreased and funding differentials were also reduced with the reduction of the discount rate to 3.5%.
- The cost of using private capital is not excessive.
- The revenue streams to the SPC must be sufficient to meet the operating costs and service debt and ensure that the asset is properly maintained while providing an acceptable post tax return to equity.

Figure 2.11 illustrates a success predictor matrix for PFI projects developed by IBM based on two overriding principles for success in PFI projects – appropriateness of project and quality of project management – referred to again in Chapters 4 and 5. By applying the matrix it is possible to determine in general terms for example that,

- if a PFI project is correctly identified but managed badly, matters may be bad or worse with a high degree of failure and the project will probably suffer from a slow, expensive process and risk not delivering the business case;
- conversely if a PFI project is wrongly adopted and then poorly managed it is the path to disaster, with a combination of all the previously mentioned problems.

Other PPP models

The first section of this chapter has been devoted to the PFI; there now follows a review of more recent models of PPPs that have been developed specifically to meet the requirements of government agencies. Pivotal in this development is the establishment of Partnerships UK.

Partnerships UK (PUK)

Early experience in PPP projects established that there were gaps in knowledge and skills levels, particularly within the public sector. Various attempts were made to plug the gaps, such as the Treasury Taskforce established in 1996. Then, in March 2000 PUK was established to replace the Treasury Taskforce with a much wide role than its predecessor. PUK is itself a joint venture PPP, funded mainly by the private sector with the public sector holding a minority interest. PUK's mission is 'to support and accelerate the delivery of infrastructure renewal, high quality public services and the efficient use of public assets through better and stringer partnerships between the public and private sectors'. PUK works solely with and for the public sector. Its services include

- a centre for advice and expertise on PPPs including selection of advisors, preparation of bid documentation and assuring affordability;
- access to private sector funding;
- development of new PPP models;
- development of PPPs abroad.

PUK offers a blend of public and private sector commercial expertise combined with hands-on experience in the development and delivery of numerous PPP/PFI projects. It can share risk with its public sector partners by investing its own capital and human resources in project programmes, including the provision of senior members of staff for key roles and therefore has a common interest with its partners in delivering successful outcomes. In return PUK receives a fee linked to the successful delivery of the PPP project reflecting the risks and nature of the project. It operates as shown in Figure 2.12.

The main advantage of this approach is that tailormade PPP schemes can be devised; for example, recent PPP models involving PUK are: Partnerships for Schools and NHS LIFT.

In Chapter 1 it was stated that partnering was introduced into UK construction during the 1990s in an attempt to move away from the traditional fragmented approaches to construction procurement. The following PPPs rely heavily on partnering and long-term strategic planning for their delivery as well as the ability of the private sector to raise capital.

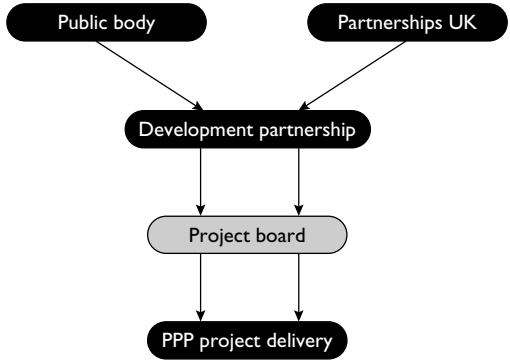

Figure 2.12 Development partnership agreement.

Partnerships for Schools (PfS)

Capital investment in schools in England is set to rise to over £5 billion in 2005/06. In 2004 the government issued its policy for the school building programme entitled, 'Building Schools for the Future' (BSF) which outlined the aims of the programme. Subsequently, PUK and the DfES established PfS to manage the delivery of the programme and developed the model now referred to as LEP. An LEP is a PPP between a local authority and a private sector partner, selected in open competition under EU public procurement rules referred to at the beginning of this chapter and more fully in Chapter 4.

As illustrated in Figure 2.13 the private sector partner will own 80% of the shares and be responsible for the management and delivery of a range of services. The Private Sector Partner (PSP) will be selected in open competition and may be a single company or a consortium of several companies specially formed to deliver the services required. The relationship will be long term with a view to developing the entire investment programme. The PSP will be selected based on its ability to provide partnering services and on the quality of its proposals. One of the biggest advantages with this approach to school building procurement is that the LEP will act as the single point of contact for the delivery of the design, construction, project management and maintenance. The LEP will oversee not only the delivery of PPP projects but also conventionally funded routes. The LEP enters into a 10-year strategic partnering agreement and recovers its costs and earn returns through the contracts that it successfully delivers. The PSP (see Figure 2.13) will earn returns through management fees based on developing and procuring each project as well as dividends from risk capital invested by to deliver PPP and/or conventional contracts.

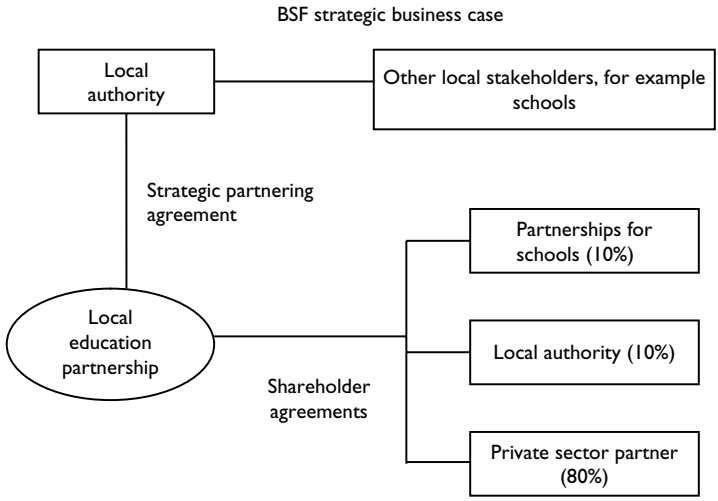

Figure 2.13 Building Schools for the Future (BSF).

NHS local improvement finance trust (LIFT)

Similar to LEPs, LIFTS involve PUK and the Department of Health forming a joint venture – Partnerships for Health – to encourage investment in primary care and community-based facilities and services. The contract structure is illustrated in Figure 2.14. LIFT has been developed to meet a very specific need in the provision of primary and social healthcare facilities in inner city areas, that is to say GP surgeries, by means of a long-term partnering agreement. In order to participate in the programme projects must be within areas designated as LIFT by the Department of Health. Although LIFT is at present confined to the health sector other sectors are looking closely at the model for possible adaptation to other public service provisions.

LIFT is based on an incremental strategic partnership and is fundamentally about engaging a partner to deliver a stream of accommodation and related services through a supply chain, established following a competitive EU compliant procurement exercise. The assets being procured using LIFT differs from either a conventionally procured or a PFI project. Conventional and PFI procurement are usually concerned with the delivery of a single project, or a group of identified buildings with an initial construction phase followed by ongoing related services. LIFT on the other hand has the potential not only to meet existing accommodation requirements of public sector entities such as local authorities but in addition, is designed to adaptable to the evolving needs of the various participating public bodies over

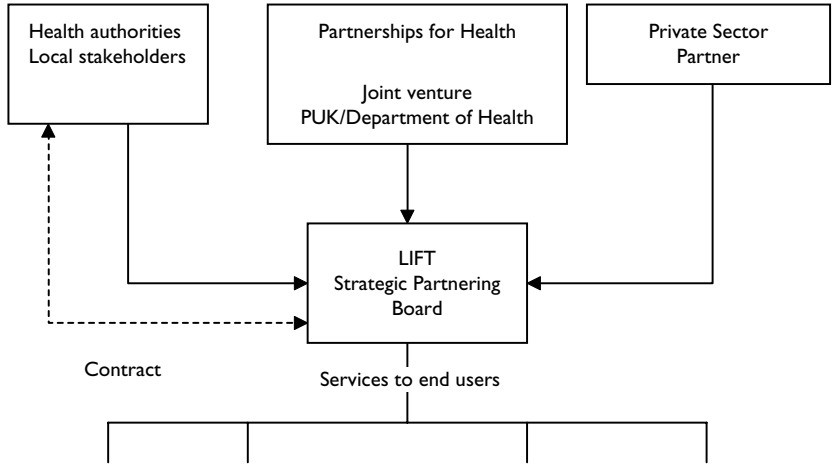

Figure 2.14 LIFT structure.

time provided that such developments are within the parameters of the original OJEU announcement. Consequently, rather like the approach adopted by framework agreements there should be no need to go through a procurement process again for a bidder to undertake these additional projects. Therefore, just as in the case of ProCure21 discussed later in the chapter, there should be considerable savings in terms of cost and time over the duration of the partnership arrangement.

LIFT therefore can be said to be a combination of existing procurement models as follows:

- The PFI which is a long-term partnership for the construction and maintenance of a built asset on the basis of payment on availability. Note that unlike PFI projects LIFT does not usually include soft facilities management, such as cleaning.
- Strategic partnering to deliver a range of projects over a long period, usually 20–25 years. By their very nature, the value of these relatively small schemes is low; therefore several schemes can be batched together thereby resulting in procurement savings.
- PPP's LIFT enables strategic and capital investment planning between public and voluntary agencies involved in delivering public services.
- Joint Venture Companies.

Figure 2.14 illustrates the structure and components of a LIFT, in this case for the NHS.

The roles of the various parties to the LIFT structure are,

Private Sector Partner to identify the most efficient manner in which services can be provided. For example, to provision additional incomes streams.

Partnerships for Health joint venture this will be at national level and will have three key roles

- Identifying and prioritising local areas.
- Assisting in the procurement process with standard documentation etc.
- Investing directly in the schemes as well as attracting additional private funding.

A key element of LIFT is that stakeholders in a local health and social care community establish a Strategic Partnering Board to agree upon the priorities for service development, capital investment and improvement. In common with most partnering agreements or charters the ethos is one of collaboration and conciliation and is for a term of approximately 20 years. Another essential element is the right of the LIFT company to have exclusive first right of refusal to provide any new facilities and/or services that are deemed to be required by the Strategic Partnering Board and fulfil the criteria of providing value for money and are affordable. The LIFT company is expected to be a joint venture company with a majority shareholding for the private sector partner and minority shareholding for the local stakeholders. LIFTs are expected to provide serviced accommodation suitable for use by, in the case of the NHS, health and social care professionals and practitioners to deliver services. The accommodation may be provided from new, refurbished or existing premises. A lease is entered into between the LIFT and the occupants. The responsibility for the whole of the lifecycle management of the asset feeds through to a payment mechanism that provides for no payment if accommodation is not available. Flexibility of leases is an important objective of the LIFT initiatives. In addition a LIFT company will be encouraged to identify other potential occupants or users of facilities or other commercial opportunities that may help make a development financially viable or enhance profitability as well as offering flexibility to respond to changing requirements. Although there is a limited amount of public sector funding available, PFI credits and revenue support can be applied for from the 4Ps discussed later in this chapter.

As far as finance is concerned there is no prescribed capital structure. However, it should be available on a timescale that does not significantly delay the delivery programme.

The recommended procurement process is illustrated in Figure 2.15. LIFT will build and refurbish primary health care premises, which it will then own. When complete the accommodation will be leased to GPs as well as chemists, opticians, dentists etc. The attraction for the private sector partner is long-term income stream from rental payments and possibly secondary revenue streams.

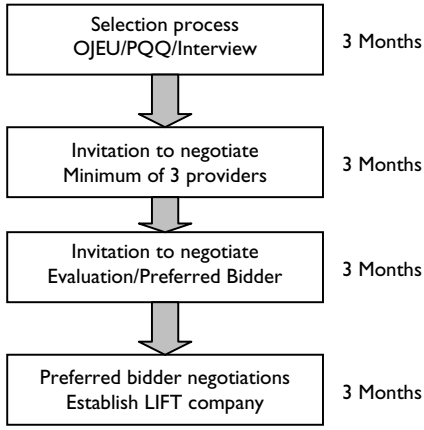

Figure 2.15 LIFT tendering process.

Frameworks

Framework agreements are being increasingly used to procure goods and services in both the private and public sectors. Frameworks have been used for some years on supplies contracts; however, in respect of works and services contracts the key problem, particularly in the public sector, has been a lack of understanding as to how to use frameworks, whilst still complying with legislation, particularly the EU Directives and the need to include an 'economic test' as part of the process for selection and appointment to the framework. In the private sector BAA were the first big players to make use of framework agreements and covered everything from quantity surveyors to architects and small-works contractors. The EU public procurement directives define a framework as 'An agreement between one or more contracting authorities and one or more economic operators, the purpose of which is to establish the terms governing contracts to be awarded during a given period, in particular with regard to price and, where appropriate, the quality envisaged.'

A framework agreement therefore is a flexible procurement arrangement between parties, which states that works, services or supplies of a specific nature will be undertaken or provided in accordance with agreed terms and conditions, when selected or 'called-off' for a particular need. The maximum duration of a framework under current EC rules is 4 years and can be used for the procurement of services and works. An important characteristic of framework agreements is that inclusion in a framework is simply a promise and not a guarantee of work. Entering into such a framework, however rigorous and costly the selection process, is not entering into a contract as contracts will only be offered to the framework contractors, supply chains, consultants or suppliers, as and when a 'call-off' is awarded under the

agreement. Interestingly in November 2004, approximately 1 year after the roll-out of ProCure21 Framework Programme on a national basis, the first signs of discontent amongst the twelve framework consortia began to emerge. Contractors complained about lack of work and some even threatened to leave the framework.

The framework establishes the terms and conditions that will apply to subsequent contracts but does not create rights and obligations. The major advantages of framework agreements are seen to be as follows:

- it forms a flexible procurement tool;
- the avoidance of repartition when procuring similar items;
- establishment of long-term relationships and partnerships;
- whenever a specific contract call-off is to be awarded, the public body may simply go to the framework contractor that is offering the best value for money for their particular need;
- reduction in procurement time/costs for client and industry on specific schemes;
- enables engagement of supply chain early in procurement process when most value can be added.

One high-profile initiative using framework agreement is the NHS ProCure21, which will now be discussed in more detail.

The EU Directive outlines the principals that must be satisfied before a framework can operate as shown in Figure 2.16.

NHS ProCure21

NHS ProCure21 currently under review has been constructed around four strands to promote better capital procurement by

- establishing a partnering programme for the NHS by developing long-term framework agreements with the private sector that will deliver better value for money and a better service for patients;
- enabling the NHS to be recognised as a 'Best Client';
- promoting high quality design;
- ensuring that performance is monitored and improved through benchmarking and performance management.

In common with most large public sector providers the NHS has suffered from the usual problems of schemes being delivered late, over budget and with varied levels of quality combined with little consideration to whole life costs. One of the main challenges to NHS capital procurement is the fragmentation of the NHS client base for specific healthcare schemes, as it is comprises several hundreds of health trusts who all have responsibility for the delivery of schemes, each having differing levels of expertise and experience in capital procurement. The solution to these problems was in

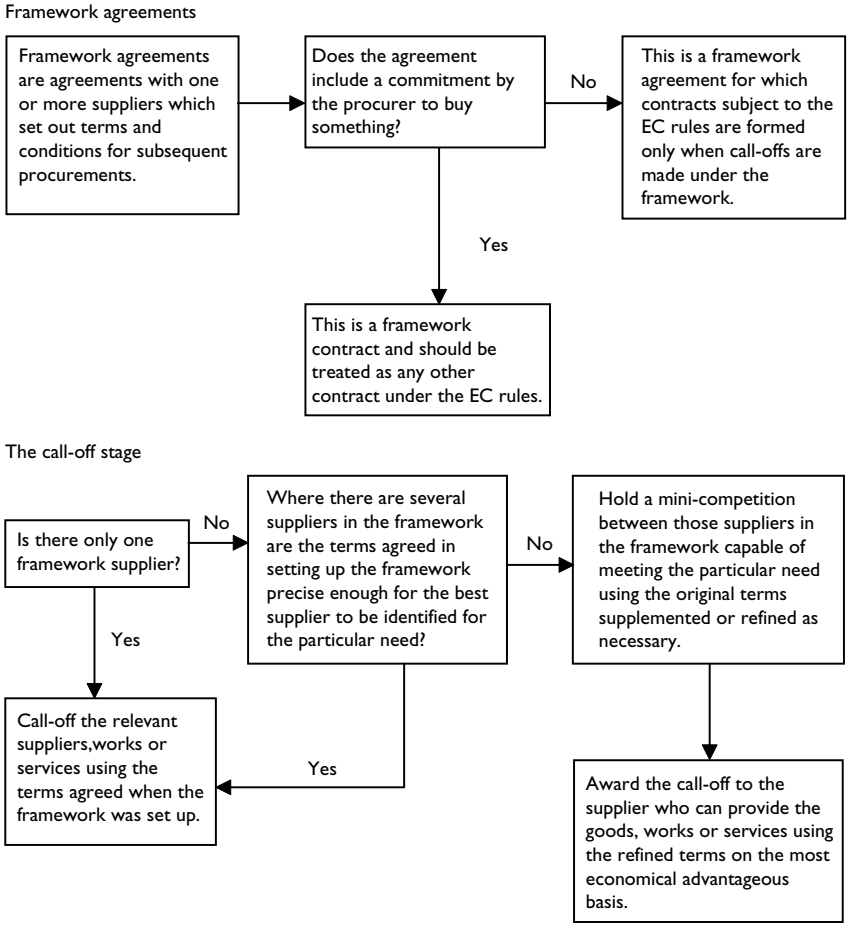

Figure 2.16 Framework agreements.

April 2000 to pilot an approach to procurement known as NHS ProCure21 as a radial departure from traditional NHS procurement methods and the corner stone of a massive capital investment programme in the NHS in the period up to 2010. As with so many new initiatives, the catalyst for this new approach was the Latham/Egan reports of the 1990s. There is nothing particularly radical to students of Latham and Egan about the ethos the NHS intends to implement in its NHS ProCure21 initiative, a concentration on value rather than cost, integration rather than fragmentation, bench-marking etc. The principle underpinning the ProCure21 programme is that of partnering with the private sector construction industry. The key areas

earmarked by NHS Estates for improvement by embracing partnering principles are:

- quality
- value for money
- time
- predictability
- whole life costs.

Following the establishment of the frameworks NHS trusts do not have to go through a tendering or OJEU procurement process, saving considerable time and money and enabling them to progress schemes more quickly and engage the supply chains to work with them at the earliest possible stages (see Figure 2.17). NHS estates are focusing on all healthcare facilities from Acute to Primary Care so it is the procurement/delivery process that will be similar not necessarily the building type. Frameworks can be used in repetitive contracts and eliminate the need to call for tenders for similar types of services or materials under the EU Directives multi supplier frameworks follow two procedures:

- in the first, the supplier for each order is selected solely on the basis of the original bid; in the second, suppliers have the opportunity to amend and complete bids before the winner is selected for each order.
- ProCure21 uses the Type 2 Framework procedure, that's to say Principal Supply Chain Partners (PSCP) sit on a pre-tendered framework and

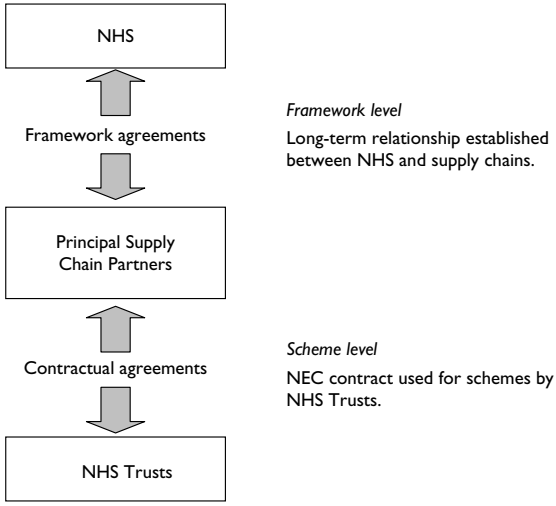

Figure 2.17 ProCure21 framework arrangements.

are drawn off by participating NHS Trusts without the need to OJEU tender.
- Once included within a framework, the choice of PSCP is made by individual NHS Trusts on the basis of 'can we work with this team?'

The key differences between the PFI and ProCure21 are,

- PFI is project based, where as ProCure21 is more flexible although the batching of smaller PFI projects, the first batched hospital deal being announced in May 2003, goes some way to addressing this difference.
- ProCure21 Partnering is based over a range of projects, where as the PFI approach is specific to one project.
- Continuous improvement is embedded into ProCure21 Partnering and not necessarily into PFI project.

The basic principles

The ProCure21 framework consists of Principal Supply Chain Partners (PSCP). A PSCP is defined as an organisation that

- can take on single-point responsibility to manage the design and construction of facilities;
- has specifically assembled a supply chain with experience of working in long-term partnering arrangements with key suppliers;
- can deliver publicly funded and/or privately financed schemes included within the scope of the NHS ProCure21 Scheme range.

Throughout the rollout of ProCure21 heavy emphasis was placed on turning the NHS into a best practice client, that is to say, not leaving it to the supply side to deliver all the improvements. This is being achieved through a series of training programmes to produce project directors – the overall client advisor. To date approximately 100 NHS Trusts have signed up to the ProCure21 programme.

Principal Supply Chain Partners (PSCP)

Similar to a prime contractor the term was deliberately chosen to try reinforcing the message that PSCPs do not need to be contractors (they just need to be organisations that take responsibility for delivery by supply chains); Defence estates are trying to get this message across as well. NHS estates felt that to avoid the use of the term contractor, that has certain connotations within the construction industry, might help. A PSCP therefore is an organisation with established supply chains capable of providing all

necessary resources to design, build, operate and, in some cases, finance NHS capital schemes. In addition they should have a proven ability to successfully engage in partnering agreements and effective management of the supply chain. By September 2003, after a 9-month OJEU tender process, the national roll-out was announced with 12 PSCPs (subsequently reduced to 11) included in a 5-year framework agreement which is available to any English NHS client. Trusts can select one or more from the list if they want to but no price is involved. It is merely an empathy process in terms of the team presented for the job and what added value they can bring to the Trust based on preliminary project proposals. Once selected the Trusts work with the PSCP during the development of the outline and full business cases to arrive at the guaranteed maximum price (GMP). If for some reason the Trust and the PSCP cannot agree on a GMP then the Trust is free to approach another PSCP from within the framework, with the original PSCP being financially compensated for the work already done – but this it must be emphasised – is a last resort.

By having a smaller number of firms to work with, the client gains considerable benefits. Its partners may gain greater experience of the clients' needs, use techniques such as standardisation of components and processes, bulk purchasing and achieve continuous improvement. Sharing lessons between organisations and applying new ideas ensures the client is getting best practice. Other organisations using partnering have also found the following:

- British Airport Authority has reduced the cost paid for steel from £4000/tonne to £1000/tonne through standardisation.
- ASDA, Tesco and Sainsburys are now building supermarkets in 17weeks rather than 35, with ASDA building 4 for the price of 3.
- Jaguar can build a car for the same cost as they used to pay for the components.
- Petrochemical companies have used partnering processes for many years, which have shown significant benefits including cost time, quality and health and safety.

Whilst hospitals are more complex than supermarkets many of the processes are very applicable, for example, not reinventing the wheel for every new project.

ProCure21 schemes use the Engineering Construction Contract (ECC) Option C target contract with activity schedule, Second Edition for setting the target cost and adjusting it as required for compensation events. This contract also provides a legal basis for providing collaborative working and encouraging the essential partnering environment. A PSCP's primary supply chain will consist of 7 Principal Supply Chain Members (PSCM) for

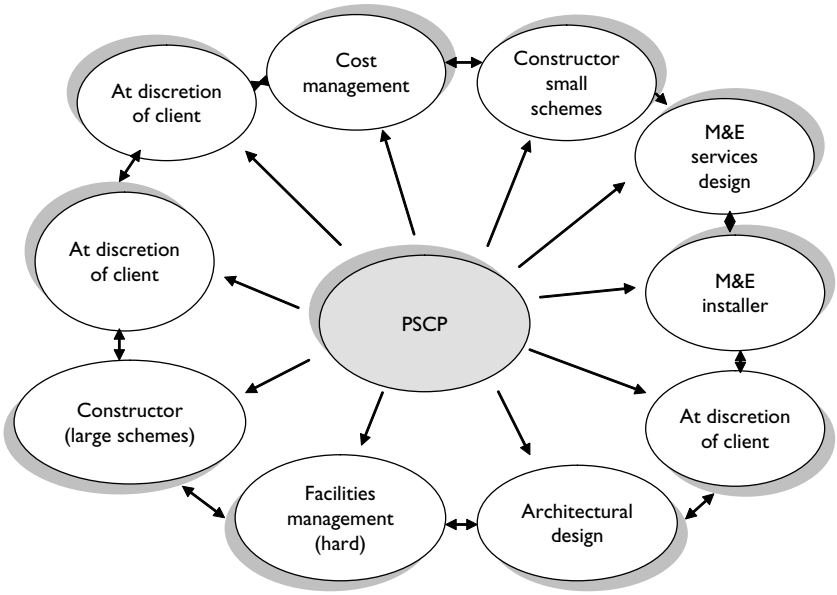

Figure 2.18 Principal supply chain partners for ProCure21.

publicly funded schemes and 8 PSCMs for PFI schemes and must include

- architectural design
- M&E services design
- cost management
- constructor (large schemes)
- constructor (small schemes)
- M&E services installer
- facilities management (hard FM)
- facilities management (soft FM – PFI schemes only).

The remaining PSCMs (9–11) are at the discretion of the PSCP (see Figure 2.18).

Both PSCPs and their PSCMs will be asked to provide evidence of, and commitment to, best practice in partnering and Supply Chain Management (SCM). Initially it was proposed to establish specialist procurement teams made up from external consultants, with the role of advising Trusts on procurement matters. However that function has now been subsumed within the PSCP supply chain. The demands placed on prospective prime contractors by NHS Estates as the criteria for inclusion on a short list

for traditional single stage competitive tendering makes an interesting comparison.

The procurement process

The selection procedure for appointing PSCPs to a ProCure21 framework agreement is summarised in the following lines. The procurement process involves two stages. All candidates are responsible for all costs incurred in connection with their responses to all stages of the appointment process.

STAGE 1 FINANCIAL VIABILITY AND PREQUALIFICATION

An on-line prequalification form is completed and returned to NHS estates for evaluation. NHS Estates manage the selection process to identify 12 candidates to proceed to the Final Selection Process (FSP).

The prequalification process has two parts. The first part asks for financial and economic information about the PSCP, their PSCM and their constituent parts. The second part looks in detail at the technical and organisational capacity of the PSCPs and their PSCMs.

STAGE 2 FINAL SELECTION PROCESS (FSP)

The basis of the selection will be an assessment by the NHS evaluation team on the basis of the candidates' responses to

a The completion of an economic test.
b Site and/or office visits.
c Partnering interview.

COST MODELS (THE ECONOMIC TEST)

The economic test for framework selection will cover all whole life cost aspects of capital procurement through cost model documents specifically created to suit the relevant framework, and will cover the following points:

- design
- construction
- hard FM
- aoft FM (PFI only)
- risk
- finance (PFI only).

The cost models are based upon real projects and have each aspect costed in order to act as a benchmark against which the PSCPs will bid. The costs

submitted by the PSCPs at the framework stage will act as benchmarks to test the appropriateness of the costs arrived at for the scheme tender stage of the relevant scheme.

These benchmarks are key to the assessment of progress in reducing costs against targets. PSCPs will be required not only to give their assessment of costs against the models for the first year, but also to indicate how they expect the benefits of partnering and SCM to deliver annual improvements over the life of the framework. These benchmarks will therefore allow the progress of the PSCPs to be judged against a pre-agreed programme for improvement, and will form the backbone of benchmarking for use with future frameworks and schemes.

SITE AND OFFICE VISITS

This will provide an opportunity for NHS evaluators to establish how information provided at PQQ is being implemented in a 'live' environment. This will cover the whole supply chain, clients, policies, procedures, training, human resources, health and safety etc.

Details of the key personnel who will be involved in negotiating scheme agreements will be required if these are different from those responsible for the application to the framework agreement.

Full details of all projects undertaken in the last 3 years, whether proceeding or cancelled, will be required together with contact details.

PARTNERING INTERVIEWS

The partnering interviews were one day each and covered a variety of aspects. Experts were brought in from the NHS and other construction companies to help in the evaluation process. Each candidate was given a 40-minute presentation followed by facilitating sessions on achieving design excellence, partnering and the use of value management techniques to demonstrate how they would use these features of ProCure21 to add value for the client. At the end, there was a review/question and answer session.

The selection process

Evaluation guidelines are issued to the candidates at that time and selection is based on the ability to demonstrate

TECHNICAL

Proven track records of supply chain members partnering experience with clients and SCM expertise

- quality of resources and expertise available.
- design capability.

- management contracting capability.
- hospital commissioning ability.
- facilities management track record.

COMMERCIAL

- ability to manage time, cost, quality and risk;
- ability to put appropriate finance in place;
- economic test and year on year improvement.

SOFT

- evidence of ability to partner;
- evidence of SCM ability;
- evidence of appropriate attitude and culture;
- understands NHS culture;
- proven ability to innovate;
- willingness to take part in continuous improvement.

Public private partnership projects (4Ps)

This form of PPP was introduced in 1996 with the intension of encouraging local authorities and councils to consider PPPs for the delivery of some services. 4Ps projects are long-term contracts, 30 years plus and are really a form of PFI, in which central government through various departments, such as The Office of the Deputy Prime Minister, subsidies local authorities by helping them to pay the unitary charge with what are known as PFI Credits. In 2005 the amounts of credits or subsidies available were,

Department of Health – £70 million
Office of the Deputy Prime Minister – £100 million
Department for Culture, Media and Sport – £130 million

The minimum limit for consideration is projects with an initial capital element of at least £20 million. Obviously the demand for this source of funding exceeds the supply, therefore local authorities are required to submit bids, with funding only being awarded to approximately 20 projects. As the credits will only fund part of the cost of the project, the local authorities must secure other forms of income streams. Each of the submissions is subjected to a two-part assessment where projects are judged against a set of criteria which changes from department to department and year to year. For example priority for submissions to the Department for Culture, Media and Sport for the period 2006–08 would be projects that promote the modernisation of the library service and the creation of multi-sport facilities.

Table 2.2 4Ps credit system

Year	*Payments to the Project Company (£)*	*Credit – NPV (£)*
1	0	0
2	0	0
3	666,667	572,619
4	1,007,500	802,012
5	1,015,056	748,866
6	1,022,669	699,243
22	1,152,540	233,456

Projects may seek approval from more than one government department and more specifically will be expected to address issues such as social inclusion, innovation in service delivery and long-term flexibility.

As in PFI projects applications have to be supported by robust business cases that clearly demonstrate value for money and evidence of need and demand.

Table 2.2 demonstrates how the PFI credit system works. No payment is made until the facility is operational, assumed to be 2 years. In a year the facility is completed and payments to the project company commence at a rate of £666,667 for which the local authority receives a credit, calculated on an NPV basis as £572,619. As can be seen payments then continue over the life of the contract, 22 years in this case, but while the payments to the project company remains fairly constant the credit decreases.

In addition to PPPs another procurement strategy recommended for use by UK public sector agencies is prime contracting.

Prime contracting

Introduced in the 1990s prime contracting is a long-term contracting relationship based on partnering principals and is currently being used by several large public sector agencies. A prime contractor is defined as an entity that has the complete responsibility for the delivery and, in some cases, the operation of a built asset and may be either a contractor, in the generally accepted meaning of the term, or a firm of consultants. The prime contractor needs to be an organisation with the ability to bring together all of the parties in the supply chain necessary to meet the client's requirements. There is nothing to prevent a designer, facilities manager, financier or other organisations from acting as a prime contractor. However, by their nature prime contractors tend to be contracts requiring the prime contractor not just to have access to an integrated supply chain with substantial resources and skills such as project management. To date most

prime contractors are in fact large firms of contractors, despite the concerted efforts of many agencies to emphasise the point that this role is not restricted to traditional perceptions of contracting. One of the chief advantages for public sector clients with a vast portfolio of built assets is that prime contracting offers one point of contact/responsibility, instead of a client having to engage separately with a range of different specialists.

As with other forms of procurement based on a long-term partnership the objective of prime contracting is to achieve better long-term value for money through a number of initiatives such as SCM, incentivised payment mechanisms, continuous improvement, economies of scale and partnering. The approach to prime contracting differs from PFI because the prime contractors' obligations are usually limited to the design and construction of the built asset and the subsequent facilities management; there is no service delivery involved. Also the funding aspects of this approach are much less significant for the prime contractor, in that finance is provided by the public sector client. In some models in current use, prime contractors take responsibility not only for the technical aspects of a project during the construction phase, including design and SCM but also for the day-to-day running and management of the project once completed. This may include a contractual liability for the prime contractor to guarantee the whole life costs of a project over a pre-determined period for as long as 30 years. This description of PC will concentrate on the model developed by the Ministry of Defence under the initiative called 'Building Down Barriers'.

Key features of prime contracting include a four-stage procurement process

1 Invitations for expressions of interest – the normal advertising process with the OJEU.
2 Pre-qualification questionnaire – at this point the interested parties are given sufficient information to understand the extent and scope of the services required and of the constraints under which they may be required to operate. Any potential prime contractor must be able to demonstrate that within their organisation there exists a well-established and proven SCM structure. It should be noted that costs associated with bidding for a PC contract are considerably less than say a PFI project. However, after this stage costs do start to increase for contractors and so five bidders will be selected to proceed to the next stage and submit bids.
3 Invitations to tender – the selected contractors are invited to submit full tenders and will include concept drawings, Stage 3 – RIBA Plan of Work, value analysis of client's requirements, risk analysis and whole life cost figures developed in conjunction with the supply chain partners.
4 Preferred bidder and contract award – after submission of the bids a preferred bidder as well as a reserve is selected.

The model of PC adopted by the Ministry of Defence is based on the following features:

- the use of an output specification. The key objective is to allow the prime contractor and the supply chain to deliver innovative and more efficient services;
- involvement of the prime contractor at an early stage in the procurement process;
- selection criteria judged on the partnering ethos and collaborative working with greater emphasis on technical and soft issues such as market awareness, trust and openness, flexibility and understanding the client culture;
- terms and conditions which reflect fitness for purpose and incentivised price and costing regime, open book accounting, SCM and dispute resolution;
- integrated project teams.

The decision was taken by the Ministry of Defence to pilot prime contracting because of the difficulties of having to manage a vast estate of diverse properties spread through the United Kingdom. For the public sector client the attractions of prime contracting were as follows:

- fewer and larger long-term contracts;
- shared risk;
- partnering in the supply chain;
- incentivisation of private sector contractors.

The key commercial issue surrounding prime contracting is setting up long-term relationships based on improving the value of what the supply chain delivers, improving quality and reducing underlying costs through taking out waste and inefficiency. It is claimed by the MoD that the products and services provided by the companies in the supply chain typically account for 90% of the total cost of a construction project. The performance of the whole supply chain impacts on the way in which the completed building meets the client's expectations. By establishing long-term relationships with supply chain members it is believed that the performance of built assets will be improved through the establishment of improved and more collaborative ways of working together to optimise the construction process and through exploitation of the latest innovations and expertise.

The prime contractor's responsibilities might include the following (see Figure 2.19):

- overall planning, programming and progressing of the work;
- overall management of the work, including risk management;

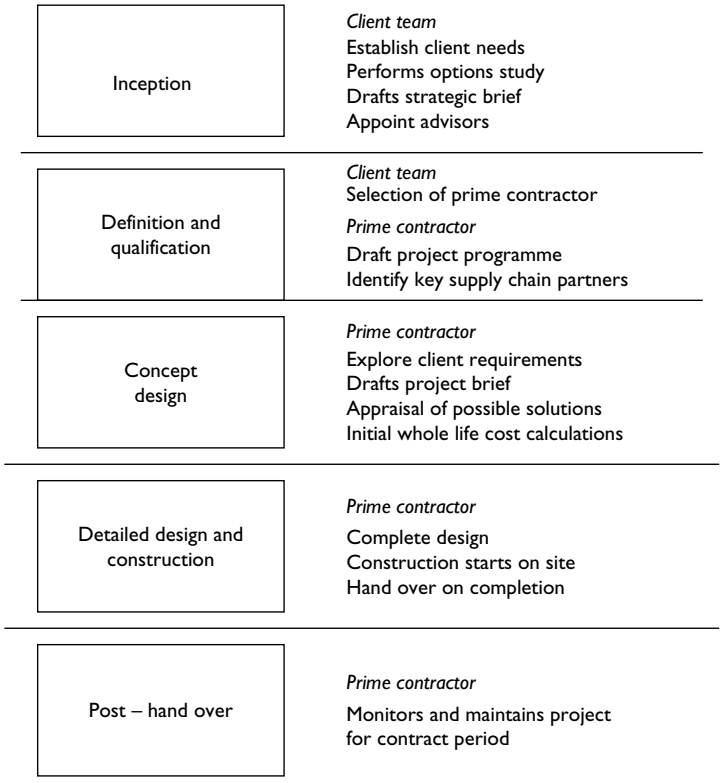

Figure 2.19 Prime contracting.

- design co-ordination, configuration control and overall system engineering and testing;
- the pricing, placing and administration of suitable subcontractors;
- systems integration and delivering the overall requirements.

Conclusion

This chapter has discussed in some detail the various PPP models currently in use in the United Kingdom. Subsequent chapters will identify the skills necessary to successfully deliver a PPP project as well as some of the critical issues surrounding PPP procurement strategies.

Bibliography

CGR Technical Note 1 (2004) HM Treasury, London.
Ernst and Young (2003) *PFI Grows Up*.

IPPR (2001) *Building Better Partnerships*, Institute for Public Policy Research.
Meeting the Investment Challenge (2003) HM Treasury, Office of Government Commerce, HMSO.
Office of the Deputy Prime Minister (2004), *Local Authority Private Finance Initiative: Proposals for New Projects*, OGC.
Partnerships for Schools (2004) *Building Schools for the Future*, Partnerships for Schools.
Wagstaff, M. (2005) The case against, *Building Magazine* 14.01.05.
Williams, B. (2001), *EU Facilities Economics*, Building Economics Bureau Ltd.
Zitron, J. (2004) *PFI and PPP: Client and Practitioner Perspectives*. Proceedings of 21st Annual Conference of the Major Projects Association, Major Project Association, Cranfield.

Chapter 3

Critical issues

In Chapter 2 the various PPP models currently in use in the United Kingdom were described. Since the introduction of PPPs a number of issues relating to the procurement and operation of these models have emerged and these will now be discussed in the following pages. Given that PPPs in relative terms are the new kids on the procurement block, one of the most immediate issues to be addressed is building confidence in the process, particularly in the light of the poor performance record of public procurement generally. Other critical issues or success factors have emerged which, for the purposes of this chapter have been grouped under the following headings:

1 Public perceptions of PPPs
2 Business matters
3 Design issues
4 Operational matters
5 Human resource issues.

Public perceptions of PPPs – building confidence in the process

Market soundings

There is little point in spending time and resources to prepare a full business case as well as other substantive documentation for a PPP project if the market, that's to say the private sector, does not perceive that the project is financially viable or commercially attractive. In the early days of the PFI many projects were earmarked by the public sector as PPPable, however, subsequently it transpired that a large proportion of these schemes were in fact not suitable, due to a combination of issues including excess risk transfer, insufficient income stream, short contract periods and onerous contract conditions. Recently, the collapse of the £1.1 billion PFI Paddington Health Campus Project in 2005 left a legacy of £14 million of abortive costs, including £7.8 million of consultants fees. The scheme, originally proposed

in 1998, was scrapped after a key partner refused to approve the business case for the project. The project was subsequently revived. Situations like this are obviously not good for the image of PPPs as it calls into question the whole approach of this type of pro-curement, not to mention the considerable waste of time, money and resources. Therefore, if there is any doubt about the willingness of the private sector to engage with a proposed PPP project, market soundings should be undertaken at the earliest possible opportunity. Market sounding is the process, carried out by the public sector client in the case of a PPP, of assessing the reaction of the market (i.e. all potential suppliers considered collectively) to a proposed requirement and procurement approach. It brings supplier perspectives to public sector procurement at an early stage offering potential benefits in terms of making the subsequent procurement process more focused and efficient and as such, it may reduce procurement timescales. Market sounding focuses on suppliers as a whole, rather than on the merits of individual suppliers and the process includes no element of supplier selection, bid evaluation or looking at proposals and prices. There is no commitment of any kind involved on either side and if properly handled, this process helps to avoid the risk of poorly framed requirements that do not fit well with the market.

One commonly used method of market testing is the placing of a Prior Information Notice (PIN) in the Official Journal of the European Union (OJEU) – see Chapter 4 for more details on EU requirements. The wide coverage that PINs provide is particularly helpful as a PIN does not commit an authority to go ahead with the project, but does give the market the opportunity to express interest and the authority the opportunity to gauge interest levels. It may be that the key players in the marketplace are already known whereas in other cases, a PIN may help to alert potential suppliers to the opportunity and open a dialogue with them. Other options for market testing include bid conferences and the use of government procurement websites. PINs give an outline of organisations' general direction and likely procurement needs and may also sometimes be used to publicise a single, specific opportunity and invite discussion of it. The PIN process works by notifying a wide range of suppliers of potential business needs, through the PIN itself and also through publicity in other media including trade journals, the specialist press and relevant websites, providing the opportunity for a wide range of suppliers and industry bodies to hear about and explore the requirements. Often, the procuring organisation will produce a prospectus that is issued to suppliers who respond if interested. If the requirement is new or unusual, it may be uncertain whether there is a market for it at all. In this situation it may be necessary to 'create the market' – encourage suppliers who might not normally be interested, or who would not normally get involved in or create a working partnership or consortium of the kind suggested by the requirement. Market testing cannot be carried out of course until an option appraisal has been carried out and the nature of the proposed PPP deal is known in outline.

Gateway review and optimism bias

The reputation of the procurement of large public sector projects in the United Kingdom has been so poor that the principal attraction for government of PPPs is improved performance in terms of out turn cost and delivery. In an attempt to improve matters still further, two new initiatives have been introduced recently by the OGC. These are

- the Gateway Review Process;
- optimism bias compensation.

These processes should be run concurrently by the public sector client during the development of a PPP project in the project development stages as well as being taken into consideration by the private sector.

Gateway Review Process

Introduced in 2001, as a result of the Gershon Report on government procurement, the Gateway Review Process was introduced by the Office of Government Commerce. The process examines a project at critical stages in its lifecycles to provide assurance that it can progress successfully to the next stage. The process is now mandatory for all procurement projects including PPPs. The process examines five key areas in project delivery. These are

- business justification
- procurement strategy
- investment decision
- readiness for service
- benefits realisation.

A series of workbooks were produced in 2004 by the OGC to guide project managers through the areas that should be probed and the nature of the information that should be prepared at each stage of the review process. Figure 3.1 illustrates the Gateway Review Process.

Optimism bias compensation

In 2002 consultants Mott MacDonald were commissioned to carry out a study for HM Treasury into the outcome of large public sector procurement in the United Kingdom during the past 20 years. The project sample included 80 projects, evenly spread across government departments with values exceeding £40 million based on 2001 prices; it included some PPP projects. The study concentrated on the approach by the public sector in assessing the feasibility of projects and the techniques that were used.

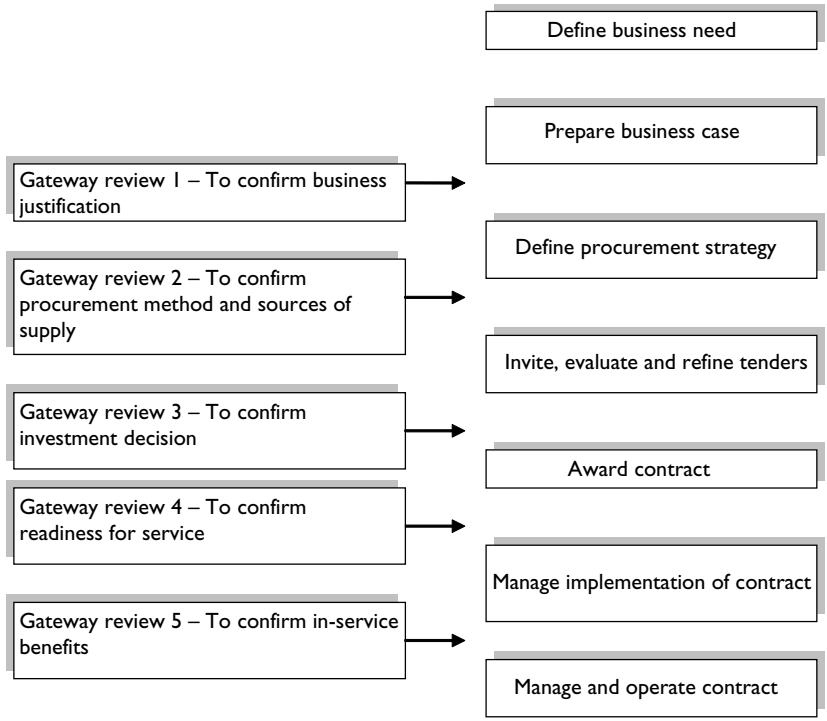

Figure 3.1 Gateway Review Process.
Source: OGC.

The report did not detect any wilful deceit on behalf of project sponsors although it did note that: 'Once a project has gained momentum (especially political), it is sometimes difficult to consider an alternative and so ultimately, the project goes ahead despite knowingly underestimating project costs and time (see Figure 3.2). The Mott MacDonald report highlighted more – a lack of skill and awareness on the part of those concerned with the planning and development of large-scale public projects and of the effects of their optimism (read naivety), when appraising the project. The report continued by identifying the critical project risk areas most likely to cause over runs of time and cost if sufficient risk mitigation strategies are not in place:

1 Inadequacy of the business case – 58%.
2 Environmental impact – 19%.
3 Disputes and claims – 16%.

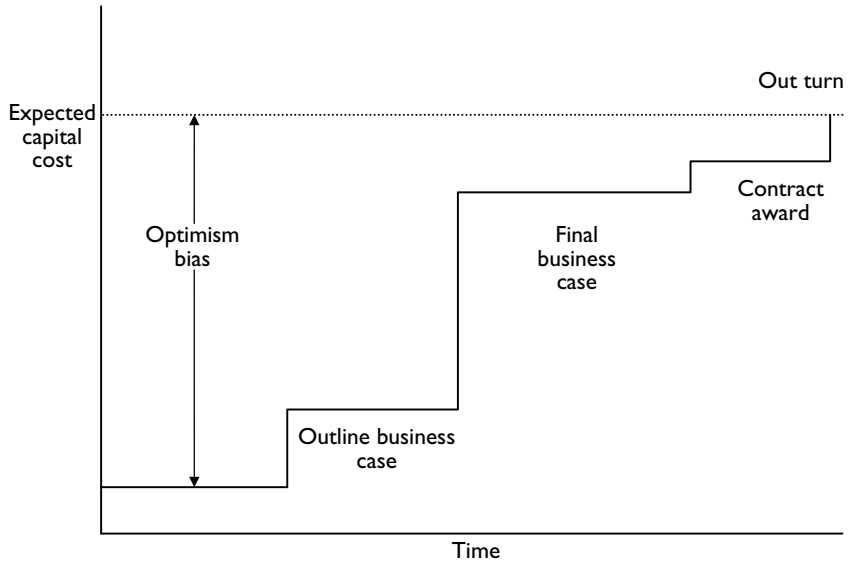

Figure 3.2 The effects of optimism bias.

Source: Office of Government Commerce.

Table 3.1 Optimism bias

Project type		*Optimism bias %*	
		Works duration	*CAPEX*
Traditional[a]	Non-standard buildings	39	51
	Standard buildings	4	24
	Non-standard civil engineering	15	66
	Standard civil engineering	34	44
	Equipment/development	54	214
	Outsourcing	N/A	N/A
	All Traditional	17	47
PPP/PFI[b]	Standard buildings	−16	2
	Standard civil engineering	No info	No info
	Equipment/Development	28	No info
	Outsourcing	N/A	N/A
	All PFI/PPP	−1	1

Source: Adapted from review of large public procurement in the United Kingdom (2002) Mott MacDonald.

Notes

a The optimism bias is measured from strategic outline case or outline business case.

b The optimism bias is measured from the full business case. The capital expenditure optimism bias is measured as a percentage of the contract price.

4 Economics (macro economic business cycle) – 13%.
5 Late contractors involvement in design – 12%.
6 Complexity of contract structure – 11%.
7 Legislation – 7%.
8 Degree of innovation – 7%.
9 Poor contractor capabilities – 6%.
10 Project management team – 4%.
11 Poor project intelligence – 4%.
12 Other project risk areas – 3%.

The poor performance of large public sector projects was euphemistically called 'optimism bias' by Mott MacDonald and it was found to occur at various levels according to the project type, as illustrated in Table 3.1 Note that the lower the percentage the better the outcome. Even allowing for the staggeringly high optimism bias of 214% for equipment capital expenditure of traditionally procured projects, it would appear that the case for the introduction of the more rigorous approach adopted in PPP/PFI projects does produce more predictable results.

The Mott MacDonald report concluded that there is no correlation between project size and optimism bias, however, there is a strong relationship between project size and the number of project risks. Major projects, like those included in the Mott MacDonald study and minor projects, approximately £10 million in value, have the same number of project risk areas whose project risks need to be managed. However, the number of project risks within project risk areas increases with the size of the project. Among the recommendations of the Mott MacDonald report are

- An open approach to sharing the successes and failures of major project procurements, through internal and external seminars, papers etc.
- Post-completion, 1 year after completion and 5 years after completion of audits to compare project out turns against projections, together with wide dissemination of lessons learned.
- Methodical archiving of key project documents.

The report concluded that in the public sector improved risk management could be achieved through

- improved information transfer and communications
- greater accountability.

Mega projects have their own particular type of risk and the analysis of risk in these projects is usually centred on cost benefit analysis, a technique with a chequered reputation for accuracy and usefulness. According to Flyvberg

Mega project risks may be categorised into the following groups:

- Estimates of earning capacity form the completed project, that is, numbers of projected passengers, cars, etc.
- Environmental risk – considered as the most high profile risk at present by some experts.
- Regional and economic growth predictions, that is, the number of new jobs, etc. that will be attracted to an area on completion of a project.
- Specific risks such as multiple stakeholders, for example, government, global interests, special interest groups, etc.

Business matters

Accountability and PPPs – a clash of two cultures?

Traditionally, procurement of large-scale public sector construction projects, has as previously stated, been the subject of many problems most notably late delivery and overbudget. However, one of the major advantages of traditional procurement is said to be its transparency – an essential ethos of public sector procurement. With the introduction PPPs/PFIs there have been accusations of a clash of cultures when it comes to accounting procedures, with most of the information on PPP type deals relating to financial returns etc. being cloaked in secrecy. The special purpose companies that operate PPP/PFI project have a requirement to produce a balance sheet, which put simply is a statement of the financial health of the company and includes such items as

- Current liabilities – money owed on a short term basis to suppliers and creditors.
- Current assets – that is, assets at the company's disposal that can be easily converted into cash in the short term, and
- Debt and equity – long-term debts that can't easily be turned into cash.

Knowing what's on the balance sheet is crucial to understanding whether or not a company is generating real value for shareholders. In December 2001, an event apparently unconnected to PPPs was to add further fuel to the lobby who regard PPP/PFI accounting with suspicion. In 2000 the Enron Corporation was one of the world's largest energy, commodities and services company marketing electricity and natural gas, delivering energy and other physical commodities as well as providing financial and risk management services to customers worldwide. Based in Houston Texas, Enron was formed in July 1985 by the merger of Houston Natural Gas and InterNorth of Omaha, Nebraska. Enron rapidly evolved from delivery energy to brokering futures as energy markets were deregulated and the

company entered the European energy market in 1995. In 1999 Enron launched a plan to buy and sell access to high-speed internet bandwidth and launched EnronOnline, a web-based commodity trading site. In 2000 Enron reported revenues of $101 billion and held stakes in 30,000 miles of gas pipeline and had access to a 15,000 mile fibre optic network. On the face of it Enron was a success, in fact, it was known as one of the coolest organisations to work for with its executives leading expensive and lavish life styles and of course Enron's accounts were audited by one of the world's most respected firm of accountants. However, disaster was just around the corner and in December 2001 following a collapse in it's share price, Enron filed for Chapter 11 bankruptcy protection with an estimated $27 billion worth of what is known as off balance sheet debt. Off balance sheet is an accounting procedure that for example, helps firms with significant long-term operating lease arrangements and unconsolidated affiliates, which have debt–equity ratios that make them look financially healthier and more solvent than they actually are. Similarly, firms with resources at risk, because they have made certain guarantees that protect their customers or the creditors of unconsolidated affiliates, or because they have left other contingent obligations off the balance sheet, may look like they have less debt than they actually have. By the same token, firms with large amounts of unfunded and unrecorded post-retirement obligations may look deceptively healthy.

But off balance sheet accounting is not confined to the private sector. The government publication '*PFI: Meeting the investment challenge*' points out that 57% of PFI projects by value are accounted for on balance sheet thereby leaving 43% off balance sheet. In September 1998, the Accounting Standards Board (ASB) stated that the capital value of PFI transactions should appear on the government's balance sheet. However, negotiations between the ABS and the Treasury resulted in a revised version of the note '*How to Account for PFI Transactions*' which allowed most PFI deals to be excluded from the government's borrowing figures on the grounds that they are '*operating leases*.' In 1999 new guidance was issued which stated that property risks and service-related risks (staffing costs) of PFI deals should be separated out. It should then be clear that the property related risk has been transferred to the private sector and hence should not be on the government balance sheet.

Accounting for SPCs

During the construction phase of a PFI project, construction and financing costs are charged to '*PFI assets in the course of construction*'. Subsequently the SPC is then invoiced by the construction contractor for construction revenue. During the operation '*PFI assets in the course of construction*' are transferred to '*amounts receivable under PFI contracts*'. Revenue received

from the public sector client, by way of the unitary charge is allocated between operations, capital repayments and interest. The SPC is invoiced by the operating contractor for operational revenue. The operating contract has no debt or equity.

One of the attractions of the PFI for spending departments and local government has been that, if the PFI projects are recorded off balance sheet then the initial capital cost of the project does not have to be covered from the department's capital budget. Some PFI projects are classified as 'off balance sheet', in other words expenditure on these projects is not included as government spending. According to the Centre for Policy Studies this has enabled the government to deliver public sector projects without affecting its borrowing requirements. However, to understand the significance of this it is necessary to examine the way in which the government draws up its accounts. In the first term of the Labour government 1997–2001 the Chancellor of the Exchequer, Gordon Brown, set two so-called golden rules, modified in 2005, one of which stipulated that borrowing to fund capital projects should not rise above 40% of GDP. It is generally regarded that there is no scientific basis for the choice of 40% other than it seems to be a sensible level. However, subsequently, the 40% benchmark has taken on political significance as a measure of how well or indeed badly the economy is running. An important feature of the government's approach to fiscal policy is making a clear decision between current and capital spending. The distinction is recognised in the two rules:

- The golden rule: over the economic cycle, the government will only borrow to invest and not to fund current expenditure. The current budget should be in balance or surplus over the economic cycle. It is intended to ensure 'fairness between generations' so that the cost of services consumed today are not passed onto tax payers in the future. Each generation being expected to meet the current cost of public services from which they benefit.
- The sustainable investment rule: net public debt as a proportion of GDP will hold over the economic cycle at sustainable and prudent levels.

The golden rule aims to match more closely the costs and the benefits of public spending as well as ending the tendency to cut back investment as an easy option rather than reduce current spending. The sustainable investment rule recognises that borrowing must be constrained by the need to ensure that debt remains at 'prudent' levels, namely 40% over the economic cycle. Clearly, large amounts of on balance sheet debt would not fit well into these rules. Therefore, when a PPP project is recorded on balance sheet the capital value of the project scores as Public Net Sector Investment and Public Net Sector Borrowing. It also counts against any assessment of the Maastricht criteria for levels of borrowing and debt for EU countries.

When a project is off balance sheet its capital value is not recorded in these statistical measures, although the amount of PFI investment is presented annually in the Budget Red Book. Borrowing undertaken by the private sector through the PFI does not score in the main indicator for assessing the sustainability of public finances regardless of whether investment is on or off balance sheet. For example, a prison is undertaken using a PFI deal over 30 years, the capital expenditure would not be included within the departmental expenditure limit, provided that the PFI-financed assets are off balance sheet to the prison service. Therefore, a critical point with reference to public expenditure is not whether a prison is procured using the PFI or conventional procurement but rather whether a PFI scheme is on or off balance sheet. The same process applies to NHS Trust hospital and schools. It is worth pointing out that both the sustainable investment rule and the golden rule are entirely compatible with funding capital project by conventional means.

In July 2005 some economic forecasters began to cast doubts on the robustness of these rules when in 2003/04 the UK economy began to slow down and it appeared as if the Treasury would have to borrow above the limits set in its own rules. In what has been variously called; 'a conjuring trick', 'a down right fiddle' and 'a cynical attempt to save face', the Chancellor of the Exchequer redefined its economic cycle and extended the accounting period by 2 years, so that for accounting purposes the cycle began 2 years earlier than previously thought and extended from 1997 to 2005 and thereby at a stroke gave an extra £12 billion leeway against his golden rule, although nothing fundamental changed in the UK economy.

The scale of PFI off balance sheet accounting?

According to Michael Mainelli one way of examining the potential scale of off balance sheet finance is to see what the long-term cost commitments are for operational costs. However, these figures are unavailable because of commercial confidentiality. Mainelli however, examined a sample of 18 education projects and 44 health projects where reliable data relating to running costs was available. The 18 education projects combined capital cost of £868 million and committed running costs of £2,787 billion until 2032 and as can be seen from Figure 3.3, there is a period of 20 years where the commitment is steady at £100 million per annum.

In the case of the 44 health projects, capital costs were £210 million and the committed running costs were £1,041 billion until 2036 and there is a period where commitments are steady at £330 million per annum, see Figure 3.4.

Extrapolating the above figures, an estimate of the total unitary charges it gives an average annual commitment of £2.774 billion and a total commitment of £81.673 billion over the life cycle of the projects. Given that

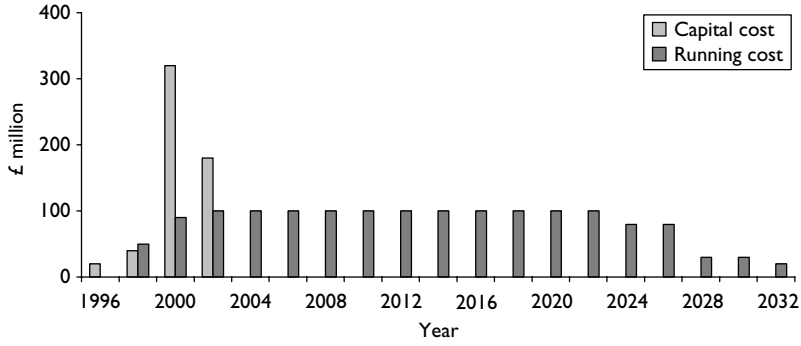

Figure 3.3 Capital versus committed running costs – education.

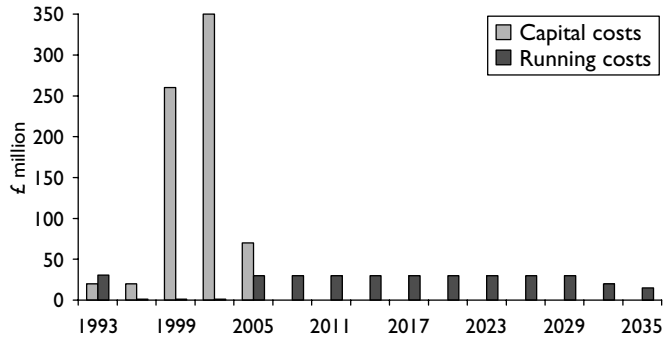

Figure 3.4 Capital versus running costs – health.

PPPs continue to be signed it is estimated that by 2010 unitary payments will be somewhere between £10 and £30 billion per annum with around 50% of the deals including capital costs being accounted for off balance sheet which some sources claim amounts to a £100 billion black hole in the accounts.

Eurostat, the statistical office of the European Communities took a decision in February 2004 on the accounting treatment in national accounts undertaken by government units in the framework of partnerships with non-government (private) units or PPPs. Eurostat's recommendation is that assets involved in PPPs should be classified as non-government assets and therefore recorded off balance sheet, if both the conditions listed below are met:

- the private partner bears the construction risk,
- the private partners bears at least one of either availability or demand risk.

If the construction risk is borne by government, or if the private partner bears only the construction risk and no other risks, the assets are classified as government assets. This claims Eurostat has important consequences for government finances, both for the deficit and the debt. The initial capital expenditure relating to the assets will be recorded as government fixed capital with a negative impact on government deficit/surplus. As a counterpart of this government expenditure, government debt will increase as the transaction will be recorded on balance sheet. Therefore an analysis of risks borne by the contractual parties is the core element of the assessment of a partnership project as regards classification of assets involved in the contract. Eurostat recognises that a complex PPP project may have many identifiable risks and that these in turn may vary from project to project, causing confusion. Therefore Eurostat has decided to identify three main categories of generic risks.

- The first category is construction risk, discussed in Chapter 5. Pretty uncontroversial as in almost all PPP models, construction risk is borne by the private sector consortia as a means of incentivising the contractor to deliver the project on time.
- The second risk is availability risk which once again is a standard requirement of PPP deals. The final generic risk however is more controversial.
- Demand risk, covering variability of demand, higher or lower, than anticipated resulting from business cycle or new market trends, direct competition or technological obsolescence. There cannot be many private consortia, or indeed funders currently involved with PPPs who would be prepared to accept this risk without it being valued very highly indeed.

Financial Reporting Standards (FRS) 5 Accounting Standards Agency – Reporting the Substance of Transactions has been adopted by HM Treasury in the United Kingdom as to whether suitable risks have been transferred under a PFI deal. FRS considers that where the risks and reward of ownership lie and requires that an asset or liability be accounted for on the balance sheet of the party bearing those risks and rewards. In order for a scheme to be approved, the public sector entity must demonstrate that a substantive majority of the risks of ownership have been transferred to the private sector.

Concerned about the lack of transparency in some PPP deals, the IPPR published the results of its Openness Survey in February 2004 which concentrated on the availability of information on PPP projects. The report, concluded that PPPs do disrupt traditional accountability structures, however, they can open up new routes of accountability provided that certain standards are complied with. One of these standards is, openness which sits

at the base of many accountability considerations. The report further concluded that to date openness considerations have not been fully resolved and as a result many people are still suspicious about such items as value for money. On the other hand, the IPPR did recognise that some information should remain confidential and has to be kept secret in order to render projects commercially viable. Typically these include the need to keep trade secrets confidential and to safeguard the competitive positions of the public and private sectors. However, the report concluded that it is important to ensure that commercial confidentiality is not employed as a spurious justification to withhold information from the public domain.

In order to assess the availability of information on certain PFI projects, the IPPR conducted a short survey during the summer and autumn of 2003 in order to establish

- Was it possible for interested parties to gain access to PFI project documents ?
- Were public bodies complying with government guidance on access to these documents?
- Could interested parties gain access to basic information about the performance of PFI contracts ?

The survey was also designed to serve as a platform for the exploration of commercial confidentiality as an issue within PPP projects. The survey looked at 22 PFI projects listed below:

- Six new NHS hospitals;
- Six new local government projects (housing, library, fire station, etc.);
- Six new school projects;
- Four central government road and accommodation projects.

The survey requested documents from the public bodies responsible for the projects at various key stages in the procurement process. The findings of the survey are given in Table 3.2.

Table 3.2 Confidentiality and PPPs

Area of government surveyed	*Pre-contract signature*	*Post-contract signature*	*While operational*
NHS hospitals	4/4	4/4	1/2
Local government	4/4	0/4	1/2
Schools	3/4	0/4	1/2
Central government	N/A	0/4	0/2

Source: IPPR.

The findings appear to show that, with the exception of the NHS, availability of project information is generally poor with only 50% of the information requested being available. They also show that although information on the OBC is disclosed, once the project is operational little information is forthcoming.

According to Maltby and Gosling, analysis of whether or not to deliver public services using PPPs usually concentrates on value for money issues, that is to say issues of cost and quality of service. However, partnerships also need to be accountable. Accountability is a complex term but can be unpacked into the following three constituents:

- *transparency:* where key information is disclosed and decisions are open to public scrutiny – this is a pre-condition for achieving other stringent forms of accountability;
- *responsiveness:* service providers adapt services to citizen's needs; and
- *responsibility:* there are clear rewards/sanctions on services to providers for success/failure in achieving outcomes set by an external body.

Transparency is an important issue in PPP deals with the procurement process being criticised for providing little transparency and details being hidden behind a curtain of commercial confidentiality. For example, although all PFI business cases are now in the public domain, there are few places where they can be together and few of these select places, that is The House of Commons Library, are not open to the public. What's more, the information released to the public, for example, in public libraries, has been edited to remove commercially sensitive information. In 2005 the Freedom of Information Act became fully operational, however, the Act contains two significant exemptions of material that must be made public, one being commercial confidentiality. Nevertheless, legitimate commercial confidentiality fulfils several functions and should concentrate on protecting information that is unique to them and which provides the ability for them to compete. Commercial confidentiality is principally about not revealing how the service provider in a PPP project intends to deliver the service(s). Given that PPPs are about achieving maximum synergies between various aspects of design, construction and service delivery, the ways by which one bidder has proposed to achieve this, could be the deciding factor in winning the project. Also, disclosure could affect a bidder's chances of winning PPP projects in the future and competitors may try to replicate a particular winning model. Currently, there are few guidelines about what information can be withheld as being commercially confidential and what little does exist is very broad.

Gosling proposes that, for example, in the case of a PFI project, at the outset the following information should be released into the public domain:

- the rationale for the project
- initial specifications for the project
- what changes there will be to services as a result of the option of a PFI.

As the procurement process develops and becomes more competitive disclosure of information may have to become more limited in order to protect competitive tensions between the bidders. After successful completion of the procurement process and contract, signature material could be placed in the public domain, preferably online, in order to:

- provide service users, hospital patients, parents of school children, with a clear understanding of what services to expect from the PPP project;
- provide users with an understanding of how decisions were taken, including a value for money assessment;
- provide users with the basic contract terms, which should include a level of information about payments to the contractor and the duration of the contract;
- provide information about the division of responsibility between public and private sectors, as political responsibility is clearly disrupted by long-term PPP contracts.

Once the PPP project is operational further information could be released, for example,

- public reporting of performance material, including but not limited to penalties for poor performance;
- the structure of mechanisms for complaints and redress or forums for involving the public;
- information about any re-tendering of part of a the PFI contract.

An omission from the UK PPP procurement process to date has been a lack of user consultation and the very limited amount of performance evaluation of operational PPP projects. User involvement is discussed further in Chapters 4 and 6.

In 2001 the Office for National Statistics began to examine the ways in which PFI projects are treated for accounting purposes and by May 2005 it was under pressure to make material changes in the way in which projects are classified. Any change from current FRS 5 Accounting Standards Agency – Reporting the Substance of Transactions processes, to put more of the £43 billion spent on PFI project on balance sheet, would have the

effect of raising public sector net debt to near the Treasury's self-imposed limit of 40% and making the PFI process far less attractive to public sector agencies and private consortia alike.

Refinancing

One of the more controversial aspects of PPP deals and in particular the early PFI deals is the ability of the private sector consortia to re-negotiate their debt during the currency of the contract; a process referred to as refinancing. The practice first sprung into the headlines in 1999 after the details were made known of the refinancing of an early PFI deal for Fazakerley Prison, (now known as Altcourse) near Liverpool that resulted in gains of around £10.7 million for the SPC, an increase of 61% on original calculations (see Table 3.3). At the time of original deal in December 1995 there was no provision in the contract to cover this process except to seek the permission of the Prison Service and only £1 million from the proceeds of the Altcourse refinancing found its way back to the public sector. The refinancing process enabled early repayment of debt and the generation of high dividends for share/equity holders. The refinancing of Altcourse has four strands

- an extension to the period over which the SPC, in this case Fazakerley Prison Services Ltd. (FPSL), bank loan would be repaid;
- a reduction in the lending margin for the loan;
- an arrangement of a fixed rate of interest of the full period of the loan;
- early repayment of the subordinated debt invested by shareholders of FPSL.

Table 3.3 Refinancing Fazakerley Prison

	£ million	*£ million*	*% increase since 1995*
Expected shareholders' returns when the PFI contract was agreed in December 1995		17.5	
Increase from early delivery of the prison and lower costs	3.4		20
Increase from refinancing before payments to the Prison Service	10.7		61
	14.1		**81**
Payments to the Prison Service from the refinancing	(1.0)		(6)
		13.1	**75**
Expected shareholders returns in November 1999 after refinancing		**30.6**	

Source: The refinancing of Fazakerley PFI Prison contract (2000) HMSO controller and auditor general.

Other factors particular to this contract were the completion of the facility ahead of schedule and lower construction and commissioning costs than originally allowed for, which taken in association with the refinancing costs, produced a total increase in shareholders' expected returns of £14.1 million; a total of 81% higher than when the contract was awarded.

The £1 million paid to the Prison Service was merely a gesture of goodwill on the part of FPSL to cover the increase risk that the financial consequences for the prison service of the refinancing could turn out to be additional termination liabilities. This was based on the assumption that overall there was a 10% risk that the contract could be terminated early which would involve the Prison Service an additional £1 million of unscheduled expenses brought about by the extension of the loan repayment period.

The refinancing of the Norfolk and Norwich Hospital

In Chapter 6 in the discussion on design issues, the Norfolk and Norwich Hospital has been singled out as an example of a PFI hospital that also incorporates excellence in design. The operating consortium, Octagon (3i Group plc, Barclays Infrastructure Ltd., Innisfree Partners Ltd., John Laing plc. and Serco Investments Ltd.), won the hospital contract on January 1998 originally for a minimum period of 30 years in return for a unitary charge payment of £37.8 million a year. During the construction phase of the project a number of changes were introduced which extended the contract period to 39 years, and in addition, in 2003 a refinancing deal, nearly 6 years after the letting of the original contract and 2 years prior to the opening of the hospital, generated large gains for Octagon. In common with early PFI deals the original contract terms had placed no obligations on the operating company to share any refinancing gains although subsequently approximately 30% of the refinancing gains were given to the Trust, in line with the voluntary code for sharing PFI refinancing gains. The gains that accrued to the refinancing deals, including the extension to the operating period are detailed in Table 3.4.

Table 3.4 Refinancing Norfolk and Norwich Hospital

	Refinancing gain £ million	*Retained by Octagon £ million*	*Gain shared with the Trust £ million*	*% received by the Trust*
Contract extension	5.0	2.5	2.5	50
Refinancing gain	104.7	73.3	31.4	30

Because Norfolk and Norwich Hospital was an early PFI pathfinder project, the successful delivery of the new hospital and the maturing PFI market enabled improved financing terms to negotiate which

- improved funding terms, producing a £34 million gain plus;
- further refinancing gains of £81 million from the improved market for PFI hospital financing and lowering general interest rates, mainly by increasing borrowings and accelerating its shareholders distributions.

As was the case with Fazakerley prison, concerns were raised, in particular by Norman Lamb, MP for North Norfolk as to why such apparently large gains had been made by the private sector partner. As a result in June 2005, the National Audit Office published it's report into the refinancing deal '*NAO (2005) The Refinancing of the Norfolk and Norwich PFI Hospital: how the deal can be viewed in the light of the refinancing*.'

Table 3.5 illustrates the terms of funding details of a number of early PFI projects. Note that in practically every case the high costs of funding for the construction phase.

Yescombe considers the whole area of refinancing gains for PPP projects to be surrounded by many urban myths and in that reality refinancing gains are not a result of

- The contractor saving money by refinancing loans more cheaply because interest rates have gone down or
- The contractor procuring a windfall gain by increasing loans and taking their money out.

Table 3.5 Funding early PFI projects

Project	*Norfolk and Norwich Hospital*	*Dartford and Gravesham Hospital*	*A19 road*
Date	Jan 1998	Aug 1997	Oct 1996
Facility (£ million)	197	108	63
Period of loan (years)	20	20	18
Margin[a]			
Construction	135 bp	150 bp	150 bp
Operation	125 bp	125–135 bp	140–170 bp

Source: NAO.

Note

a The margin represents that part of the interest cost which reflects the risks of the project. 150 bp is 150 basis points. This means that interest cost is 1.50% above LIBOR – see later reference in this chapter.

Most PFI deals are financed on a fixed rate basis and according to Yescombe the real basis for refinancing are a reduction in risk due to

- completion of project construction;
- the establishment of an initial satisfactory operating record;
- general market improvement and understanding.

As a result, financing terms may be improved by for example,

- lower loan margins;
- longer repayment periods.

However, the main driver for refinancing is raising additional (third party) senior debt against the project cash flow, using these funds to repay shareholder funding that is equity or share holder provided subordinated debt.

The public sector authorities share of the gain may be paid either

- as an immediate lumpsum, provided that the public sector is paid no faster than the investors, or
- as a reduction in the unitary charge.

The unitary charge route has several advantages, namely the authority's share of the gain may need to be paid over the remaining contract period as there may be no cash available from the refinancing to pay an upfront lump sum or the authority may prefer, for budgetary reasons, to take its share of the gain over time.

Before refinancing may take place consent is needed because it may

- Increase project risk, by increasing debt burden
- Reduce investors' long-term financial incentives
- Reduce flexibility for future changes.

Issues for the public sector when granting consent should be

- Reliability of long-term projections;
- The financial stability of the SPC;
- Terms of refinancing deal;
- Risks against rewards.

Most debt arranged for PFI projects is arranged on an interest swap basis, which is a process used for 'swapping' from a floating rate of interest to a fixed rate of interest, or vice versa. In general terms a swap is used by a borrower funding on LIBOR who believes that interest rates will rise or who wants some certainty in the interest to be paid. LIBOR stands for 'London

Inter-Bank Offered Rate' and it is based on rates that contributor banks in London offer each other for inter-bank deposits. From a bank's perspective, deposits are simple funds that are loaned to them. Therefore, in effect LIBOR is a rate at which a fellow London Bank can borrow money from other banks. Rate calculations can be complex as they incorporate variables such as time, maturity and currency rates. There are hundreds of LIBOR rates reported each month in numerous currencies and the way the system works is discussed below.

A company enters into an interest rate swap which can be tailored exactly to match the underlying LIBOR; on each rollover date, the company will pay interest on the LIBOR borrowings as usual. However, under the swap agreement, if the three-month LIBOR rate is above the interest rate swap rate, the bank will compensate the company for the difference; if however, the three month LIBOR rate is below the interest rate swap, the company will pay the bank the difference; as can be seen in Figure 3.5, the company is effectively paying a fixed rate of interest as the two LIBOR payments cancel each other out.

So why use an interest swap and not a standard fixed rate loan? Because only interest payments are exchanged in the swap; there is no exchange of principal. Therefore an interest rate swap does not impact on the balance

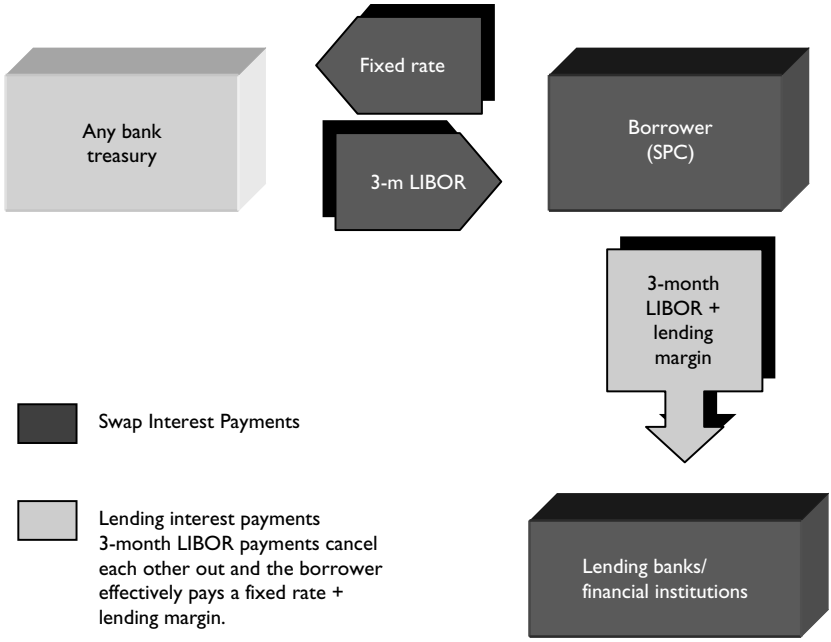

Figure 3.5 LIBOR.

sheet of the company as it is classified as an off balance sheet item. As with all derivative products the swap is independent of the underlying borrowing and can therefore be used to protect all or part of the company's borrowings. This enables the company to tailor a hedging strategy to meet cash flow projections and allows greater flexibility when changing the company's debt or investment profile.

PFI bidding costs

In all but very exceptional circumstances, the cost of using private funding, as discussed previously will be more costly than public sector borrowing. The argument in favour of the PFI is that the underlying risks of a project are the same, whether it is undertaken by the public or the private sector; so if the private partner brings new skills, more innovation and better management of risk to the implementation of public projects, the benefits can outweigh the higher cost of the private finance and deliver better value for money for the public sector. However, there has been some concern that the returns that the private sector expects to earn for its risk may be excessive. In 2002 PricewaterhouseCoopers (PwC) were commissioned by the Office of Government Commerce to analyse projected rates of return from 64 PFI projects that reached Financial Close between 1995 and 2001. The sample used covered a wide range of construction projects ranging from the provision of services in health, education, prisons, etc., which represented approximately 23% of the total completed prior to the end of 2001 and had an average capital value of approximately £70 million. PwC were given access to detailed financial information relating to expected returns that the private sector expected to receive. The analysis focused in the post-tax internal rate of return and compared this with the weighted average cost of capital for each project, which represents the return expected from a project by a diversified investor, based on project risk.

The key findings of the PwC analysis are the following

- The projects included in the sample show expected project internal rate of return (IRRs) that are 2.4% above the appropriate weighted average cost of capital (WACC).

However, it is suggested that the return is not as excessive as at first sight as is eroded because of other factors, namely

- Between 0.7% and 1.3% of this figure can be accounted for by bidding costs and when other factors are taken into account this comes down even further, reducing the differential between IRR – see Chapter 5 and WACC to around 0.7%.

The costs of bidding for a PFI project are higher than in other types of procurement. Across all projects bidders must expect to recover all their costs, including those on unsuccessful bids, before making a return. Costs are usually recovered at least in part through the equity return. In a report issued by the Royal Institution of Chartered Surveyors, a recommendation was made that unsuccessful bidder's costs should be refunded in part (up to 50%) by the government as there is anecdotal evidence that unsuccessful bidders have made a strategic retrenchment and will not contemplate future PFI bids. High bid costs have the effect of restricting the competition to those companies that are able to afford the initial investment. This in turn may impact on value for money and affordability issues in the longer term. The proposals have not been received enthusiastically by government or industry where it is thought that the emphasis in this area is best focused on reducing bidding costs in the first instance. Two aspects of the bidding process which hike up high costs are legal fees and design costs. The widespread use of standard forms of contract should help to reduce the first, but it is thought also by contractors active in the PFI market that too much design information and detail was required at the initial competition stages of the process. See section on Design Issues.

Bid costs typically range between £1.5 and £2.5 million and about 40% of this, that is £600,000 to £1 million would typically be incurred before a preferred bidder had been declared, when such expenditure is still at risk and will not be recovered by a losing bidder. Given the size of the PPP investment programme it is clear that bid costs are an important factor and that its effect on the financial modelling of the market can be substantial.

The following scenario is typical for a PFI project (see Figure 3.6):

- Most PFI bids start with a pre-qualification process to identify four initial bidders.
- There is relatively little expenditure involved in pre-qualification.
- After the pre-qualification all four bidders will typically prepare priced bids based on design work, operating proposals, contractual comments and a financing plan. At this stage the costs incurred are typically between £250,000 and £500,000 per bid depending on the project.
- On the basis of these bids and discussions, to clarify these the public authority will usually shortlist two bidders to prepare detailed Best and Final Offers (BAFOs). This stage of the process involves more intensive work – particularly on the contract, negotiations with the sector and the financial arrangements. Expenditure would typically be in the range £500,000 to £750,000.
- Taking into account the spending on the initial bid, the sunk costs at risk for a bidder by the time it has submitted and negotiated its BAFO therefore average about £1 million.

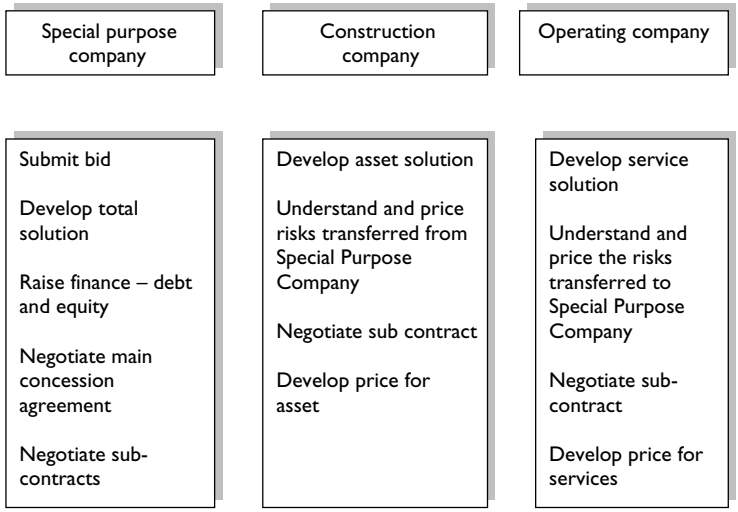

Figure 3.6 Key responsibilities – bidding.
Source: Serco Group plc.

- After this stage the authority will appoint one Preferred Bidder. The second placed bidder will be held in reserve but will incur little or no further costs. The Preferred Bidder will incur significant further costs – perhaps a further £0.5 million – £1.5 million to complete the transaction, but at this stage can be highly confident that the project will be signed and will try to recover costs from the cash flows in the financial model.

Anecdotally it is thought that most successful PFI participants win one in three/four of the projects they bid for and therefore this suggests that a bidder may incur costs of up to £3 million on unsuccessful bids for every one project it completes. Pre-preferred bidder costs are in the range of £200–£500 K. Post-preferred bidder costs including legal and banking fees are in the range of £1–£2 million.

Returns from PFI contracts are generally within the following ranges

Operating contract 6%–15%
Bidder's target equity returns average 14.5% before adjustment for bid costs
Equity investment

On financial close – bid costs
Post financial close – dividends – 20% of SPC profit

In October 2005, the Major Contractors Group published the results of a survey of 13 of its members on the bid costs of PFI projects. The survey covered 57 projects and showed that on school projects bid costs fell by 23% from £3.1 million to £2.4 million compared to the year 2003. By contrast the average bid costs of hospital schemes rose by almost half from £7.7 million to £11.5 million.

Design issues

As discussed previously in the case of a typical DBFO or ProCure21 project the detailed design work will normally be carried out by the private sector design and build contractor. Although the procurement process may seem to be protracted compared to traditional procurement strategies, the window during which effective design work can be carried out is a comparatively small, (see Figure 3.7). Although therefore the design is primarily a private sector responsibility, there are advantages for the public sector client involved in a PPP project to extend its involvement in the design process. This can be done with the development of what are referred to as exemplar designs or projects. The exemplar typically extends the design development to part a way through the Outline Proposals stage of the RIBA plan of work. It should be noted that the purpose of the exemplar is not the same as the reference project or PSC, referred to in Chapter 4, whose primary use is for financial modelling. The advantages to the public sector in undertaking this design work are that particular issues relating to the site can be explored as can the reliability of the budgets that have been set. Exemplar designs also have potential advantages for bidders reducing the design changes in later stages as well as setting a level playing field for competition. The disadvantages are that additional costs will be incurred and also there may be a danger that the early design work may be used by the bidding consortia as a prescriptive template for their own solutions thereby stifling the development of innovative design solutions.

During the past 15 years the quality of design of PPP projects has been a topic that has attracted considerable controversy. Opponents of PPPs have taken every opportunity to highlight failures in design and equipment of newly commissioned buildings. Cumberland Infirmary, one of the first PFI hospital projects to come on stream, became notorious for design flaws including a glass atrium which lacked air conditioning or ventilation, making the space very hot and uncomfortable during the summer months. The House of Commons Health Select Committee also uncovered a number of problems with the same project including:

- confusing layouts
- corridors being too narrow to be able to turn a trolley round
- difficulties for nursing staff actually seeing patients because of the layout of the wards.

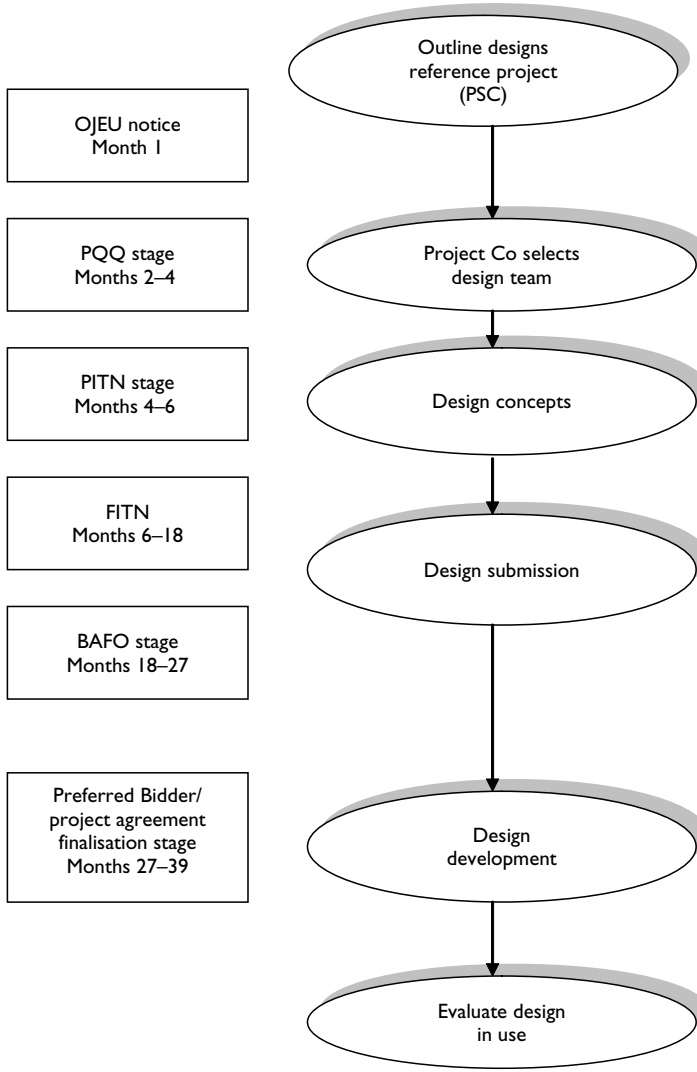

Figure 3.7 The PFI and design process.

Critics of PPP design quality have included the great and the good. Sir Stuart Lipton, who has been particularly outspoken in his criticism of PFI hospital design, in an interview with the BBC in 2001 stated that 'many of the mistakes made with the tower blocks of the 1960s are being repeated and that there is not enough attention to detail, not enough care and not enough commitment.' The designers of early PFI projects responded that the PFI process

did not allow sufficient time for design development, even though the procurement process from start to financial close appeared to be generous the actual time available for design to very limited.

Another sector that has come under scrutiny from the point of design quality is education. In 2003 The Audit Commission published a report on the performance of early PFI schools and came to the conclusion that in the area of architectural design the difference between PPP and traditionally procured schools was particularly marked in terms of quality of external architectural merit, with PFI projects exhibiting few examples of innovation. The results of a survey carried out by MORI for The Audit Commission produced the following detailed in Figure 3.8.

There are a number of reasons why design quality may not have reached best practice levels; principally, because the private sector has always built and maintained public buildings such as schools, hospitals and prisons with central government and local authorities project managing the process and

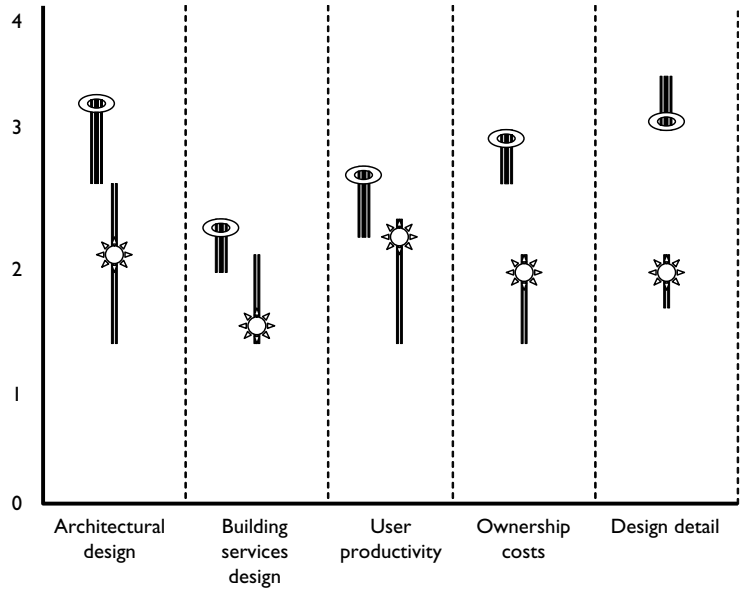

Figure 3.8 The PFI and design.

Source: PFI in Schools, The Audit Commission.

Notes
Average school scores:
0 = very serious problems; 4 = best practice
☼ Traditional
◉ PFI

specifying the detailed design. In early PFI schemes, there was inexperience on both sides. Private consortia have had to learn how to apply, for example, DfES guidance in the case of schools and develop sound knowledge of how to manage a school effectively as well as involving users in the design process. To this extent the problems associated with the design quality of PFI schools could be equally well applicable to all sectors where PFI is widely used. Sensing that public building design could be on the cusp of great changes and possibly as a result of the barrage of criticisms, in April 2001, the same Sir Stuart Lipton who has been such a critic of design quality together with Sir Peter Gershon was asked to consider what steps might be necessary to ensure improvement in the design quality of public building and infrastructure projects in general. In October 2002 their report '*Improving Standards in Design in the Procurement of Public Buildings*', set the agenda for issues surrounding PPP project delivery and design quality. One of the most important facts to be highlighted by the report is, in terms of the total cost of a PPP that design development costs are small by comparison. Over the lifetime of a building, the construction costs are unlikely to be more than 2%–3% of total costs, but the costs of running a public service will often constitute 85% of the total. On the same scale, the design costs are likely to be 0.3%–0.5% of the whole life costs and yet it is through the design process that the largest impact can be made on the 85% figure.

The design of public buildings is not just a technical issue or a matter of aesthetics as good design in public buildings can help deliver added value. For example, in the field of hospital design, it has been shown that a well-designed hospital can help patients recover more quickly, thereby allowing a hospital to treat more patients and deliver added value. In 2004, Building Design Partnership published a report that examined the differences in approach between the French and UK health services in hospital planning and design. The report pointed out that with the French health service practically all patients are treated in single bed accommodation rather than multi-bed wards. It is firmly believed that being treated in this way helps to prevent the spread of healthcare associated infections, which lead to hard-to-treat conditions which prolong hospital stays. In addition the combination of privacy, quietness and controlled conditions results in patients sleeping with fewer drugs, longer visits from family and friends and a more rapid recovery. In the education sector, a report by PwC for the DfES found that capital investment in schools had the strongest influence on staff moral, motivation and learning time. Other examples of the positive effects of quality design are staff retention and reduction in crime rates. According to Lipton and Gershon, good design is not primarily a question of style and taste. It is adherence to a set of time-honoured, objective principles that determine whether or not a building works well for the end-users. Therefore, even though there is a growing realisation that design issues can

influence efficiency and outputs there is still great pressure on the design team during the PPP procurement process. These pressures are

- as early a start on site as possible following financial close;
- risk transfer fixes the quality, choice of materials, etc;
- a short tender period;
- a short construction period, which results in,
- the design period and design development period being compressed.

Prior to the UK privatisation programme that took place during the 1980s and 1990s most public buildings, schools, hospitals, social housing were planned and designed around standard formats and prescriptive specifications. This approach gave little room for innovation in either design or the method of service delivery. An excellent example of this rigid approach are prisons and other custodial services. Prisons are fairly unique in PPP terms as not only does the private sector design, build and maintain the prison but also employs directly its own staff to operate and manage the day to day running, unlike the education and health sectors, where key roles such as teachers and clinicians remain in the public sector. Therefore when comparisons are made to determine the value for money PPP projects deliver, compared with conventionally procured prisons, PPP projects are among the best performers, with savings of around 10%, although much of this saving may be due to lower staff/prisoner ratios, salary, holiday and pension levels in the private sector. Around 80% of the running costs of a prison are staff costs. Innovation in PPP prison design has been reflected in the combination of reduced staff numbers and the increased movement of prisoners in a modern prison, for example to and from work and education classes. These innovations include CCTV, modern radio communications systems, clear lines of sight and design features such as a control room at the centre of a spine system of wings. It would be difficult to incorporate such innovations into the public sector prisons due to the age of the standing building stock as well as restrictions imposed by trade unions. One example of innovation is the use of a new form of locking system for security doors within PPP prisons. The traditional locks have been replaced with a system that is not susceptible to copying or duplication, bringing the cost of replacing a lock system down by over £30,000. Flexibility in the service level agreement has an impact on PPP project design. For example, in custodial centres the emphasis has moved considerably during the past few years from keeping prisoners occupied in work shops to education and training – containment against rehabilitation. PPP/PFI has the opportunity to move away from prescriptive traditional approaches to design and procurement and to deliver efficient, value for money designs.

Of course, the majority of the public will not be particularly concerned about prisons, but hospitals are a different matter! The whole life cost basis

of critical healthcare needs to be understood by designers and PPP consortia. The healthcare ratio of capital: operating: staff is 1:2:10 as compared with 1:5:200 for other buildings. Public private partnerships can make efficiencies and savings in relation to the capital and running costs of the building fabric, that's to say the 1:2 part of the ratio, however, staffing and operational costs, except in the case of the prison service, remain the responsibility of the public sector. Therefore clients need a hands on approach to setting out the requirements for good design that will have the most impact on the operational costs of the service itself, that's to say in the case of healthcare the 1:10 part of the ratio. There are significant barriers to making use of ideas from outside current practice. Responses from design and construction professionals are usually sought after the clinical brief is set and dialogue is inhibited by the procurement process. Ideas for the design and construction team should be considered in setting the brief. Among the criteria for selection to join a short list, to date, design innovation has not been particularly high on the list when compared with the track record.

Good design as illustrated in Figure 3.9 may be summarised as a mix of the following;

- *Functionality in use* is the building fit for purpose, or even better, does it use know-how and innovation to provide business and social value? Does it optimise the operational cost of core services and in particular the productivity of the staff? A technique that is available to achieve the maximum emphasis of function is value engineering and this will be discussed in Chapter 5. Whilst VE in itself is a widely tried and tested technique care should be taken that the SPC does not reduce the design quality of a scheme by its rigorous application. In cases where a VE exercise impinges on design quality 'threshold of pain' decisions should be taken with the help of a independent expert acting on behalf of the client.
- *Build quality* is the building designed on whole life cost principles? Consistent with the best modern approaches to construction, PPP projects require informed decisions about the quality of space planning and materials to ensure that service related assets, for example, the buildings are not economically obsolete before the end of the contract period. Account therefore must be taken of the cost of facilities management and life cycle replacement. The need to recommission while disruption in the core services provided to the end-user following the closure of parts of the facility for major maintenance is also a factor.
- *Efficiency and sustainability* is the building designed in a way that it will be completed on or before time, to budget and to specification? Is the building environmentally efficient, in terms of where it is located, how it has been constructed and how it will be used? Buildability is maximised with an integrated design and build approach.

Figure 3.9 Norfolk and Norwich University Hospital (2002). Architect Anshen Dyer and photograph by Nick Cane.

- *Designing in context* is the building respectful of its context, strengthening the identity of the neighbourhood in its landscape?
- *Aesthetic quality* the procurer may have architectural requirements that will form an essential element of the design process. These could include the need for distinguished architecture or the need for a building to harmonise with existing buildings.

As discussed in Chapter 4 a model known as the public sector comparator is used in developing the business cases of many PPP/PFI projects. However, the influence that the public sector comparator can have on the design process can be considerable. The PSC has a part to play in defining the scope of the project, but it should not be used to define budgets and affordability for the project. There is evidence that in the past the eventual PFI project has been tailored to fit just within the ceiling set by the PSC.

The role that the client body plays in the design process cannot be over emphasised and several public agencies have recognised this with the appointment of Design Champions. A Design Champion should have direct access to the political decision making process and their remit is to promote

design issues within the context of the authorities wider policies on design and creativity. PPPs change the traditional relationship between the client and the design team, with the design team working for the private sector provider and not the end user or client. One way to ensure that client's design requirements are represented during the design process is with the appointment of a client design advisor whose role is to, amongst other things, consult the project stake holders and assist in identifying key design issues. The objective of these initiatives is so that

- the scope and content of a project are defined;
- the facility for clients and end users to have input into required functions;
- a means by which design quality can be constantly assessed.

The advantages that for example the PFI can bring to the project are well documented;

- the value for money that comes from fully integrating design, construction and service delivery. The BDP (Building Design Partnership) found during the preparation of their report '*Learning from French Hospital Design*' that UK construction produces high output costs to customers from low input costs in terms of professional fees, labour rates and material compared to most EU states. The report goes on to state that if input costs in the United Kingdom were as high as say France the situation would be even worse with waste in the United Kingdom system being estimated variously at around 30%;
- the opportunity to establish integrated design teams with the opportunity to develop innovative solutions in service delivery.

However, as pointed out by Gershon and Lipton, in order to maximise these benefits, clients need to make the process work for them. For example,

- while the PFI client always transfers to the private sector the design risk involved in building, managing and maintaining the new facility, the client does not always transfer the network and interface of skills, that is the relationships with other services supplied by the client and with services delivered by the client within the facility. It is therefore essential that the client and in particular the end user understands fully and communicates clearly their design needs and aspirations in running a high-quality public service;
- with a PFI contract the designers are not necessarily contracted to the client. The PFI designer's contractual responsibility normally to the Special Purpose Vehicle (SPV) is in terms of meeting the output specification. The client must therefore ensure that relationships are structured in such a way that there is direct and ongoing dialogue with

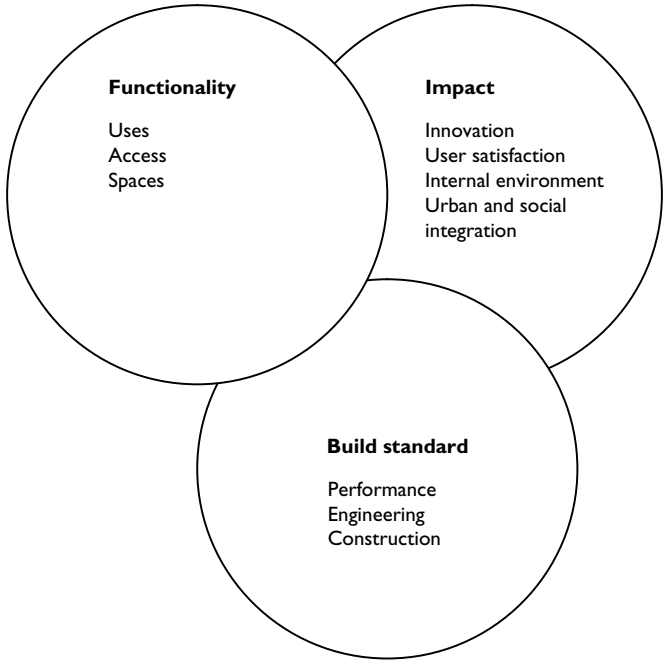

Figure 3.10 NHS design framework.

the design team about service needs, involving the end-users wherever possible to ensure that their needs are not compromised.

Evaluating design quality

It is important to establish criteria for judging design before inviting bids and it is vital that the client puts a value on the added benefits of design quality. This can be done by

- making it explicit in the project documentation that quality of design is to be a significant factor in drawing up the short list as well as final selection;
- spell out the weighting that is to be attached to the design and construction of the project, say 30% and the criteria and the identification of the expertise that will be called on by the client to judge it.

The NHS has worked closely with CABE to develop a set of criteria to ensure that all parties involved with the design of healthcare projects,

Table 3.6 Design evaluation profile

Design criteria	*Scores achieved by each criteria*
Uses	4
Access	3
Spaces	5
Innovation	4
User satisfaction	6
Internal environment	3
Urban and social integration	5
Performance	5
Engineering	4
Construction	6

both centrally funded as well as PPP projects, work within a common set of criteria. The toolkit is intended to be used at various key stages in the design development process and to support the non-financial assessments required in business cases. The framework and criteria are shown in Figure 3.10.

The degree to which the three criteria overlap reflects the level of added value being generated by the design. It may not be appropriate to apply all the criteria to every stage of a PPP/PFI project, however, from the ITN stage to financial close, it is expected that all of the criteria should be applied.

Where several PPP/PFI consortia have submitted competing design solutions, the client can use the criteria to evaluate the quality of the various schemes. A suggested forum for such a comparison is an evaluation workshop where outputs from the workshop can be recorded as shown below, the scores vary from 1 (very poor) to 6 (excellent). The responses are based on a series of questions directed at the stakeholders of the project supported by their technical advisors (see Table 3.6).

The results of the workshop can be further presented by way of a radar chart and the process can also be applied during any post project evaluation. The outcome should be as high a score as possible, but at least three for each of the criteria.

The public sector client, may have architectural requirements that will form an essential element of the design process. These could include the need for distinctive architecture, or the need for a building to harmonise with existing buildings. For example, when it was decided to use the PFI for the Berlin Embassy, there was a need to demonstrate striking and innovative design as well as being a showcase for the best in British art, design and technology. The client made this a requirement by selecting a scheme after running an architectural competition which was won by Michael Wilford.

The winning design was then made available to PFI bidders to use as a basis for their bids, if they wished and develop the scheme for evaluation by the client. The winning bid was submitted by the German consortium Arteos where selected and signed an initial 30 year contract to operate and maintain the embassy.

Sustainability and PPPs

Public private partnerships and the PFI in particular, are long-term contracts and as such provide an unique opportunity to address the issues surrounding sustainability and whole life costs in construction. Although various attempts have been made to define the term 'sustainable construction', in reality it would appear to mean different things to different people in different parts of the world, depending on local circumstances. Consequently, there may never be a consensus view on its exact meaning, however, one way of defining sustainability is; 'The ways in which built assets are procured and erected, used and operated, maintained and repaired, modernized and rehabilitated and reused or demolished and recycled constitutes the complete life cycle of sustainable construction activities.' Given this definition, therefore, it is vital that sustainable issues are given due consideration as early as possible during the procurement process. Because of the nature of the PFI procurement process there is the opportunity to fully integrate sustainable features into the project. However laudable the idea of introducing sustainability into the construction process and despite the fact that socially responsible investment in all sectors has increased by over 1000% during the latter part of the 1990s, to date there has been resistance to address the issue by construction clients as well as contractors. As with any new initiative there needs to be an incentive, by way of increased profits or sales for example, to persuade an industry to adopt, what has been previously demonstrated to be an expensive option. The comparison can be drawn with the car industry in the 1970s, when manufactures had to convince customers that paying for safety measures and non-pollution technology was a price worth paying. However, the emergence of the PFI has given the industry the incentive that it needed.

What has sustainability to offer PPPs?

Clients, especially public clients are in a position to take the lead in promoting sustainability in construction procurement. Sustainability impacts and their mitigation should be addressed as far as possible in the planning and design stage, prior to commencing tendering. Attention to some general design principles very early in project development can influence sustainability profoundly. The public sector client involved in a PFI

project should embed sustainability criteria in the output specification. Generally, attention to the following issues will increase the design costs but not the costs of the building itself, and will reduce whole life costs

- Short supply chains to reduce transport costs
- Exercise waste minimisation and recycling in construction
- Building orientation
- Durability and quality of building components, generally chosen to last for the appropriate refurbishment or demolition cycle.
- Local sourcing of materials, particularly the heavy or dense ones.
- Design sensitive to local topological, climatic and community demands.
- Construction type – prefabrication, wood or concrete structure.

Attention to such fundamentals of design requires close collaboration between engineers and architects from the beginning of the design process and through the procurement phase. The renewable option should also be considered early in the procurement process, but depending on the level of integration their addition may only have to be considered alongside the design of the services. The case studies that follow are of new schools. Most options for a sustainable school, though, fall between the cheap and the expensive. Some of them considered a luxury a few years ago will be mandatory under the requirements of new Part L of the Building Regulations. Building costs will have increased and require better design, but this will result in lower whole life costs. Passive design to increase solar gain in winter and to exploit natural ventilation and daylight can sometimes have cost implications, but they have the benefit of simplicity and reliability over mechanical and electrical systems which save energy.

Although minimisation of energy use is the major concern because of its effect on global warming, sustainability also means paying attention during the design stage to selection of the most appropriate materials.

During procurement, supply chains should be aware that components should be chosen selectively to minimise

- Embodied energy, that is, energy of production and transport.
- Atmospheric emissions, for example, through the use of low NO_x boilers and avoiding insulation whose manufacture results in phenol emissions.
- Disposal to landfill of non-biodegradable waste for example, by using organic materials or components which are recyclable.
- Air quality contaminants for example, solvents and wood preservatives continue to emit volatile chemicals long after construction, though in much smaller quantities, and these have been implicated in ‘sick building syndrome’.

- Replacement due to poor durability.
- Use of finite resources, or at least promotion of materials like wood from forests which are being replenished.

When opting for sustainable choices the designer must commit much more time and therefore cost to design. Sourcing new local and recycled materials, and checking specifications for durability, is an overhead of sustainable design which pays off handsomely in buildings with lower whole life costs and reduced environmental impact. The process of getting the minimum whole life cost and environmental impact is so complex, being a three dimensional problem as indicated by Figure 3.11. Each design option will have associated impacts and costs, and trade-offs have to be made between apparently unrelated entities, for example, as in the question what if the budget demands a choice between recycled bricks and passive ventilation.

The solution to a complex problem like this will be iterative. Consultants will provide sustainability advice with a different focus and resolution at the inception, design and construction phases to eliminate unrealistic options as early as possible.

PPP case studies

In the examples included below the aim to produce buildings that include sustainable features has only been realised because of the adoption of integrated and collaborative procurement approaches, courtesy of Atkins Faithfull & Gould.

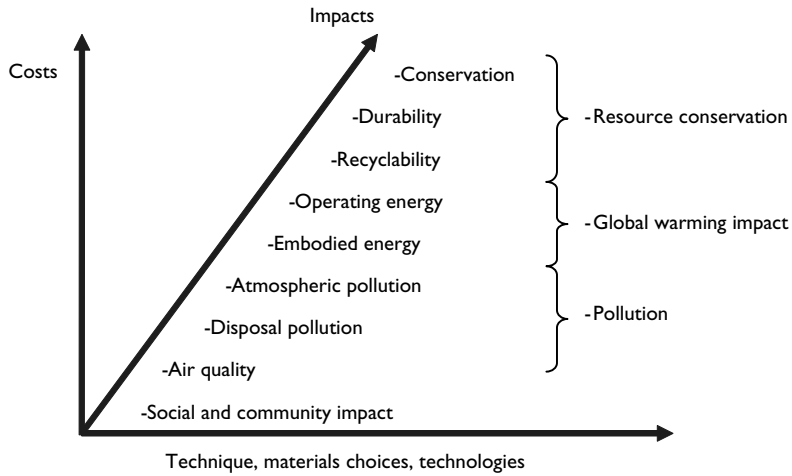

Figure 3.11 Sustainability and PPPs.

Source: Atkins Faithfull & Gould.

Lammas Secondary School

The Lammas Secondary School in Leyton, East London, is a PFI project based on the partnership between WS Atkins Consultancy, Wates Construction and Innisfree. It was the first secondary school to be constructed in the London Borough of Waltham Forest in 100 years and was constructed on a brown field site on the edge of Hackney Marshes on land formerly occupied by a factory the premises of which have now been demolished.

Sustainability design features include:

- extensive fenestration to optimise natural lighting
- high thermal insulation
- solar shading devices and passive ventilation systems to cool the building in hot weather
- door entry control for all external access doors
- L1 standard fire detection system (this is the highest category of protection)
- PIR detection to all ground floor and vulnerable first floor rooms
- window shutters on IT rooms

Meadowside primary school, Gloucestershire county council

The school was designed and built to sustainable principles and specifications, with elements designed as sustainable education tools. The aim was to embed sustainability into the school ethos and curriculum.

Sustainability design features include

- Encourage all weather access on foot by providing oak porch for waiting area. Car access discouraged by design. Cycling encouraged by providing safe routes.

- Rainwater captured by porous paving and underground storage used in toilets.
- Roof mounted wind catchers used for natural ventilation without heat loss.
- Sun pipes used to light interior corridors.
- Bamboo used for hall floor
- Tierrafino Clay Plaster finish at higher levels.
- Visible metering used as a teaching aid.

Dalkeith schools community campus

When a local authority in Scotland entered the PFI arena it was looking for a school, sports and community centre with leading environmental credentials. The design incorporated the following sustainability features:

- Low energy design, with a Schools Environmental Assessment Method (SEAM) rating of A.
- A method for cooling the structure using a design solution known as TermoDeck®.
- Sustainable urban drainage techniques to help stabilise temperatures.

The challenge was to design an environmentally sound secondary school for 2100 pupils, 100 special needs pupils, and third party leisure use. The project had to be delivered within tight financial constraints. The design brief called for the school to achieve a SEAM rating of A.

To meet the SEAM rating and manage the space to the tightly defined temperature bands set in the output specification, the team investigated the use of TermoDeck® which pumps air through the floor slab. The concrete density provides a 'steady' temperature to keep the building cool.

The TermoDeck® system, when used with other design features such as external shading devices, uses the thermal mass of the building to stabilise temperatures negating the need for energy intensive cooling and reducing the space heating requirements.

Operational matters

Getting the service delivery wrong can have disastrous consequences for a PPP project. At a time when the PPP project opens for business, the private sector consortia is deep in debt, relying totally on income flow from service delivery to pay off its indebtedness.

What can partnerships bring to traditional public service delivery?

- A step change and cultural change within the public sector organisation.
- The scope can include a large range of services, allowing partners to maximise synergies.
- Generates internal investment.
- Plays a major role in meeting strategic and service objectives.
- The adoption of a partnering ethos rather than a confrontational or traditional contractual approach helping the public sector better meet its goals and to develop strategy.
- Adopts output/income based measures for success, with incentives for the provider to secure continuous improvement.
- It includes a medium to long-term commitment to partnership.

Performance evaluation and payment mechanisms

Payment to the private sector consortia of a PFI project is performance related and is made via what is referred to as the unitary charge. This payment is calculated and agreed in advance and is entered into the business case as well as the final project agreement. The unitary charge is usually a fixed amount and becomes payable by the public sector client once the PFI procured facility is fully ready and operational. The payment can be a single sum or a series of payments linked to a range of services provided with the PFI project. In addition the unitary charged is linked to the performance criteria, set out and agreed in advance in the output based specification. The success or otherwise of a PFI project in delivering the preset outputs is measured and benchmarked at regular intervals by the public sector client, once again these criteria are made known and agreed in advance. Failure to comply with targets can result in penalties, in the form of a reduced unitary payment to the special purpose company. For example, in a PFI prison project, the private sector consortia may have clauses in their agreement stating that penalties will be applied in the event of inmates escaping or causing disruption inside the prison. Obviously, the private sector consortia should have carried out a detailed risk analysis of the likelihood of particular events

occurring during the preparation of the business case and included sums, discounted at the appropriate rate in their bid to allow for these.

Incentivisation is one of the principle drivers in the PPP process and nowhere is it more evident than the PFI unitary payment, described earlier. The unitary payment repays the consortia and is subject to the private operator maintaining pre-agreed performance targets and criteria. Failure to meet these targets result in financial deductions from the unitary charge which vary between contracts. For example in the case of a PFI prison contract, the escape of a prisoner would result in a fine of £50,000. Each contract can set out 30 to 40 performance measures and the number of points which each incident attracts, together with approximately 60 Prison Service Standards, e.g. fire safety, catering, disabled prisoners. The more serious an incident, the higher the number of points; a selection of contractual performance measures for prisons is set out in Table 3.7.

Quite understandably many of the PFI prisons experienced problems when they first opened but subsequently they have performed reasonably well.

The operation of PFI prisons by the private sector is governed by 25 year contracts with the Commissioner for Correctional Services. The contracts set out detailed operational requirements under seven broad headings set out below. Although the operational requirements are detailed, some allow the contractor flexibility, for example in the numbers of staff on each prison wing as long as safety and security are maintained. Therefore once the prison is completed and available, the Commissioner for Correction Services pays a monthly performance-related service charge in respect of both capital expenditure and the budgeted running costs of delivery of the contracted services (the unitary charge). In addition contractors are paid an extra amount for each place provided in excess of the fixed number of places. A prisoner place is deemed to be available provided the prison meets certain standard requirements, whether or not the Prison Service allocates a prisoner to it (volume risk retained by the public sector). These include, healthcare, the opportunity for exercise, availability of clean bedding, clothes and three meals a day.

Table 3.7 Performance measurement – prisons

Performance measure	*Performance penalty points per incident*
Failure of security procedures	5
Key/lock compromise	50
Items smuggled in	20
Assault against prisoners or staff	20
Incident of roof climbing	5
Failure to ensure prisoners see health care staff on arrival	1
Failure to comply with cleaning schedule	2.5

Source: National Audit Office.

Typical operational requirements of a prison PFI contract

1 Keeping prisoners in custody – for example, the number and type of searches to be carried out.
2 Maintaining order, control, discipline and a safe environment – for example, earned privileges and incentives.
3 Providing decent conditions and meeting prisoners' needs – for example, safeguarding prisoners' personal property.
4 Providing positive regimes – for example, education.
5 Preparing prisoners for their return to the community – for example, pre-release courses.
6 Delivering prison services – for example, selection and recruitment policies for staff.
7 Community relations – for example, access to the prison for certain members of the community.

There in a need, in the case of PPP projects, to incorporate, within the contract terms, an agreed mechanism for payment of the supplier that reflects the basic drivers of this form of procurement. The mechanism is sometimes referred to as, the Price Performance Mechanism (PPM) and can be considered under the following headings:

- general issues surrounding PPM matrices, etc.
- the method and timing of payments.

Price Performance Mechanisms (PPMs)

KPMG define a PPM as; 'a formal arrangement through which the level of performance achieved by a service provider, against a service specification, can be linked to the payment made for the provision of that service. As such, it provides a means for under-performance to result in a lower payment than would otherwise be the case and in some cases, for over performance to be rewarded' in order to meet the basic criteria that 'what gets paid for is what gets done.'

As has been previously mentioned, one of the main drivers, from the public sector's point of view about choosing PPP as a method of procurement, is the fact that the private sector partner is incentivised to deliver not only the built asset on time and to cost, but also, the fact that in the case of a PFI project, payment is based upon the delivery of high quality services. Failure to deliver services to the required levels generally results in penalties being levied on the supplier. In simple terms the PPM is a mathematical formula, or set of formulae, that allows measurement of performance to be translated into financial value, see later example.

The PPM is a key element in PPPs ensuring the clear transfer of the operational risks associated with a service to the provider of that service and as such, is a critical part of any service. It sets out the basis of calculation for

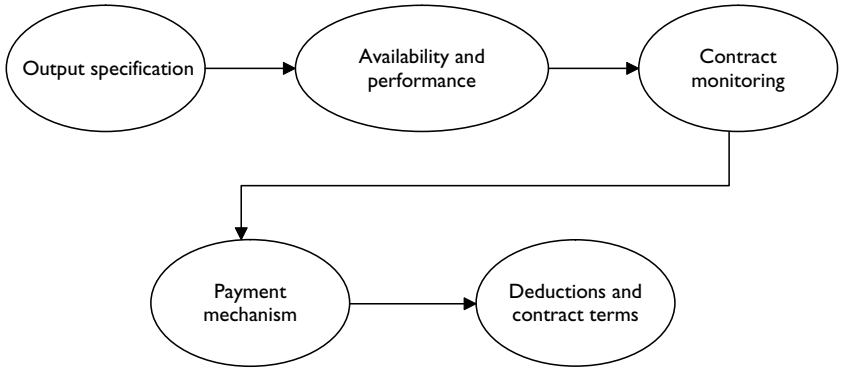

Figure 3.12 Payment mechanism and performance.
Source: 4Ps Guidance for local authorities.

the payment to the service provider and should be developed alongside the output specification and contract for the project. It is vitally important that the payment mechanism and performance monitoring regimes fits the service requirements defined in the output specification. Other than where explicitly stated, the payment mechanism should be the sole basis of payment to the service provider. PPMs should also reflect the various government Best Value initiatives although at present many of the best value performance indicators are related, for example in the case of education, to the provision of education, which rests with the public sector, rather than the support provided by the private sector partner. The payment mechanism for a particular PPP project will need, more than almost any other aspect of the contract, to be tailored and structured to reflect the particular needs of the service as illustrated in Figure 3.12. A PPM is an agreement, usually formalised by a contract, by which payments for the services provided are made and through which the payments for the services are linked to the level of performance for that service. The PPM is measured by reference to agreed performance levels, usually KPIs and forms part of the service supply contract. PPMs should contain the provision to rectify issues relating to service delivery before the strict application of penalties.

PPM critical success factors

- Involve parties in the development of the PPM who have appropriate skills. Typically, these could range from financial, legal and operational experts. The mechanism should be developed jointly by the public and private sector organisations from the earliest stage possible in the procurement process (see Figure 3.13).

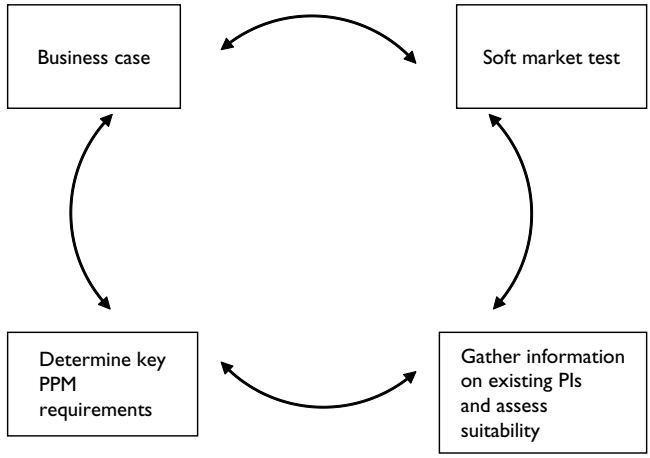

Figure 3.13 Pre-procurement PPM development process.

Source: Strategic partnering taskforce/KPMG, *Payment Mechanisms – Technical Note*.

- The PPM should be linked to the business case and the service drivers.
- The PPM should be considered early in the partnership development process. Initial thoughts of the PPM should be included in the business case stage.
- The PPM could be included in any market testing process, see Chapter 4, and in any case it should be included in the bid documentation.
- Further detailed work in the negotiation of a PPM is likely to take place during the pre-contract process, particularly in the case of PFI projects.
- The duration of the partnership could materially effect the nature of the PPM as the longer the partnership the greater the probability of change and the greater the need for flexibility which needs to be reflected in the payment mechanism.
- The most rigid and rigorous a PPM is, the more risk will be transferred to the service provider although this should not be seen as a mechanism to engage in unfair inequitable risk transfer.
- The manner in which payment is made, that's to say, monthly annually, in advance or arrears can affect the affordability of the project. (see later reference).
- Keep the PPM as simple as possible consistent with achieving required outcomes; overly complicated PPM can result in an increased administrative burden to both parties of the partnership.

The general objectives of payment mechanisms should be to

- provide realistic, challenging but achievable availability and performance standards for the service provider to meet,
- provide incentives to meet standards by including penalties for underperformance,
- match payments to outcomes,
- provide incentives for the service provider to rectify problems quickly by linking delay to increased penalty levels.

Key features

- no payment until the service is available;
- payment is made to the extent that the service meets the availability and performance standards;
- the mechanism should provide for deductions for sub-standard delivery.

During the preparation of the output specification and the associated outcomes, outputs, availability and performance standards, it is important to consider the following points

- the service delivery, both quantity and quality, must be capable of objective measurement;
- the mechanism should be transparent and easy to operate;
- availability and performance standards must be measurable and reflect commercial reality.

Factors for consideration

- Availability – what is available or unavailable. The criteria should be explicitly and simply defined and be achievable and should include and soft FM services. In the case of a school project availability could be defined as
  - has unrestricted physical access and egress;
  - satisfies the environmental and utility supply requirements;
  - does not present any hazard or threat to the well-being of any person;
  - complies with health and safety and other mandatory requirements;
  - all equipment required is present and in full working order.
- Are there any acceptable causes for unavailability, such as routine maintenance and when does availability and unavailability commence?
- Performance – the output specification and payment mechanism should set out
  - the standard or level of performance required
  - the means by which monitoring will be carried out, who does it and who pays for it

- the consequences for the service provider in case of failure to meet standards
- setting the performance standards.

Key performance indicators (KPI)

The selection of appropriate metrics or KPIs with which to monitor and measure service performance is critical and they should reflect and measure the main objectives required for the service and should be output based. Each service within an SPC should have a set of specific KPIs. Other issues associated with KPIs are

How KPIs can be measured?
How the KPIs should be weighted to reflect their level of importance relative to other KPIs?

Payment mechanisms are something that need careful consideration in any partnership between the public and private sectors. Mechanisms should contain a clear agreement on

how and when services will be paid for;
the basis for charging;
the ways in which payments will be linked to achievement and service delivery.

Unavailability or sub-standard performance should normally result in reduced payment or in exceptional circumstances no payment at all. The challenge is – which of a number of different components should be used in the payment mechanism and whether they should be considered singly or in conjunction with others.

Example of performance deductions in a schools project

During the course of a PPP school project the following service pattern emerged on the catering services

- on three occasions the menu was restricted
- on two occasions the food was found to be cold
- a satisfaction survey carried out among the customers produced a satisfaction level of 80%.

When weighed against the pre-set criteria, these incidents resulted in a reduction of 3% from the unitary charge when applied to the following formula from schools standardisation

$$\text{SPD} = \frac{\text{PP} \times \text{UC} \times \text{W}}{\text{MAPP}}$$

where

SPD = the amount of the performance point deduction
PP = the number of performance points awarded during period
UC = unitary charge for the relevant service during period
MAPP = maximum available performance points for period
W = the weighting for the relevant service

Terms and conditions of payment

Given that at financial close, the SPC, in the case of a PFI project, will have incurred millions of pounds worth of debt, in order to facilitate the new project, the timing of payments could have a substantial effect on the private sector partners working capital arrangements. There are no set rules and payment can vary from payment in advance to annual payments in arrears. The link between expenditure and payment is obviously highly significant from a service providers point of view, in addition over time the effects of inflation will need to be taken into account in any PPM. There are various approaches that can be adopted for pricing structures fixed, volumetric and variable and which approach is adopted can have a major impact of risk transfer. The most straightforward, is the fixed price where the service provider receives the same payment, plus any adjustments for non performance, inflation, etc. for the duration of the contract by indexation. Indexation is usually a process whereby a supply can be reimbursed for the underlying increases in the cost of goods and services in accordance with a predetermined basis, for example the Retail Price Index (RPI) although this basis may not be appropriate for all service contracts. Indexation is applied from the start of a contract and calculated annually. The effects of inflation should be considered carefully as it is only during the last 10 years or so that the United Kingdom has enjoyed low price and salary inflation; a return to the 1970s with inflation running at 25% pa would have a major impact of PPMs. Fixed price mechanisms have benefits for both the public and private sector. The private sector service deliverer knows income will be derived from the project for the duration of the contract and similarly public sector agencies know their outgoings. A drawback however, in adopting this approach is that it may not be suitable for situations where it is perceived that significant changes may occur during the contract period.

An alternative to fixed price is variable price which is based on paying for items or services in accordance with a pre-agreed schedule. It is best suited to projects where the public sector is not able to predict usage or volume. Volume price is applicable where payment is based on demand; if a significant element of the cost is variable and would increase or decrease in line with changes in volume then volume pricing may be applicable. Payment scenarios should be modelled prior to agreeing to cost scheduling and defining elements of fixed and variable charging. The public sector should also consider the application

of contract change mechanism should the volume of activity start to fall below the current threshold, as the client may find itself paying a fixed charge for a service where volumes have decreased during the currency of the contract.

HR issues

Workers may transfer from the public to the private sector in various situations including privatisation, the PFI, other forms of PPP and traditional contracting out. One of the most high profile problems surrounding the introduction of PPPs in the United Kingdom has been the treatment of existing public sector employees, who virtually find themselves facing the prospect of working for a private sector organisation overnight, with a very different ethos and motives to a traditional public sector organisation. When a PPP contract replaces an existing public sector operation the ideal is that employees retain their terms and conditions and may in some cases actually enjoy better conditions. However, when new staff are taken in, the PPP contract the terms and conditions can be less favourable for doing the same tasks. Trade unions and UNISON in particular have blamed this approach for the creation of what has been become known as the 'two-tier work force'. The main legislative instrument relating to the protection of employees rights is known as The Transfer of Undertakings (Protection of Employment Regulations 1981) more often referred to as TUPE which was introduced to implement the Acquired Rights Directive 77/187EC. In 1992 the European Court of Justice ruled that TUPE, which was initially designed to cover staff transfers within the private sector, should be applicable to staff transfers between the public and private sectors. The application of the law with regard to this has caused considerable controversy and case law and legal disputes usually are concerned with the question of which areas count as transfer and which do not. The purpose of the regulations is to provide protection for employees during the tendering out process from one employer to another, enabling them to enjoy the same terms and conditions, with continuity of employment as formally. At the Labour Party's annual conference in 2002, the two-tier workforce was the most contentious issue on the agenda, with the Party leadership's motion of the PFI being defeated by delegates, even while the conference backed the potential war in Iraq.

Pension rights are still not generally protected by TUPE, but since 2004 transferred staff have acquired the right to a 'broadly comparable' pension terms, but new recruits do not enjoy this protection. The debate surrounding the two-tier workforce revolves around a fundamental trade-off flexibility of staff deployment versus protection of staff terms and conditions. An agreement designed to end the two-tier workforce in local government was reached in February 2003 which is now being implemented across the heath service. However, according to the IPPR, there has been little co-ordinated action across government and in mid-2004, for the majority of

central government departments there remains no solution. Not surprisingly trade unions remain highly critical of the potential for a two-tier work force. Amendments to the TUPE regulations in the United Kingdom have been subject to prolonged consultation but finally came into effect in 2004.

Human resource issues connected to PFI deals basically fall into two categories

- staff transferred between an existing public sector agency and a private sector consortia and
- new staff that are taken on by a private sector consortia, once the PPP contract has been awarded.

In reality a two-tier work force has existed in the United Kingdom for a number of years. Those working within the private sector performing similar tasks generally find that rates of pay, pension provisions and benefits are not as lucrative as those historically given and enjoyed in the public sector. PFI contracts where staff transfers are involved are seen by some to impact unfairly on the workforce by the workers, unions and the public resulting in political opposition for further using the existing PFI models to expand the private sector involvement in delivering public services. There is little robust data that distinguishes productivity gains on the one hand and reductions in terms and conditions on the other. In the 1995 Escott and Witfield Report the equal opportunities commission reported an average reduction of 28% of staff and widespread reports of increased intensity of work. Concurrently there was evidence that contactors had made cuts in overtime, bonuses and paid leave. The most recent data is research by UNISON and identifies numerous examples of the two-tier work force where new starters are employed on apparently significantly inferior terms and conditions than transferred workers.

There is a basic lack of evidence on the extent of any two-tier workforce as there in no central collection point for data and because of this, debate on the issue tends to frequently occur on an anecdotal level, although there have been attempts, that were later abandoned, to bring together information on this topic. For reasons of 'confidentiality' much of the data relative to the improved efficiency and productivity, where there have been public staff transfers and reduced terms and conditions in relation to labour cost savings in PFI projects, is not available, and dispersed between public bodies and private companies who are reluctant to release it.

Due to the lack of robust evidence the OGC sponsored research into the subject in 2000 and found that some reasonable data was available in the non-PFI sector of the prisons where the management had been privately contracted. Compared to similar publicly managed prisons, costs per prisoner were 11% less on an average. Reduced staff costs, salaries between 24.6% and 32.4% lower in PFI prisons compared with existing public

sector prisons, mainly accounted for the difference. The paperwork and KPI reflected no reduction in the quality of service, similar to publicly managed institutions and that this represented a significant efficiency gain. Management had made savings due to lower levels of sickness and absenteeism. Two thirds of the staff cost savings achieved appeared to be through the reduction of aggregate pay, and benefits of the workforce. Pay conditions and pensions with comparable staff in public managed prisons was less (employment of younger less experienced, less expensive staff in place of older experienced staff, also contributed to staff cost savings). Subsequently two out of the four privately managed prisons used for the study lost the contracts in favour of an in-house team. This might suggest that when challenged, the public sector shows improvements in their procurement and management skills, and can compete with the private sector on a level playing field. Conclusions should not be drawn from the prison sector, which is sometimes considered as being atypical of a wider public sector. Other factors not originally considered in the measurement metrics, flexibility, and any detrimental effects that the changes may have had on final outcomes may not be immediately obvious.

In 2000, the Cabinet Office published a statement to the effect that TUPE should apply when public staff transfer, unless there are exceptional circumstances, like where activity is essential on new or one of the existing projects, and where the service is significantly different and provision of goods or services is essentially 'off the shelf'. New projects that are 'fresh starts' or are particularly innovative potentially can be exempt from TUPE regulations if the Government departments and bidding firms claim exclusion. Many of the PPP/PFI proposals will qualify for this exemption although the Best Value Code of practice effective from March 2003 is applied to all new contracts in England, including local authorities' and practices in a variety of areas. The Code offered much of the protection that trades unions had been seeking although it elicited a harsh response from the CBI and other employers' organisations as well. The code included the following conditions;

- new recruits will be offered pay and conditions packages which are 'no less favourable' than those offered to transferred staff.
- trade unions will be able to discuss terms and conditions packages before the deal is signed and if necessary refer the deal to a binding dispute resolution mechanism which will function as an alternative to the legal process.

However, the government has been careful to signal its intention to protect employer flexibility to deliver quality public services. Alternative dispute resolution procedures are being reviewed as part of the code of practice,

and performance and monitoring measures are to be implemented to ensure that new employees to PFI workforces are not receiving worse terms and conditions, and this data is the key to best practice in the future, and yet another work in progress. There seems to be a lack of synchronicity in programme and the time line of management of any remedial measures; it is unlikely the current trends identified by the Unions will be stemmed by government in the near future. Although 'paper' has been produced and pilots studies put in place, in essence and practice nothing has significantly changed with regard to staff transfers. Most of the guidance is not statutory, and benefits if not through the first generation transfer away from the public sector employment to private, will continue to be gradually eroded through a series of pay increases that are lower than the rate of inflation (pay cuts), transfers, reclassifications and redundancies over time.

The Government has since introduced the pilots for 'The Retention of Employment' model in the NHS and value for money testing for soft services. The Government stated in the 2003 document 'Meeting the Investment Challenge' that they regard the NHS workforce as a 'distinct family' and that allowing employees in PFI hospitals to maintain a link to this family will help projects operate successfully. This philosophy is being tested in five areas – catering, porters, security, domestic workers and laundry. Hospitals that are pilots for the scheme are Stoke Mandeville, Hovering and Roehampton hospitals. In the scheme staff is retained as employees of the NHS with their original conditions, are seconded to the private sector joint venture. New employees are treated in the same way. Around 80% of the PFI staff will remain NHS employees. Risks bearing supervisory staff are not covered by the pilot and they are to be employed by the private sector contractor. It is too early to draw any conclusions from these at present. The evidence based on the short- and long-term impacts on the PPP/PFI on transfers and new starts needs to be improved, and moves should be made to strengthen the framework through a voluntary code and/or legislation.

TUPE plus

Some individual local authorities and NHS Trusts, for example the PFI package to rebuild and upgrade six Newcastle schools, have sought increased protection for staff beyond that recommended by central government, known as 'TUPE plus'. Under this scheme terms and conditions are written into the PFI contract to cover matters such as future pay awards must equal those given to public sector staff. The crucial difference from other schemes is that rather than terms and conditions of staff being maintained as a package, under TUPE plus, the terms and conditions for new recruits remain exactly the same as those for transferred staff. In addition, pay deals for all staff will remain in line with public sector pay awards and

transferring staff will be able to remain in public sector pension schemes should they wish.

According to the IPPR in the immediate future there are two key questions which need to be addressed

- to which areas of the public services should any deal to resolve the two-tier issue apply;
- what is the optimal balance between protection for employers and management flexibility?

Any deal to address these issues should

- end the incentive for firms to undercut rivals by cutting terms and conditions;
- be simple and easy to understand as well as cover all contractual models between public and private sectors, including PPPs;
- remove reliance on case law and the necessity for expensive litigation;
- retain flexibility over staff deployment allowing management to use the workforce in the most appropriate manner;
- ensure 'no less favourable' terms and conditions for new joiners; and
- provide a package-style deal which are unalterable.

Conclusion

In addition to addressing the various issues discussed in this chapter another critical success factor for delivering PPP projects is effective project management and the role of the project manager in PPP projects will be discussed next.

Bibliography

Audit Commission (2003) *PFI in Schools*, The Audit Commission.

Building Design Partnership (2004) *Learning from French Hospital Design*, Building Design Partnership.

Cabe (2002) *Improving Standards of Design in the Procurement of Public Buildings*, Commission for Architecture & the Built Environment, London.

Cabe (2003) *Client Guide Achieving Well Designed Schools Through PFI*, Commission for Architecture & the Built Environment, London.

Department of Health (2003) *Achieving Excellence Design Evaluation Toolkit*.

Franks, J. (2002) *Study into Rates of Return Bid on PFI Projects*, PricewaterhouseCoopers.

Gershon Sir, P. (2004) *Releasing Resources to the Front Line*, HMSO, London.

Gosling, T. (2004) *3 Steps Forward, 2 Steps Back – Reforming PPP Policy*, IPPR, London.

House of Commons Committee of Public Accounts (2003) *PFI: Redevelopment of MOD Main Building*, The Stationery Office.
Institute for Public Policy Research (2003) *Building Better Partnerships*, IPPR, London.
Lord Chancellor's Department (2000) *Freedom of Information Act (2000) – Part II, Exempt Information*, The Stationery Office.
Monaghan, A. (2005) *Bid Costs For PFI Hospitals Increase by Half*, Building, 16 September, pp. 20.
National Audit Office (2004) *Getting Value for Money from Construction Projects through Design – How Auditors Can Help*, NAO, London.
NHS Confederation (June 2003) *Briefing: Investing in Design*, Future Healthcare Network.
PFI and PPP: Could they result in Enron UK? Balance Sheet, The Michael Mainelli Column, Vol. 11, No. 2, July 2003, pp. 39–44.
Public Private Partnership Programme (2004) *Payment Mechanisms for Local Authority PFI Scheme – School Projects*, 4ps Know-How.
RICS (2005) *Qualifying Quality – A Report on PFI and the Delivery of Public Services*, The Royal Institution of Chartered Surveyor.
Strategic Partnering Taskforce/KPMG(2004) *Payment Mechanisms – Technical Note*, Office of the Deputy Minister.
Yescombe, E. (2003) Ahead of the gain, *PFI Intelligence Bulletin*.

Chapter 4

Project management and PPPs – Part 1

Principally, project managers are involved in the inception, bidding and construction phases of PPP projects and the management of PPPs requires a unique combination of management roles and skills. From the first PFI projects it became evident that one of the most pivotal roles in the whole procurement process is that of the project manager. Seldom previously have such long-term, complex projects involving the design, construction, finance and operation been undertaken. Reports and research from various bodies following the Bates Reviews of 1997 and 1999 have highlighted the importance of skills such as project management, strategic planning, negotiating, financial management and contract management in the PPP process. The following areas have been identified as particularly important for the PPP project manager:

1 Engaging with the end users;
2 Business case development including feasibility, option appraisal and determination of affordability;
3 Statutory process including EU requirements;
4 Determination of project outputs;
5 Cost models;
6 Allocation and management of risk;
7 Establishing project timetable;
8 External advisors.

For ease of reference items 1–4 are dealt within this chapter whereas items 5–8 are dealt with in Chapter 5 – Project management and PPPs – Part 2. Project managers for PPP projects are typically employed by both the private and public sectors, although historically it is thought that the public sector has lacked personnel with the essential skills for this role. From Figure 4.1 it can be seen that generally, private sector PPP project management skills do well when it comes to construction experience, financial modelling and technical and legal advice, but are relatively weak in specialist knowledge such as healthcare culture and planning etc. In addition

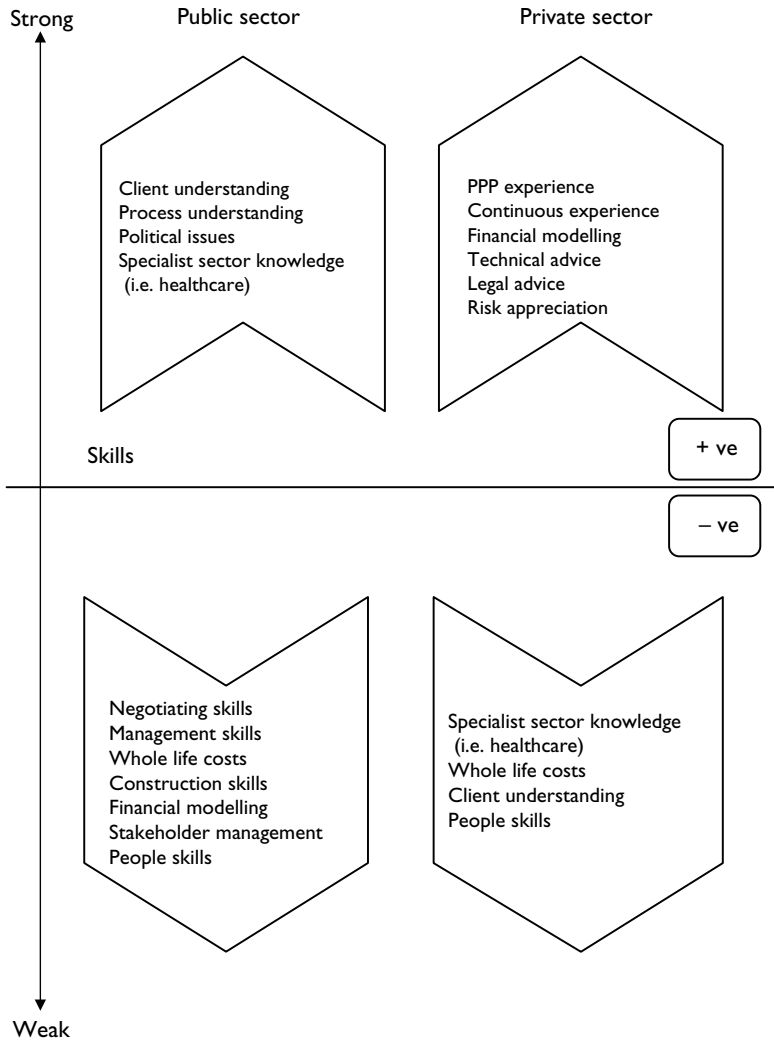

Figure 4.1 PPP skills balance.

Source: RICS Project Management Faculty.

there has been a tendency during the past few years for public sector employees with experience in PPP projects to move to the more lucrative private sector, thereby exacerbating the public sector skills shortage. During 2004 a number of government-led initiatives such as The Management Standards Centre and the Successful Delivery Skills Programme were

established in order to try to address these public sector skills shortages. Of all the PPP procurement models currently in use, it is perhaps the PFI where project managers come into their own, whereas, in other PPP models where external funders are not involved, such as ProCure 21 for example, the process tends to be less demanding because financial institutions are not driving the process, particularly in the latter stages of closing the deal.

Any PPP project manager has to come to terms with a broad range of issues not least of which is the nature of the UK construction industry, as well as working in a relatively immature market, previously described in Chapter 2.

Factors that should be understood by project managers include

- the nature of the UK construction industry, where even in the largest organisations there is a tendency to 'talk the talk' – but not 'walk the walk'. Although the board room may be convinced about initiatives such as collaborative working, SCM etc. at site management level, attitudes may be very different and there is evidence to suggest that skills key to PPP success are lacking at all levels, even in major UK construction companies;
- reconciling the differing objectives of the various stakeholders. There is a perception that the public sector is more interested in issues centring around quality, value for money, and a project delivered to time whereas the private sector is primarily interested in maximising profit for shareholders.

Engaging with end users

The users of PPP projects should be at the centre of any discussions surrounding public services, a process that until recently has been lacking from some UK PPP deals and can be frequently overlooked and under valued. User participation in the formal PPP mechanism is important as to has the potential to:

- improve responsiveness giving an absolute focus on improving the experience of the public service users;
- encapsulate complex criteria – contracts that only measure physical outputs through hard empirical data for complex public services, risk missing crucial experiential aspects of that service. Focusing on the satisfaction of users could help give a better impression about whether complex public services are being delivered adequately. The requirements of citizens rarely fall into neat departmental silos, so user involvement could help promote more joined up service delivery;
- challenge underlying assumptions – involving service users not only provides a direct mechanism to measure their satisfaction of public

services, but can also provide a way to register underlying changes in their preferences. This is particularly useful for politicians responsible for setting service outcomes;
- increase trust – opening lines of communication between citizens and those responsible for purchasing or providing public services is an essential part of civic society. So long as citizens feel that their feedback is making a practical difference it can foster a sense of connection and trust between user and government.

The consultation process, which should be instigated as early as possible, prior to the commencement of a PPP project should include staff and stakeholders, local community representatives and should include resources dedicated to change management. In other PPP models outside the United Kingdom, for example in Australia and Holland, user participation is an important part of the procurement process and various mechanisms are included in the project development strategy to allow a wide consultation to take place, as discussed in Chapter 6.

Business case development including feasibility and option appraisals and determination of affordability

The business case, which was referred to previously in Chapter 2 is perhaps the most important document in the PPP process. All major procurement projects should be supported by a robust business analysis or investment appraisal and nowhere is this more true than is complex, long-term PPP projects. The business analysis is an integral part of the decision-making process and should include all the information necessary to make an informed decision. It is also important that the business analysis is carried out at an as early stage as possible in the procurement process and should be prepared concurrently with an options analysis, that is consideration of all available strategies, including 'do nothing'. PPP projects generally will have two versions of the business case, outline (OBC) and full (FBC), the preparation of two documents providing a useful audit trail at the end of the process. The business case must include a clear definition of the business objectives including analysis of technical and financial issues and trade- offs between them. Without a clear definition of the project there is a substantial risk the eventual project will under perform and not contain all the facilities required, that is too few pupil places or acute hospital beds. With such large complex schemes if projects are conceived incorrectly, then there is very little opportunity to rectify omissions or mistakes at a later date. Clear project definition is also essential when preparing the output specification, discussed later in the chapter.

The outline business case (OBC)

The prime purpose of the OBC is to justify the scope and choice of service delivery route and to provide the decision makers with the relevant project information to enable approval to be given. Although the level of detail included will vary according to the nature and the complexity of the scheme an OBC must seek to address the following issues:

- strategic context and business need at both national and local levels;
- service or project objectives;
- affordability and commercial soundness;
- an options appraisal including selection of the preferred option.

The sequence for carrying out and developing the OBC is illustrated in Figure 4.2.

Strategic context and business need

A PPP project should not be considered unless there is a clear business need for it and in addition it fits into the strategic context of the procuring body. This section of the business case should highlight the rationale for the

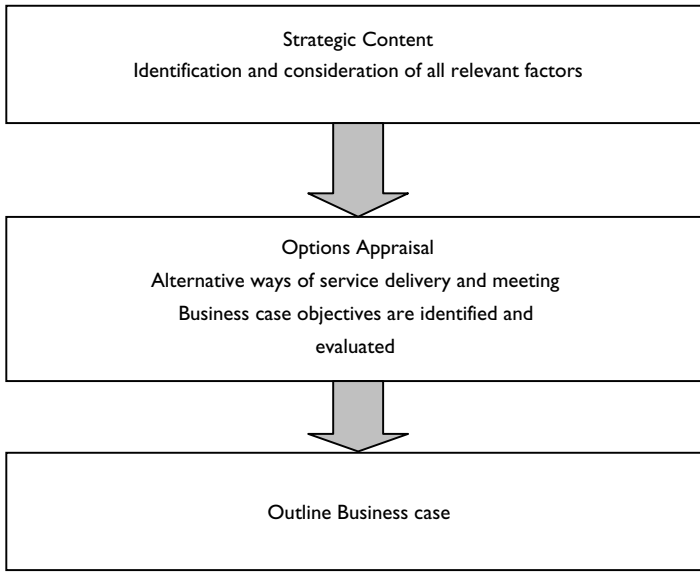

Figure 4.2 Developing the outline business case.

proposed project and should consider the following:

- making the case for change;
- the previously agreed strategy for the development of the service area – is the new service compatible with existing and proposed services;
- an analysis of existing services including condition surveys of existing stock;
- an investigation as to whether the public sector body is legally able to enter into a PPP contract with a private section partner;
- how can the proposed project improve the strategic fit of services, for example by enabling flexibility in delivery.

Service or project objectives

The service or project objectives of the proposed PPP project should be clearly and unambiguously stated and could include, depending on the project, the need to

- replace worn out or outdated stock;
- improve service delivery;
- concentrate all services on one site or in one location;
- improve the environmental quality of services;
- improve the confidence and morale of staff and users;
- enable statutory requirements to be met;
- improve security;
- eliminate costly maintenance.

Affordability and commercial soundness

The business case must address the question of affordability. That is to say, will the client procuring the PPP project have the necessary resources to meet any recurring charges such as the unitary charge or the increasing payments to a private consortium required for a 4Ps project? Assuming that there are a number of options open to the public sector client, including 'do nothing', the relative costs of the options should be calculated in terms of their Net Present Value NPV cost (see Chapter 5), appropriately adjusted for the risks inherent in each option. The NPV calculation adjusts future cash flows for the time and value of money by applying an appropriate discount factor. The economic appraisal of each option comprises two main components:

- the NPV of the projected cash flows associated with the scheme;
- the NPV of the expected values of the risks.

By doing this it is possible to compare income against expenditure.

A sensitivity analysis should be applied to the results to test the effects on the project calculations of changing a number of the key financial variables, that is, increasing and decreasing capital expenditure and operating costs.

Alternative revenue streams

One of the carrots dangled in front of both the public and private sectors considering using PPP forms of procurement is the potential to generate alternative or third-party revenue streams. According to Blackwell, the idea is sound but to date the application has been weak. In many projects involving real estate, the alternative revenue has come from selling surplus assets made redundant by the project, for example in the redevelopment of the Norfolk and Norwich-hospital the existing hospital buildings that occupied a city centre site were sold to a developer for housing. This is a trend repeated in other large new PFI hospitals that have been relocated to out-of-town green field sites. Alternative revenue streams can be classified into two groups. First, from the expanded use of a facility that has been included in the PPP scheme, for example, catering that is made available to the wider market. The second group is more difficult and involves creating flexibility within the project design to enable a range of diverse services to be provided, perhaps in the case of a school, during the school holidays or weekends. Of course the alternative revenue stream opportunities will depend upon the type and the location of a PPP project and what is the potential to provide surplus assets. There is also the question of risk assessment and management of any decision to include the potential for third-party revenue streams in a scheme. If there is the possibility of generating a third-party revenue stream, then a discussion will need to take place as to the distribution of any profits that arise. Alternative revenue stream opportunities may be identified from an examination of the output specification, the nature of which is fully discussed later, to determine what services need to be provided in order to achieve successful project delivery.

Funding for PFI projects

The cost of funding is undoubtedly a major consideration when determining affordability. If capital costs make a large contribution to unitary payment levels, SPCs should be required when bidding for projects, to provide documentary evidence that they can obtain funding commitments from financial institutions if they intend to arrange debt from third parties. Such commitments are usually provided by way of documents known as support letters providing a summary of the basis and terms on which finance will be provided. Support letters do not constitute a legal commitment but the terms of the letters should not be deviated from. Although it is common sense for the bidder to try to reduce the cost of finance to the lowest

possible levels there will be cases where additional action can be taken by public sector clients to ensure value for money. One such action is to require the preferred bidder to run a funding competition for the following reasons:

- lenders are likely to offer competitive terms to a preferred bidder;
- lenders are less likely to raise issues on the contract if faced with competition from other institutions willing to offer the SPC finance for the project.

Although not suitable for every project, the factors that need to be considered are, the nature of the project, the particular market and the status of the competition and in particular, the suitability of the project. Projects where funding competition may be suitable can usually be determined in advance, for example,

- larger projects that involve a significant amount of capital investment to be made by the SPC;
- more unusual projects, for example those based on market risks, where financiers may each adopt a different attitude and so offer greater choice to borrowers, rather then presenting a typical market reaction;
- projects that are likely to attract few bidders.

Other circumstances where funding competitions may be considered are if the preferred bidder's funders are requesting changes to be made to the contract, usually during the due diligence process, in spite of the fact that the project is based on standard terms and conditions with a perceived low risk, or when there is time between the appointment of the preferred bidder and financial close. Factors that should be considered include

- the extra risks and costs involved in conducting a funding competition;
- the process by which a competition is carried out;
- how the risks and benefits that arise from a funding competition should be calculated and shared between the public sector and the SPC.

While funding competitions can bring benefits in the form of cheaper debt for the SPC they also have their disadvantages and these can include the following

- a lack of willingness by the market to engage in a funding competition, which could result in the SPC having to accept what is offered by the markets;
- bids are less competitive than they were expected to be and this in turn may cast doubts on the affordability of the project overall, perhaps even cancellation;
- the exercise may incur high financial advisor fees for the public sector sponsor because of the additional work involved.

If conducted properly a funding competition can reduce the time taken to reach financial close by reducing the negotiation needed by the public sector client, the SPC and the funders during the period between preferred bidder and financial close.

Running a funding competition

The total number of funders in a competition should be limited to between 4 and 6 and this shortlist can be drawn up by asking interested parties to pre-qualify. The basis of the bid is a fully underwritten offer for the total finance required and it will take place after the client and the SPC have negotiated the contract, as by this stage the contract terms, as well as other significant contractual matters, should have been agreed upon and the overall shape and scale of the proposed project should be known. At the start of the funding competition process a *Financing Information Memorandum* should be drawn up which sets out the salient points of the project. Although prepared primarily by the SPC the public sector body has the right to verify the information contained in the memorandum. Contents can include:

- an overview of the project;
- the structure and organisation of the SPC;
- details of any shareholders agreements that relate to the project;
- financial information about the SPC and a summary of their experience to date on similar types of projects;
- a description of the technical aspects of the project, including the form of construction etc;
- project costs;
- a risk analysis;
- a financial analysis of the project as well as sensitivity analyses, if available.

When completed the memorandum provides the competing funders with a synopsis of the project. As a part of the process the SPC appoint financial advisors, both technical and financial to carry out due diligence on the proposals. Once the contract negotiations between the preferred bidder and the public body are completed the advisors should produce due diligence reports that are included in the information package for bidding financial organisations. After the competition the advisors will come under the control of the successful funders.

Having taken the decision to run a funding competition the next question is, what aspects of the project finance should be made available to the competing organisations. Any aspect of project finance that impacts on the

calculation of the unitary payment or the NPV of the contract should be included, for example,

- capital structure;
- margins, fees and premiums;
- reserve requirements;
- repayment structures;
- interest rate swaps, etc.

After negotiations with potential finance providers the final decision on which package to choose lies with the SPC although of course the selection should be ratified by the public sector client. The costs of organising the competition, for example financial and technical advisors fees, is borne by the preferred bidder and included in the bid costs. In reality, the maturity of the UK PFI market now makes the need to hold financing competition less likely. As well as using competitions to obtain best value for new projects the same approach can also be used when refinancing existing projects.

Option appraisals

There are a variety of criteria that could be used to evaluate different procurement strategies including; time scale, best value, affordability, etc. Procurement of public services should generally be contestable. That is to say, there should be the theoretical opportunity to bid for public sector projects by means of a process which makes available a range of technically competent solutions from a broad range of suppliers. The PPP process makes contestability possible by allowing external suppliers to bid for the delivery of public services. However, PPPs should only be pursued where they deliver value for money, which can be defined as the optimum combination of whole life costs and quality to meet the user's requirements. Therefore, there is a need to compare PPP and in particular PFI projects with a publicly financed benchmark, referred to as the PSC. Since the early days of PPP projects, this method of determining value for money has been seized upon and criticised by a number of sides who claim that it is very easy to manipulate the PSC calculations in order to arrive at the conclusion that, PPPs are always best value. In January 2003 The House of Commons Committee of Public Accounts published a report of its examination of the PFI deal for the redevelopment of the MoD Main Building in London. The substance of the deal was that, in May 2000 the MoD signed up to a contract valued at £746 million over 30 years with the Modus consortium for the redevelopment of Main Building, Ministry of Defence (MoD's) London Headquarters. The project is of particular interest because of the closeness of the PSC calculations. The PSC gave a central estimate for the cost of

conventionally financed alternative to the PFI as £746.2 million, compared with an expected PFI deal of £746.1 million. The Public Accounts Committee came to the conclusion that 'Such accuracy in long term project costings is spurious, and the small margin in favour of the PFI deal provides no assurance that the deal will deliver value for money.' Can it be said that a projected saving of £100,000 on a project with a life span of 30 years and a total value of £0.75 billion is significant or conclusive evidence that the PFI provides value for money? It was revealed during the examination by the committee of the MoD project that the consortium had reduced its price by £4 million in order to undercut the PSC figure during an advanced stage of the negotiations. In this particular case the MoD used the PSC as a negotiating tool to reduce the price deal by £4 million on the day of financial close. In order to avoid potential criticisms in the future the Office of the Deputy Prime Minister has now issued instructions that the PSC should no longer be used as the only basis for determining value for money but just as a part of the bigger picture of costs and benefits and a quantitative way of informing judgements. This is thought to be especially important where project bids are close to the PSC figures.

When considering the case for value for money and bid evaluation, the project manager should also take the following into account:

- the value to the public sector of the risk the private sector accepts through the PFI agreement;
- any differences in service deliverables between the PSC and the PFI bid and the wider consequences of having the private sector deliver public sector services. For example, in the case of the redevelopment of the MoD Main Building it was considered that the advantages to the MoD from the flexibility of the agreement with the private sector consortia would over the term of the contract offer many opportunities to enhance the value for money from the deal.

Options appraisal has two stages:

1 Identification of project structure to meet service delivery needs, for example,

   - the replacement of existing building stock in a poor condition;
   - the bringing together of on-site facilities that are currently remote from each other;
   - to improve the strategic fit of services;
   - to promote best practice in service delivery.

   Value engineering workshops can play an important role in identifying the service delivery needs of a PPP project and is discussed in Chapter 5.
2 Appraisal of procurement options using an appropriate comparator.

The PSC fulfils a number of key roles:

at the OBC Stage, its development helps to ensure that the output specification against which bids are sought from the private sector can be met within the affordability ceiling;
on the receipt of bids from potential partners, the PSC serves as a useful benchmark against which the value for money of such bids can be assessed;
at the FBC stage, the PSC provides a comparison against which the value for money of the best PFI solution can be demonstrated.

The PSC may be defined as a hypothetical risk-adjusted cost model, assuming that the public sector is the supplier. It is based on the output specification (discussed later) that is prepared as part of the PFI procurement process. It is a benchmark against which value for money is assessed. Most PSCs are based on a reference project which typically will be a cost estimate based on the assumption that assets are acquired through conventional funding and that the public sector procurer retains significant managerial responsibility and exposure to risk. The PSC expresses the cost of conventionally procuring an asset in NPV terms; is based on the recent actual public sector method of providing the defined output, including any reasonably foreseeable efficiencies the public sector could make; and takes account of the risks which would be encountered by using the conventional method of procurement.

For projects that are unique, where for example there is no history of public sector procurement delivering the required outputs, the process of compiling a PSC may be more complicated. The two cases under consideration, the PPP model and the PSC are of course very different and factors such as the value of risk transfer and the different cost of finance have to be included within the calculations. The PSC must include the value of transferred risks as well as procurement costs in order to be a valid benchmark. In the case of the PSC risks should be identified and also the ways in which these would be traditionally managed by the public sector. It is necessary to assess the impact of these risks on costs, estimate their probabilities and include any necessary adjustments in the PSC. The appropriateness of the alternatives used in a PSC will vary according to the nature of the underlying assets and the relevant conventional funding arrangements. In most cases the two most likely alternatives to a PFI procurement path are,

- conventionally funded provision of the same level of service – in this case the likelihood of conventional funding being made available should be considered and whether the creation of a comparator which is unaffordable would be unhelpful. One of the positive aspects of using the PFI approach is that projects are not reliant on Treasury funding and economic circumstances;
- conventionally funded provision of a lower level of service – sometimes known as the 'do nothing' or 'do minimum' option.

As stated in Chapter 2, PFI procurement can be categorised by three approaches: the so-called classic PFI (DBFO), Joint Ventures and Financially Free Standing. The following text relates to the approach to compiling a PSC for a Classic PFI project. Where the economic substance of the transaction is quite different, for example financially free standing projects and joint ventures, this will have an impact on the nature of the comparator that should be used. Financially free standing projects require the private sector to recover all costs through charges on the final users of the service. The public sector plays a facilitating role but no public money is involved. Such projects will by definition involve private investment and it is the responsibility of the private sector partner to take a view as to whether the project is suitable for investment. It would confuse the issues if the public sector carried on its own appraisal and therefore in such cases no comparator is needed. For joint venture projects, where the public contributes a subsidy to a project but the revenue comes principally from third parties, there is a need for a comparator to establish whether the investment represents value for money. In this case the public body providing the subsidy should compare the net benefit of making this contribution with that of using the resources in another way. This will vary from project to project but will often be a costing of an alternative way of delivering the same policy objective. In this case there is no need to compare the proposed project with the same project wholly financed by the public sector.

Figure 4.3 shows the life cycle of the PSC in a PFI project. The PSC is referred to and refined throughout this process thereby forming a useful audit trail, at the following stages:

- Business case and reference project – when the reference project is constructed, forming the embryonic PSC. What is required at this stage is the best estimate of NPVs of the cost of the project and an analysis of the sensitivity of that value to changes in assumptions to financial aspects on which the project has been based. At this stage of course there is no private sector involvement, except for consultants appointed by the public sector client. Any risk allocation is likely to be subject to a different perspective once the private sector becomes involved.
- Refining the appraisal – the PSC is fully worked up at this point before any detailed bids are received. A decision must be taken at this stage as to how much of the material used in the preparation of the reference project is to be disclosed to the private sector bidders in order to maintain competitive tensions. In general the public sector procurer should be as open as possible with bidders as it helps the private sector to avoid incurring cost unnecessarily and also helps to avoid misunderstandings regarding the required service levels and relevant financial restraints. To some extent the degree of disclosure will depend upon the level of competition, with more information being made available to the bidders.

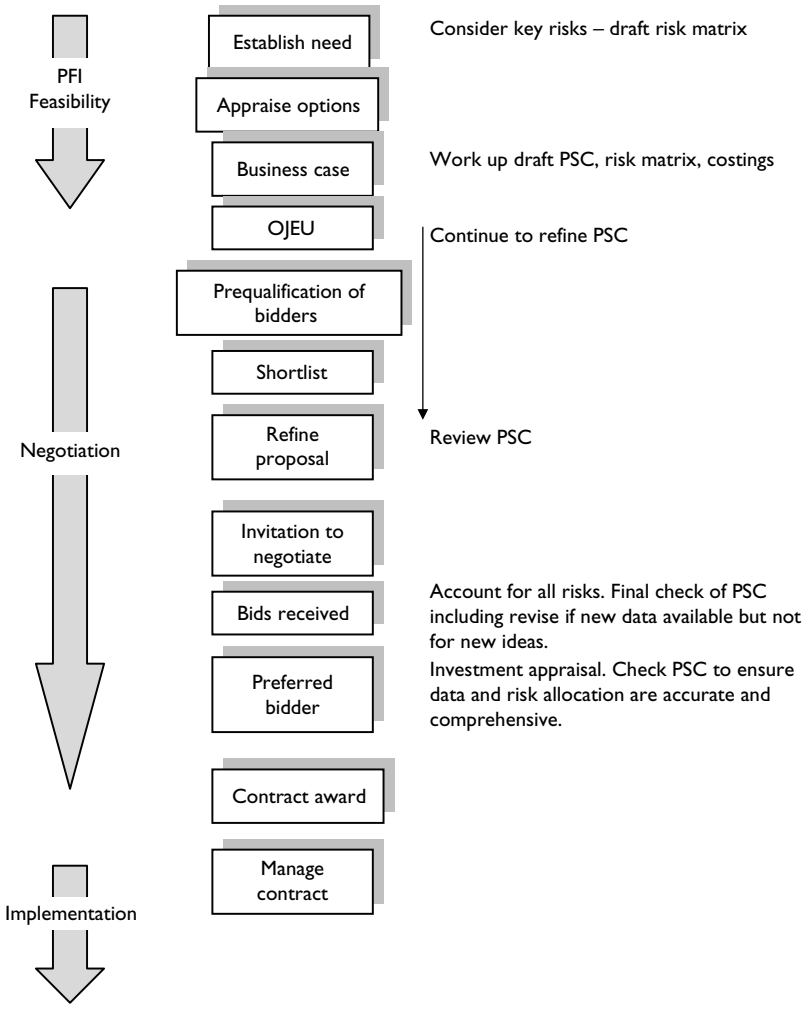

Figure 4.3 Lifecycle of the public sector comparator.

- Before ITN, the proposed risk allocation should be well defined as a basis for the subsequent negotiations. If necessary, in the light of reviewing the bidders' proposals the PSC can be recalculated although there should be no major changes at this point.
- Receipt and Evaluation of Bids and Preferred Bidder – when the PSC is used to check the appropriateness of risk allocation prior to the contract award. The bids are received and should be evaluated to

assess if the consortia have based there proposals on different amounts of risk transfer as this will obviously have an impact on issues such as affordability. For example, if the simplistic approach is taken to bid evaluation, it may appear that the unitary charge proposed by a private sector bidder is affordable, as is comes within the budget that has been allocated for the project by the public sector over the next 30 years or so. However, if key risks have not been accepted by the private sector consortia and have been left with the public sector client, then the project could quickly become unaffordable if these risks together with their financial implications materialise. Under these circumstances not only will the public sector be contractually obliged to pay the unitary charge but also the added costs of managing un-transferred risk. Once the best PFI option has been identified it should be compared to the PSC to ascertain that every aspect of the preferred bidder's solution, levels of service etc., is identical to the PSC. The decision as to whether the PFI solution provides value for money may not be clear cut as the PSC is only an estimate and contains varying degrees of judgments and assumptions about future operating patterns. In cases where the PSC and the PFI bid are close together, as in the case of the MoD Main Building project a sensitivity analysis should be carried out to provide additional information upon which to make a valued decision.

PSC format

According to the Green Book a PSC should contain costs relating to the following items:

- capital costs of land, construction and major equipment purchases
- annual finance charges
- operating and whole life costs
- social costs and benefits
- risks
- sunk costs about which a decision has yet to be made
- inflation.

however, there is no fixed format as each project must reflect the particular relevant aspects although a PSC would normally benefit from the inclusion of the following:

- An overview of the project – a short description of the context, objectives and scope of the project, including the output specification. It may also include a draft work and construction programme.

- An estimate of basic procurement costs including, capital costs, such as purchase, construction, project management, professional fees and fitting out.
- Costs – as well as upfront costs such as construction, this section should also include whole life costs of maintaining the assets in the condition required for efficient use in accordance with the output specification. The approach to the preparation of the PSC must change as practices and techniques change. For example, it was mentioned in Chapter 2 that the use of the PFI has helped to revolutionise that approach towards the design and staffing of prisons in the United Kingdom. When the first PFI prison was tabled, what the PSC used as the reference point was based on construction techniques and management that had been used to procure traditional publicly funded prisons. Subsequently, PSCs were based on modular prefabricated processes which speeded up construction time and reduced costs. Generally, any assumption that is made in the preparation of the PSC should be noted for future reference. If funding is considered to be an issue for the traditional public sector procurement strategies, this should be taken into account. For example, the statement that the construction of the New Royal Infirmary in Edinburgh would have taken 8 years compared with 4 for the PFI. A sensitivity analysis can be used to demonstrate the effects of such delay.
- An estimate of operating costs – this section should include estimates of the services required to operate the completed facility and will alter in line with the nature of the project and can include

  – human resource costs, staffing, pension liabilities, redundancy costs etc;
  – consumables;
  – repairs, maintenance and cleaning;
  – administrative overheads;
  – insurance costs;
  – in-house management costs.

  Note that the effect of inflation is excluded from PSC calculations except where the one element of the project is expected to rise more quickly than other factors.
- In addition the following items should be included:

  – Potential for third party revenues – as previously mentioned, this is an element of PPP projects that has to date proved difficult on which to capitalise. Another difficulty may be the lack of historical data on which to base estimates.
  – Property values – particularly in the health sector PFI deals can involve the transfer of assets such as existing property or buildings

to the private sector on a lease or freehold basis. The value of such transfers should be taken into account as should the residual value of assets created during the project.
– A risk matrix or register detailing the proposed allocation of risk – see Table 5.5.

Taxation

The Green Book gives specific guidance on how to take taxation differentials into account. The guidance looks at the differential tax receipts that arise from the use of the PFI compared to traditional public sector procurement. It provides the recommended approach for estimating the differential tax receipts as a percentage of net present value cost of the PSC to correct potential bias.

Statutory process including EU Public Procurement Directives

PPPs are long-term contractual relationships within the public sector and are therefore governed by layers of legislation and regulations at national and European levels, put in place to ensure transparency and accountability of all transactions. The EU has its origins in the 1950s when a number of treaties were signed with the intention of primarily protecting the European coal and steel industries. These treaties are referred to as The Treaty of Paris signed in 1951, The Treaty of Rome and the Euratom Treaty both signed in 1957. Since then the community has developed into a 25-member state project where European legislation, in the form of Directives now have supremacy over British Law. A typical PPP selection process is set out in Table 4.1.

Table 4.1 Typical selection process

Announcement date	*Bidders*	*Stage*
Month 1	N/A	OJEU announcement
Month 5	8	Pre-qualification questionnaire
Month 6	6	Prelim invitation to negotiate (PITN)[a]
Month 18	3	Final invitation to tender
Month 27	2	Best and final offer
Month 27	1	Preferred partner

Note

a It is recommended that at this stage unsuccessful bidders should be informed and returned to the market as soon as possible. This can be achieved by producing a brief PITN that can be completed more quickly based on output specifications of critical aspects of the PFI project, less questions and much less work from bidders in respect of design work.

EU legislation demands that calls for expressions of interest for proposed PPP projects above a set monetary worth are required to be announced in the OJEU to give equal opportunity and access to interested parties in all 25 EU member states. The influence of the legal and regulatory frameworks are therefore considerable and in some PPP models they have helped define and shape the approaches to PPP procurement currently in use in the United Kingdom, ProCure21 for example, discussed in Chapter 2. According to EU legislation, all contracts from the public sector which are values above the limits set out below must be published in the OJEU.

	Supplies	*Services*	*Works*
Central Government Departments, NHS Trusts, Health Authorities, etc.	£99,695	£99,695	£3,834,411
Local Authorities, universities, schools and other public sector contracting authorities	£153,376	£153,376	£3,834,411

Failure to comply with the Directives could result in member states being referred to the European Court. Organisations and projects which receive public money, Local authorities, Central Government Departments, NHS Trusts and Port authorities are all covered by the legislation and must advertise in OJEU if their contract is covered. Some privately funded/managed contracts will also be covered – if a project is in receipt of more than 50% public funds, it would also be covered by the EU legislation (e.g. the Lowry Centre in Manchester and the Millennium Dome). The term 'Journal' is misleading, as production of the hard copy version ceased in 1997. It can now be accessed directly via the internet or intermediaries such as Tenders Direct. Around 2,500 new notices, in all sectors, are advertised every week – invitations to tender, pre information notices, qualification systems and contract award notices from over 80 countries worldwide. Around 10%–15% of these are from the United Kingdom and Northern Ireland.

The EU Public Procurement Directives have been around for about 30 years, however, in 1996 a process of updating was commenced in order to take account of the many changes that had taken place during the last few years. In 2004 the changes were agreed upon and adopted by the European Parliament and the changes must be transposed into national legislation by 31 January 2006. Significantly, both the Scottish Executive and the DTI have warned that they will not be able to implement the new EU legislation by the dead line and that there is likely to be a gap of a few months between when the new directives should have been implemented and the date when they are actually implemented in the United Kingdom. The new directives, it is hoped, will provide a framework within which

public procurement must be conducted, and these have been widely drawn to cater for all 25 member states. The OGC launched a public consultation looking for views on how the Consolidated Procurement Directive can be best implemented.

An interesting development has been the decision by the Scottish Executive that it wishes to have its own set of Scottish implementing regulations that will be distinct from those in England and Wales. There has not yet been any convincing justification given for this decision, but it has certainly proved universally unpopular, judging by the recent responses to the recent public procurement consultation. Concerns have been expressed by contracting authorities and utilities that this will simply lead to increased compliance costs, as procurement lawyers will need to become familiar with two sets of implementing regulations and with many differences between the two. Additionally, there is concern that ambiguity could be caused by the situation where, for example, a Scottish contracting authority runs a procurement exercise for services to be delivered south of the border or there is a need for services to be delivered on both sides of the border. There is doubt as to which set of rules would apply or whether both sets will.

The Consolidated Procurement Directive does not seek to bring about radical change; rather, its aim is to modernise the existing Directives by clearly permitting electronic means of procurement and to facilitate new procurement models such as PPPs. The Directive also clarifies existing law in areas such as the selection of tenderers and the award of contracts, bringing the law as stated into line with judgements of the European Court of Justice.

The changes to the procurement process can be summarised as follows:

- A consolidated single Directive – one for the public sector and one for the utilities to replace the existing one;
- Refinement of existing procurement provisions to include
  - simplified thresholds expressed in Euros, available from the OGC website from January 2006 – see previous reference;
  - encouragement to use performance specifications, in all forms of procurement, not just PPPs;
  - environmental and social issues addressed;
  - the expansion of electronic tendering and communication which can be utilised to reduce the bid period by seven days compared with convention means.
- Significant additions include provisions that impact on PPPs such as
  - the Competitive Dialogue Procedure, recommended for use with PFI projects;
  - Framework agreements used for ProCure21 and Partnerships for Schools.

The new version of the directives makes the following procedures available:

- Open procedure
- Restricted procedure
- Competitive dialogue
- Negotiated procedure.

The following pages will concentrate on those procedures most commonly used in PPP models in the United Kingdom. Generally in order to comply the procurement directives the following rules should be followed:

- minimum number of bidders must be 5 for the restricted procedure and 3 for the negotiated and competitive dialogue procedures;
- contract award is made on the basis of lowest price or most economically advantageous tender (MEAT);
- contract notices or contract documents must provide the relative weighting given to each criterion used to judge the MEAT and where this is not possible, award criteria must be stated in descending order of importance;
- MEAT award criteria may now include environmental characteristics, e.g. energy savings and disposal costs, provided these are linked to the subject matter of the contract;

Competitive dialogue

Article 1(11c) defines competitive dialogue as follows:

> A procedure in which any economic operator may request to participate and whereby the contracting authority conducts a dialogue with the candidates admitted to that procedure, with the aim of developing one or more suitable alternatives capable of meeting its requirements and on the basis of which the candidates chosen will be invited to tender.

Article 29(1) describes its use thus: 'For particularly complex contracts where use of the open or restricted procedures will not allow the award of the contract.'

The introduction of this procedure addresses the need to grant, in the opinion of the European Commission, contracting authorities more flexibility to negotiate on PPP projects. Some contracting authorities have complained that the existing procurement rules are too inflexible to allow a fully effective tendering process. Undoubtedly, the degree of concern has depended largely on how a contracting authority has interpreted the procurement rules as there are numerous examples of PPP/PFI projects which have been successfully tendered since the introduction of the public procurement rules using the Negotiated Procedure. However, the European

Commission recognised the concerns being expressed, not only in the United Kingdom but also across Europe and it has sought to introduce a new procedure which will accommodate these concerns. In essence, the new Competitive Dialogue procedure permits a contracting authority to discuss bidders' proposed solutions with them before preparing revised specifications for the project and going out to bidders asking for modified or upgraded solutions. This process can be undertaken repeatedly until the authority is satisfied with the specifications that have been developed. Some contracting authorities are pleased that there is to be more flexibility to negotiations; however, for bidders this reform does undoubtedly mean that tendering processes could become longer and more complex. This in turn would lead to more expense for bidders and could pose a threat to new entrants to the PPP market as well as existing players. According to the Commission's DGXV (Directorate General XV) department the introduction of this procedure will enable

- dialogue with selected suppliers to identify and define solutions to meet the needs of the procuring body;
- awards to be made only on the basis of the most economically advantageous basis.

In addition,

- all candidates and tenderers must be treated equally and commercial confidentiality must be maintained unless the candidate agrees that information may be passed on to others;
- dialogue may be conducted in successive stages. Those unable to meet the need or provide value for money, as measured against the published award criteria, may drop out or be dropped, although this must be conveyed to all tenderers at the outset;
- final tenders are invited from those remaining on the basis of the identified solution or solutions;
- clarification of bids can occur pre- and post-assessment provided this does not distort competition.

To summarise therefore, the Competitive Dialogue procedure is, according to the commission to be used in cases where it is difficult to access what would be the best technical, legal or financial solution because of the market for such a scheme or the project being particularly complex. However, the Competitive Dialogue procedure leaves many practical questions over its implementation for example,

the exceptional nature of the Competitive Dialogue and its hierarchy with other award procedures;
the discretion of the contracting authorities to initiate the procedure, who is to determine the nature of a particular complex project?

the response of the private sector, with particular reference to the high bid costs;
the overall value for money;
the degree of competition achieved as there is great potential for post-contract negotiations.

Compared with Negotiated procedure, Competitive Dialogue is up to 22 days longer (see Figure 4.4).

Until now the Negotiated procedure has been used by UK public entities when procuring a PFI project and this will still be available to project managers and the devil appears to be in the detail, particularly with defining the 'particularly complex' criteria. The differences between the Negotiation and Competitive Dialogue procedures are illustrated in Table 4.2.

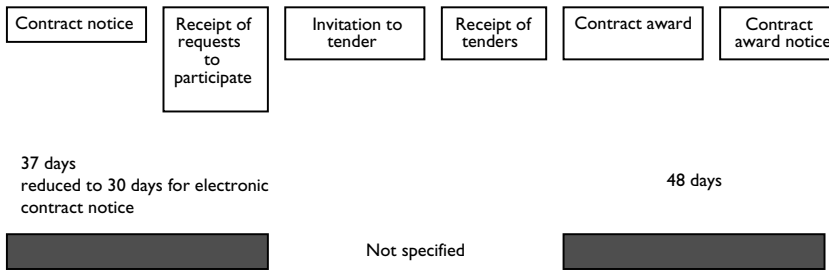

Figure 4.4 Competitive Dialogue – minimum time scales.

Table 4.2 Competitive Dialogue compared

Competitive Dialogue	*Negotiated procedure*
• Always involves competitive tender and can only use the most economically advantageous award criteria (MEAT) • Dialogue may embrace all aspects of the contract for the purpose of identifying one or more solutions which meet the purchaser's needs before seeking bids from those remaining in the dialogue	• Competitive tender not required. Can use 'MEAT' or lowest price and in specified and limited circumstances; can negotiate with a single supply • Negotiation following advertisement is intended to adapt tenders received in order to better meet the purchaser's specific needs • Used to allow negotiation when; Competition is not viable or appropriate Other procedures have not produced an acceptable tender Works are needed for R&D purposes Prior overall pricing is not possible Services cannot be specified sufficiently precisely for use of open or restricted procedures

Framework agreements

Article 1(5) defines a framework as:

> An agreement between one or more contracting authorities and one or more economic operators, the purpose of which is to establish the terms governing contracts to be awarded during a given period, in particular with regard to price and where appropriate, the quantity envisaged.

That is, a framework establishes the terms and conditions that will apply to subsequent contracts (call-offs) but does not create right and obligation. Frameworks can cover supplies, works and services and can be used in conjunction with the Open, Restricted, Competitive Dialogue and Negotiated procedures. A framework agreement is used in the NHS ProCure21 procurement strategy described in Chapter 2.

The position regarding the legality of framework agreements under the existing public sector directives was unclear; although use of these procurement models was not specifically provided for, neither was it prohibited. As a result, much debate sprang up regarding the legality of framework agreements as a method of procurement by bodies bound by public sector rules. The Consolidated Procurement Directive clarifies this position, specifically regulating the use of a single supplier and multi-supplier models and the call-off of individual contracts under the framework itself. Where there is only one supplier signed up to a framework agreement, contracts under it must be awarded by applying the rules set out in the framework agreement, although the contracting authority may ask the supplier to supplement its tender where necessary. In the case of a multi-supplier framework agreement at least three suppliers must be signed up to it and depending on whether all the terms are set out in the framework agreement, a contracting authority may award contracts by applying those terms without re-opening competition, or it may conduct a mini-competition. The Directive sets out how such a mini-competition should be carried out.

The Consolidated Procurement Directive also regulates the duration of framework agreements stating that they may not be longer than 4 years unless there are duly justified and exceptional circumstances. What constitutes 'exceptional circumstances' in these is not defined; however, it is likely to encompass situations where a longer period is justified by reason, for example, of a contractor's investment in the contract. In such cases the duration should be sufficiently long to permit recuperation of that investment plus a reasonable amount of profit.

The EU directive outlines the principals that must be satisfied before a framework can operate as follows (see Figure 4.5).

Finally, as PPP contracts are generally long term, a new provision to base the contract award criteria on environmental characteristics has been

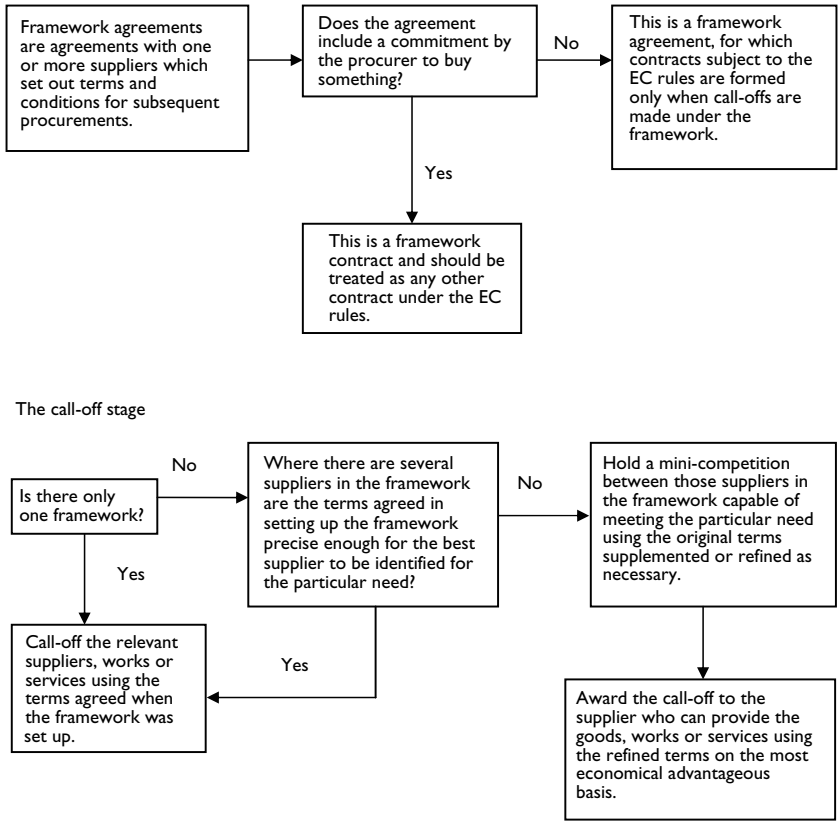

Figure 4.5 EU framework process.

included provided that these are linked to the subject matter of the contract and looked at from the point of view of the contracting authority for example running costs, energy costs and additional environmental quality (toxic emissions) etc.

Determination of project outputs

Procurement in the UK in both the public and private construction sectors has developed during the past 150 years or so on a system based on the client's design team producing detailed drawings and highly prescriptive documentation, for example, bills of quantities and a detailed specification. The process is further characterised by the total lack of contractor or sub contractor involvement in the design stages and little or no understanding

by the supply chain of the client's requirements or how to generate value for money. In short, the builder's main contribution to the construction process is – to build! Especially in the public sector, specifications relating to materials and workmanship combined with standard designs have produced over designed and over specified projects built with little consideration to whole life costs or sustainability. It is therefore a quantum leap for the UK construction industry to be asked to engage with a process that transfers the responsibility, not only of the specification, design and construction to them, but also in the case of PFI projects, the service delivery. The design, on design development, construction and service delivery of a range of PPP procurement models are based on an output specification as opposed to the typically highly prescriptive specifications normally associated with public sector contracts.

For example, in the case of car parking provisions for a new PPP project, rather than be presented with a set of drawings and a specification detailing items such as the width of the white lines between car parking bays and the thickness of the tarmacadam, the bidders would instead be required to design, construct and then operate car parking facilities to comply with, for example, the outputs given in the following extract:

2.1 The Project Company shall provide a comprehensive Car Parking Service including traffic management across the site. The Service shall be operable 24 hours per day 365(6) days per year on a planned and ad-hoc basis. Project Co shall:

a Provide a secure and safe car park environment for staff and bona fide visitors, their vehicles and their property.
b Provide car parking areas that maximise the use of the space whilst minimising the risk of crime and pollution.
c Provide traffic management across the site to ensure the free flow of traffic ensuring access to the facilities at all times;
d Provide an administration service that controls all parking-related administration and revenue collection.
e Promote the Green Transport Plan by encouraging the use of sustainable transport modes.

(Department of Health Standard Specification)

How the bidders propose to meet the designated outputs is up to them, but as long as the car parking provision meets the outputs, they are free to employ any and all innovative measures at their disposal, or if they so wish, follow the existing prescribed methods. However, the consequences of the design decisions, that is the costs of construction, running and maintenance over the contract period, will have to be met by the bidder if successful.

Therefore, the role of the output specification in the PPP procurement process is central, as it sets out and informs the bidding parties what is expected of them and will underpin the entire contract, which in the case of a PFI project, may be for 30 years plus. The output specification, by defining outputs, necessarily defines many of the risks that the bidders are being asked to accept. It is for the bidders to assemble the optimum means of delivering the results required and they do this at their own risk of failure. For example if in meeting the output criteria, a material or component is used that proves to be expensive in terms of running costs or maintenance costs or both, then it will be the private sector that has to absorb the costs instead of passing them onto the client as is the case in traditional procurement strategies. The public sector client, when drafting an output specification should try to break the grip of historic or standard public sector design and look at how to achieve synergies between design, facilities management and operation. Output specifications should also encourage in-built flexibility to respond efficiently to the inevitable changes in requirements that are going to be needed over the life of the contract, but without causing excessive disruption to the users. Bidders will turn to value engineering (see Chapter 5), in order to produce solutions that deliver maximum value for money. In some sectors certain critical service objectives will have been developed over years and have become compulsory standards for the provision of a service and these instances should be brought to the attention of the bidders. For example, the design of prison cells has been developed against a background of prisoner safety but whether a bidder should decide to adopt or not to adopt the design standards the risks associated with meeting the required performance standard rest with the bidder.

What is an output? An output is what is actually consumed by the users of the service. It is not the facility that may be used for providing that service. Therefore in writing the output specification there is a need to define the service, not the facility. For example, in the case of a school project,

- Ensure that the school is clean enough when in use to provide a safe, hygienic environment and a positive image is an output whereas;
- Internal cleaning of the school every morning and evening is not an output.

(Private Finance Panel (1997) Writing an Output Specification HM Treasury)

The output specification therefore needs to detail what has to be achieved not how it is to be achieved. Output specifications encourage a focus on strategic needs rather than the history and detail of current provision. A wellproduced output specification should allow new ideas about the design, construction and perhaps the operation of a whole range of public services. Most critically, because this approach encourages bidders to develop the means

to deliver the outputs within the context of a fixed, performance-related pricing mechanism, it focusses much more attention on the project risks, which in turn should lead to better designed and operated buildings. Although one of the major benefits of using an outline specification is the possibility of stimulating innovation it should be noted that innovation has to be balanced with risk transfer and that there is the strong possibility that untried approaches may be removed from the proposal during the negotiations with the preferred bidder by their funders, as there may be the perception that untried approaches could fail. Clarification meetings between the public sector client and bidders can provide the opportunity for a dialogue and can be used by bidders to assess whether more radical changes in design for example, are worthy of development. These meetings should include a wide range of stakeholders.

The questions that need to be addressed when assessing the suitability of an output specification are as follows:

- Does the outline specification appear reasonable in terms of scope of services?
- Is there a payments mechanism that links, in the case of a PFI project, the unitary charge with the availability and performance standards?
- Are most of the outputs capable of being specified in a reasonable measurable manner?
- Is the output specification reasonable in relation to standards expected from the authority in terms of its duty to deliver best value?
- Does the output specification allow sufficient scope for good design, taking into account core services being delivered beyond the scope of the project?

In turn the output specification is based of the brief which should clearly identify all those areas where the design advisors and the client wish to set standards of performance, appearance and design quality or specify particular items which must be provided. All disciplines and stakeholders should contribute to the preparation of the brief for if it is not complete or is unclear or does not fully present the client's aspirations, then there are bound to be problems later on. The use of drawings and photographs in the outline specification is often a good idea in order to convey client requirements.

In the early days of PPPs an output specification would normally be drafted from scratch for every part of the project. It has now become common practice in many sectors, such as health, to develop a set of standard output or performance specifications for the standard aspects of a project, for example the car parking provision referred to earlier in this section. The NHS has developed a number of standard output/general service specifications, that details a Trust's generic service requirements as well as specific service level specifications that detail the additional particular requirements for each service standard and these may be viewed at http:// www.dh.gov.uk/home/fs/en

Output specification – key elements

An output specification should communicate what is expected from the bidders, but leave the opportunity for innovation and the ability for the provider to manage risks effectively. A good output specification should

- reflect the actual requirements of the users;
- be clear, concise and unambiguous;
- give potential bidders sufficient information to decide and cost the facilities and the services that they will propose;
- comply with legal and statutory requirements that should be made explicit. For example, IT systems used in the PPP project must be compatible with existing systems;
- identify any constraints that should be brought to bidders' attention, however only those core aspects which are essential to define a solution. Mandatory constraints should be identified such as working hours and access to sites, etc;
- permit the project to be evaluated in the procurement process against defined criteria – see measuring performance;
- identify those service areas which are critical to the availability and performance of the school and which therefore will be given most weight in the payment structure and performance monitoring.

A holistic approach and total solution is at the heart of PPPs. In Chapter 1 the economies that can be generated through exploiting design/construction/operation synergies were mentioned – the PFI is an example where these synergies can be maximised, generally speaking when things go wrong in PFI contracts it is because there is a lack of commitment to achieving these.

How should bidders respond to an output specification?

The 4Ps, in it's publication *Output Specifications for PFI Projects* suggests that for evaluation purposes, public sector clients should request the following information from bidders – this will be, in the case of a PFI project at the ITN stage:

- scale drawings of the whole project;
- general arrangement floor plans and elevations and sections;
- a written commentary on the design approach;
- a method statement on the strategy for achieving design freeze;
- specifications for all elements of the proposed, identifying materials, manufacturers and quality, as appropriate;
- an elemental cost breakdown, cross referenced to the specification, produced in spreadsheet format; life cycle cost analysis;

- a schedule of accommodation, including floor areas achieved;
- a comprehensive programme of works, graphically demonstrated including critical path analysis;
- supporting commentary describing the management of the process on site from commencement of contract to handover;
- details of life cycle maintenance and replacement programmes for all major materials, elements and equipment;
- method statements on integration of design disciplines and FM expertise on planning and management of the design process and on delivery of FM services.

Preparing the output specification

The production of the output specification should involve all the stakeholders of the project. Those consulted may include governors or trustees, support staff, architectural advisors, planners, accountants, procurement experts and Union representatives. The preparation and development of an output specification may take several forms. One approach is similar to the techniques used in value engineering, described in Chapter 5, using workshops or brainstorming sessions involving key stakeholders under the direction of an experienced facilitator. It could be that the preparation takes place over a period of time from the OBC stage to the ITN stage. During the ITN stage it is possible to refine the output specification in the light of comments coming from the bidders. It will of course, during the drafting of the output specification, be necessary to define what outputs are required. Consider for example, the following questions:

- What are the objectives of the project and services to be provided?
- How can these objectives contribute to the delivery of healthcare, educational curriculum etc.?
- What is not required?
- What is negotiable?
- What is the level and standard of facilities and services that must be delivered?
- What, if affordable, can be provided in addition to the required level and standards?
- What service parameters are discretionary?
- What is likely to change over the life of the contract and how can these changes be incorporated into the specification?
- How can the standards be measured and used in the payment mechanisms?

The last point is particularly important for two reasons. First, the private sector will bear the risk for non-compliance with agreed sector standards

and in the event that standards are not met then financial penalties will be applied and second, to date there is consensus that very little data exists on how PPPs are performing.

Bibliography

Blackwell, M. (2000) *The PFI/PPP and Property – A Practical Guide*, Estates Gazette.
The Green Book – Appraisal and Evaluation in Central Government, HM Treasury.
Office of Government Commerce (1999) *How to Construct a Public Sector Comparator*, HMSO.
Output Specifications for PFI Projects – 4Ps Guidance for Schools, Public Private Partnership Programme.
Private Finance Panel (1997) *Writing an Output Specification*, HM Treasury.
RICS Project Management Faculty (2003) *Project Management and the Private Finance Initiative*, The RICS.
Winch, G. *et al*. (ed.) (2003) *Building Research and Information*, Vol. 31, Spon Press.

Chapter 5

Project management and PPPs – Part 2

The aspects of project management for PPP projects that will be discussed in this chapter are as follows:

1 Cost models
2 Allocation and management of risk
3 Establishing project timetable
4 External advisors.

Cost models

Value for money is at the heart of the PPP procurement, but although the tools and techniques necessary to deliver value for money, functionally efficient construction projects with low life cycle costs, have been known for sometime the construction industry has chosen to either pay lip service to them or ignore them totally. The introduction of PPP procurement has meant that no longer can these techniques be left on the back burner as it is now the private sector operator that has to live with the consequences of inefficient and/or high maintenance design solutions. The challenge facing PPPs is not only to deliver aesthetically pleasing buildings – see Chapter 3, but also assets that function efficiently over their expected life cycle. Central to these goals is an understanding of the techniques of the following:

- Value engineering;
- SCM;
- Discounted Cash Flow (DCF) techniques and internal rate of return;
- Whole life costs.

From the project manager's perspective a knowledge of these is essential not only for the purposes of assembling a robust business case, but also in order that valued judgements may be made when selecting which proposal or bid to accept. Unlike conventional procurement where selection is made on the basis of capital costs, in a PFI project for example, selection is based on competition on the NPVs of the unitary payment.

Value engineering

There is evidence that value engineering techniques were used as long ago as the early nineteenth century by George Jackson Churchward, a British-born engineer, whilst working on the Great Western Railway. However, there can be no doubt that it was in the United States, in the immediate post-Second World War period, that Lawrence D. Miles, an engineering analyst working for the General Electric Company, developed the technique for the manufacturing and production sectors and named it value analysis. Later the approach was rebadged as value engineering/value management, a technique now widely utilised by the manufacturing sector worldwide. For an objective view of the process perhaps the reference point should be the International Society of American Value Engineers (SAVE) who define value engineering as 'A powerful problem solving tool that can reduce costs while maintaining or improving performance and quality. It is a function-oriented, systematic team approach to providing value in a product or service'.

The techniques of value engineering and management were introduced into the UK construction industry approximately 20 years ago and represent a step change from the traditional approach that delivering value for a client is based on the principle of cutting costs in order to keep within the original budget, regardless of the consequences to the functional requirements of a building. For many years value engineering/management like whole life costs remained on the sidelines and it was not until the emergence during the later part of the 1990s of a greater emphasis by clients on best value and sustainability that these techniques started to attract renewed attention. PPPs also have played a large part in bringing value for money and sustainability to the attention of the construction industry. It is now increasingly recognised that valuable insights into the functions behind the need for a new building and what is needed to fulfil these functions can flow from a value engineering exercise. If nothing else, it may be the only time in the planning and construction of a project when all the parties, client, end user, architect and quantity surveyor sit down together to discuss the project in detail. Traditional construction industry approaches to optimising the cost–value balance has been centred around models based on measuring and valuing, including

- development appraisals;
- cost modelling;
- cost planning;
- estimating;
- whole life costs;
- post-contract financial management.

What is missing from this approach is a mechanism to identify value generating issues and offer alternative solutions based on meeting functional requirements. There needs to be an integrated mechanism to bind together

traditional techniques to deliver functional buildings at target cost and low life cycle costs. The process developed by Miles identified the function of a product and then sought to source, in a market recovering from the Second World War, a replacement with an alternative component that would perform the same function. It was noticed, as a side effect of this process, that many of the substitute components resulted in a reduced cost.

The basis therefore of value management, as applied to construction procurement, is to analyse at the outset, the function of a building, or component, as defined by the client or end user and then to seek alternative ways of delivering this function and attempting to remove or substitute items that do not contribute to the efficient delivery of this function, thereby adding value. The golden rule of value engineering is that as a result of the value process the function(s) of the object of the study should be maintained and if possible enhanced, but never diminished or compromised. Put another way, the elimination of costs (waste) which do not contribute to the performance of the required function, every time waste is eliminated – value is added. This ethos is similar to the ones developed by Taiichi Ohno of Toyota and Womack at the Massachusetts Institute of Technology.

The procurement challenges for the PPP project manager therefore are to:

- understand value;
- identify added value processes;
- identify non added value processes – waste;
- eliminate waste;
- pursue continuous improvement.

It follows therefore that the focus for the provision of the built asset should be the client's perception of value. For example, Winch suggests that there are four aspects to buildings that add valuing for clients, namely,

- spatial quality, measured in terms of the spatial configuration of the facility and its urban environment designed to encourage interaction between staff or to reduce crime etc;
- indoor environmental quality and its impact on the efficiency and the effectiveness of the people who work in the facility;
- symbolism in terms of the extent to which the facility communicates the identity and the values of its owners;
- financial value as a capital asset for exploitation or sale.

There are several terms in common usage that are applied to these value adding techniques and they are as follows:

Value analysis – the original term given by Miles, who was himself an engineering analyst – now little used;

The following definitions have appeared in the *International Journal of Project Management*;

Value engineering (VE) – based on the assumptions that:

- all parties understand the functions of the project;
- any proposed solution perform equally well from a functional aspect and therefore can be considered on cost alone.

Value management (VM) – the newest term. The main objectives are to develop among a team of designers and decision makers:

- a common understanding of the design problems;
- identify the design objectives;
- develop a consensus about which solution to adopt;
- value management is solely concerned with establishing a common decision framework around which debate can take place.

In practice the lines between VE and VM are often blurred and there seems to be no industry consensus at present on which term – VE or VM should be used, although perhaps VM does have a slight advantage as it conveys an image to the client that the value aspects of a project are being considered and managed.

A value engineering study or workshop is at the heart of the process that usually brings together a multidisciplinary team of people, independent to the design team, but who own the problem under scrutiny and have the expertise to identify and solve it. A value engineering study team works under the direction of a facilitator or VM practitioner, who follows an established set of procedures, to review the project, making sure the team understands the client's requirements and develops a cost-effective solution. Perhaps the key player in a VE study is the facilitator, who must within a comparatively short time ensure that a group of people work effectively together and produced a value for money solution. Organisations which have introduced VE into their existing procurement process, for example, previously publicly owned water companies, London Underground etc., all report initial savings of around 10%–20% when VE/VM was first employed. In some respects, VM is no more than the application of the standard problem solving approach to building design. If there is one characteristic which makes VM/VE distinctive it is the emphasis given to functional analysis. In the case of a PPP project both the end user and the operator should be involved. Once the function of an item has been defined then the cost or worth can be calculated and the worth/cost ratio scrutinised to determine value for money. VM therefore can be said to be a holistic approach to managing value that includes the use of value engineering techniques.

The process

The theory of value engineering is – buy function, don't buy product. There are a number of variations and adaptations of the approach to conducting a value engineering workshop, but the three approaches commonly used in a value engineering exercise are:

the 40 hours (five day) workshop – the traditional Miles approach and still used extensively in the United States. Resource hungry as personnel involved must be senior decision makers;
two less intensive workshops conducted at various times during the project development – less resource hungry and perhaps more suited to less complex or repeat projects used by OGC;
a two-day workshop but with time devoted to project familiarisation before the workshop meets for the first time, one again less resource hungry than the traditional approach.

Previously in Chapter 2 NHS ProCure21 was described, a PPP procurement system that uses value engineering as an essential part of delivering value for money projects on time and to budget. The following is an example of the value engineering processes that took place during the planning stages of a new primary care centre for The Sunderland Teaching Health Care Trust (STPCT) during 2004 (See Figure 5.1).

Laing O'Rourke were appointed as Principal Supply Chain Partners in March 2004 and the scheme was required to run to a very tight time scale to start on site by November 2004, but at the same time deliver a building which met with the trust's functional requirements. A capital budget had been set in the OBC but it was recognised that the capacity planning and service rationale needed further refinement and development. A series of

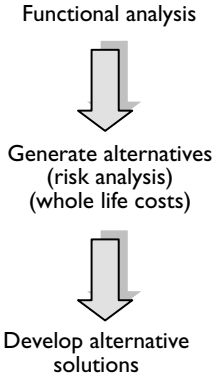

Figure 5.1 Value engineering process.

workshops were established which included representatives from social services and clinical staff working in the area drawn from operational managers, clinical and medical staff of all grades and corporate directors. The overriding objective of the workshops was to develop a vision and strategy for planned and emergency care; however other items were considered including

- how stakeholders' involvement would influence the design;
- exploring new ways of working including, the impact of technology, workforce, changing care processes etc.

The objectives were considered in turn, again through the workshop process, over a course of interactive meetings, in order to generate the clinical brief and so in turn generate clinical specifications and schedules of the accommodation supported by workforce modelling to give a capital and revenue affordable scheme. The initial workshops set the background to the project and allowed the PSCP to develop an understanding of the client's requirements.

The next stage was to define the brief for the design team and included the following work packages which were developed in close collaboration with the architects:

- capacity planning review of potential urgent care activity;
- developing clinical operations plan, specifications and schedule of accommodation;
- workforce modelling;
- supporting the business case construction.

A three-meeting approach was adopted. Initially, health planners Serco SDC, the specialist supply chain member, produced draft option(s) to generate ideas and discussion leading to the final draft. This draft was then subjected to further interrogation at a second round of meetings leading to a review, refinement and ultimate sign off at the third and final meeting round. The whole consultation process was designed with Trust involvement to ensure that as many Trust staff and interested parties contributed on the simple philosophy that it would be Trust staff that would operate the building and therefore they must be comfortable with not only its functional content but also its functionality. The process was concluded by August 2004 and it was decided not to enforce a solution onto the Trust but to extract a solution from the knowledge base available.

The perceived benefits of the process are as follows:

- enhanced service provision
- reduction in treatment costs of up to 30%

- greater patient focus
- less management input on site than traditionally procured schemes.

Supply chain management (SCM)

SCM has its origins in the Keirstsu, the Kanban and the ship yards of Japan in the 1950s being further refined by Taiichi Ohno of Toyota some 20 years later. In a construction context, the contracts and partnerships that create the temporary organisation that delivers a project is illustrated in Figure 5.2. Usually the organisation lasts for the duration of a single project, with new, ad hoc teams being formed and disbanded as needed for each new project. Similar examples can be found in the defence industry, where prime contractors create ad hoc teams, bringing together only skills required to win and execute a specific contract. Subcontractors, in turn have their own suppliers, who are also part of the chain. However, the ad hoc supply chain has limited value. It tends to work best in industries in which jobs or business opportunities are episodic and somewhat unpredictable, rather than continuous, where the required capability or skill mix varies from job to job and where the costs of retaining a full spectrum of skills cannot be justified. For most industries however, building long-term

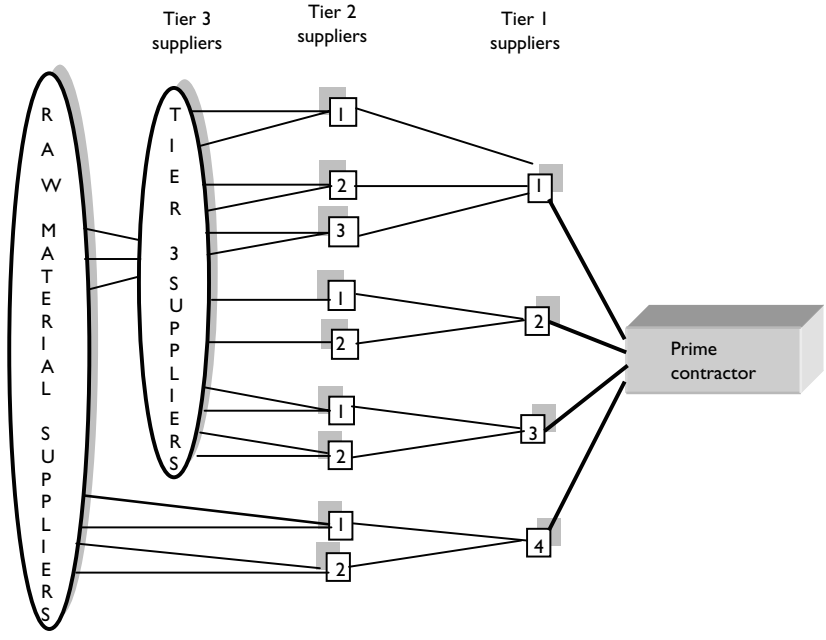

Figure 5.2 The supply chain.

relationships based on trust and a high level of integration yields greater benefits. Construction performance can often be maximised through the nurturing of a long-term relationship, even if the skill set is only used on a contract-by-contract basis. How a prime contractor selects contractors and suppliers is very much down to the individual organisation and procurement strategy as demonstrated in the NHS ProCure 21 discussed in Chapter 2. It is of course vital to the success of a supply chain that all its members sing from the same hymn sheet and have a similar ethos towards the delivery of value for money and quality and of course the composition and skill base of a supply chain can play a vital role in the selection of a prime contractor.

As illustrated in Figure 5.2 the classic supply chain is composed of suppliers arranged into tiers or clusters responsible to the prime contractor, and therefore, virtually every supplier, big or small, in the construction industry is a member of a supply chain and many suppliers participate in the supply chains of more than one prime contractor. The development and management of an efficient supply chain is an evolutionary process and the focus at strategic level should be on supplier relationships, forecasting and business objectives while equal importance should be placed on quality, reliability, responsiveness and total cost. A supply chain organised along these lines as shown will work well enough and deliver benefits to the members; however, to be truly efficient, a supply chain should, if appropriate, work towards integrating other supply chains to form supply chain communities with common goals and objectives.

Effective SCM has helped numerous industry sectors to improve their competitiveness in an increasingly global marketplace. Among the benefits that SCM has been demonstrated to provide are the following:

- the opportunity to be innovative and learn from others;
- a true realisation of the levels of performance that can be achieved;
- an opportunity to reduce waste, in all its forms.

Importantly, experience from industries other than construction has proved that, to gain the maximum advantage, SCM should be a continual process and be applied to the entire business process.

One of the most popular misconceptions within construction networks, concerning SCM is that supply chains are assembled for specific projects and that members of the supply chain are selected/included on promises of continuity of work flow from a prime contractor, in return for which the supply chain members give guarantees to reduce prices and deliver to time – a perception it must be said demonstrated by some of the major headline proponents of SCM. In fact this approach has little to do with SCM and more to do with the serial system of procurement popular in the 1960/70s. Although the serial system type approach may result in an overall reduction in the cost,

it does little to promote understanding by the supply chain members of the whole process, in which suppliers are just a link in the chain. Serial contracting also has few incentives to improve performance and has as its main emphasis low prices instead of value and continuous performance.

It may be helpful to think of participants of a supply chain as the divisions of a large, vertically integrated company, bound together only by trust, shared objectives and contracts entered into on a voluntary basis. Unlike captive suppliers, that is to say, divisions of a large company that typically serve primarily the parent company, independent suppliers are often faced with the conflicting demands of multiple customers. The integration process requires the disciplined application of management skills, processes and technologies to couple key functions and capabilities of the chain to take advantage of the available business opportunities and these will be discussed later in the chapter. SCM goals typically include, higher profits and reduced risks for all participants. As players in the UK construction industry know all too well, traditional unmanaged supply chains are characterised by adversarial relationships, win–lose negotiations, short-term focus with a primary interest on cost, with little interaction between supplier tiers and the prime contractor and with limited communications.

Arguably the UK construction industry has utilised supply chain techniques for years through the system where ad hoc supply chains of subcontractors are assembled for a particular contract, the chain being disassembled at the end of the project. This ad hoc supply chain structure however, has limited value, but nevertheless has worked with varying degrees of success in construction due to the somewhat unpredictable nature of the construction process. However, the benefits of traditional SCM as practiced in the construction industry are well below the benefits achievable from long-term partnership in the supply chain. Most supply chains are organised into tiers, as illustrated in Figure 5.2 and as stated earlier should be built outside of specific construction projects.

The drivers of supply chain integration are as follows:

- increased cost competitiveness;
- shorter product life cycles;
- faster product cycles;
- globalisation and customisation of products;
- higher quality.

Where construction is concerned the supply chain for the delivery of a product clearly includes the following:

- the main contractor;
- other general or specialist contractors that the main contractor may employ to assist in carrying out the works;

- suppliers of materials and products to be incorporated in the works;
- suppliers of professional services such as architect, consulting engineers etc.

Where manufacturing industries are concerned the supply chain stops at the point of delivery to a customer who will have a choice between various alternative but similar products. By comparison, in construction it is usually the client who is the ultimate consumer of the produce and has a large influence on the design and form of the finished product. Therefore, in construction there is a growing body of opinion that regards the client as an integral part of the supply chain. Interestingly, the long history of mistrust between main contractors and the sub-contractors in the construction industry has left many small sub-contractors looking to the client to defend their interests within the supply chain. All supply chains are integrated to some extent. One objective of increasing integration is, focussing and coordinating the relevant resources of each participant on the needs of the supply chain to optimise performance on the whole. The integration requires the application of management techniques and technologies in order to enable the supply chain to react in a coherent manner to changes in the business environment. All supply chain members should be aware of the operational factors affecting other supply chain members.

The costs, complexities and risks of fully integrating and managing an integrated supply chain can be considerable; however the potential benefits of supply chain integration are as follows:

- fewer barriers and less waste of resources that do not add value;
- increased functional and procedural synergy between supply chain members;
- faster response to changing markets;
- lower operational costs;
- increased competitiveness and profitability.

One of the principal ways to sustain relationships in the supply chain is through the promotion of collaborative working and transparency.

What identifies a company as having effective and well-managed supply chains in place? The following capabilities should be embedded and evident in the processes of the prime contractor:

At the design stage the prime contractor should have the ability to:

- carry out an analysis of the project in order to identify supply chain opportunities;
- prepare strategic sourcing programmes;

- select cross functional programme management teams;
- identify and prioritise opportunities and issues.

After which the needs of the project should be mapped against the capabilities of potential suppliers. The metrics for initial screening involve

- developing cost models, with ring fenced margins, that is profit and offsite overheads;
- supplier selection and development of tier structure;
- defining performance measurement criteria;
- defining client satisfaction;
- identifying factors which add to performance, value and cost.

Having selected potential suppliers the prime contractor should be able to move ahead by interrogating the selected supplier's costs paying particular attention to:

- base cost/profit/cost/overheads methodology;
- developing agreements;
- holding implementation workshops;
- developing joint implementation plans;
- developing systems to measure performance.

Monitoring and progress review systems should be evident. There are two common forms of measurement – compliance measurement – did all parties carry out their contractual obligations? And performance measurement – focusses on measuring performance against targets, time, cost etc.

Discounting appraisal techniques

Discounting appraisal techniques are an attempt to evaluate the effect that time has over the worth of income and expenditure. Because PPP projects are long term, much of the financial calculation and appraisal of items that form part of the business cases such as value of risk transfer over the contract term, the calculation of the unitary charge of a PFI project, income and expenditure etc. have to be evaluated over the life time of the project, which can be typically 35 years or more. Discounting appraisal techniques are normally considered to be superior to conventional methods when doing this due to their implicit recognition of the time value of money. This feature together with the long-term time scale involved with PPP projects makes discounting techniques particularly useful to the project manager as well as the private sector bidder. The two main discounting methods used are net present value NPV and internal rate of return IRR.

In Chapter 2 there is an explanation of the basis and function of the unitary charge in PFI contracts and how a discounted cash flow technique

known as NPV is used in its calculation. In essence DCF involves

- preparation of a cash flow table showing year by year;
  - the money which is likely to flow out of the organisation as a result of creating and maintaining the investment;
  - the money which is likely to flow into the organisation from the investment.
- calculating the ultimate disposal value of the investment;
- discounting the cash flow table at a selected rate of interest, so as to bring all monies flowing into or out of the organisation, no matter when payments or receipts occurred to the same point in time, that is the present value.

Net present value (NPV)

The technique of discounting allows current transaction costs to be adjusted to take account of the value of money over the predicted life cycle. Discounting cash flows recognise the importance of the timing of the receipt and/or payment of various cash flows by isolating differences in time between them. Discounting is required to adjust the value of costs, or indeed benefits, which occur in different time periods so that they can be assessed at a single point in time. This technique is widely used in the public and the private sectors as well as industries other than construction. The choice of the discount rate is critical as it can alter the outcome of calculation substantially. However, when faced with this problem, the two golden rules that apply are as follows: in the public sector follow the recommendations of the Green Book – Appraisal & Evaluation in Central Government, which currently recommends a rate of 3.5% and in the private sector – select a rate that reflects the real return currently being achieved on investments. To help in understanding the discount rate, it can be considered almost as the rate of return required by an investor which includes costs, risks and lost opportunities. The mathematical expression used to calculate discounted present values are set out here:

$$\text{Present value (PV)} = \frac{1}{(1 + i)^n}$$

Where

i = rate of interest expected or discount rate
n = the number of years

This present value multiplier/factor is used to evaluate the present value of sums, such as replacement costs or money that will be received or is planned to be received at say 10- or 15-year intervals in the future.

Assume that you wish to acquire *now* an investment that will produce a return of 6% in 1 year's time. What is the present-day worth or value of such an investment? It can be calculated as follows:

$$\text{Present value} = \frac{100}{106} = 0.9434$$

Therefore by multiplying the expected return by the discounting factor, the present worth can be calculated. So, if the anticipated return in 1 year's time is £10,000 the present value is

$$\text{Present value (PV) @ 6\%} = £10{,}000 \times 0.9434 = £9{,}434$$

Similarly if a benefit, with a monetary value at present values, was planned to be received by a public sector client as part of a PFI deal in 15 years' time, the present value can be calculated as follows:

$$\text{Present value of benefit } £250{,}000 \times \text{PV @ } 3.5\% \; 0.5969 = £149{,}225$$

The particular problem with using discounted cash flow in a PFI scenario that allows for maximum expenditure in the first 2 years (the construction phase), followed by income for the next 30 years, can be addressed by either varying the discount rate or producing a compound rate. Both approaches however have to come to terms with and reflect the fact that, over the life span of a PPP/PFI project there is considerable risk that factors such as; government policy, demand for the service, obsolescence etc. will vary. Calculating the present value of the differences between streams of costs and benefits provides the NPV of an option and this is used as the basis of comparison as follows:

Two alternative road schemes have been proposed and both are expected to deliver improvements and time savings.

Option A requires £10 million in initial capital expenditure to realise benefits of £2.5 million per annum for the following 4 years.

Option B requires £5 million in initial capital expenditure to realise benefits of £1.5 million per annum for the following 4 years.

The significance of the results in Table 5.1 are as follows:

Table 5.1 Net present values

Year	*0*	*1*	*2*	*3*	*4*	*NPV*
Discount factor (PV £1)	1	0.9962	0.9335	0.9019	0.8714	
Option A						
Costs/benefits (£)	−10.00 m	2.5 m	2.5 m	2.5 m	2.5 m	
Present value (£)	−10.00 m	2.42 m	2.33 m	2.25 m	2.18 m	−0.82 m
Option B						
Costs/benefits (£)	−5.00 m	1.50 m	1.50 m	1.50 m	1.50 m	
Present value (£)	−5.00 m	1.45 m	1.40 m	1.35 m	1.31 m	0.51 m

Option A produced a negative net present value, that is to say, the costs are greater than the benefits, whereas

Option B produced a positive net present value, that is to say the benefits are greater than the costs and is clearly the better alternative. A marginal or zero NPV is indicative of a do nothing option.

Alternatively, for the example given in Table 5.1, the discounting factor may be calculated as follows:

$$\frac{(1 + 0.035)^4 - 1}{0.035(1 + 0.035)^4} = 3.673$$

consequently, the NPVs for options A and B can be calculated in a single step as

$$NPV_A = -10 + 3.673 \times 2.5 = -10 + 9.18 = -0.82\text{ m}$$

$$NPV_B = -5 + 3.673 \times 1.5 = -5 + 5.51 = 0.51\text{ m}$$

Annual equivalent approach

This approach is closely aligned to the theory of opportunity costs, that is the amount of interest lost by choosing option A or B as opposed to investing the sum at a given rate %, and is used as a basis for comparison between alternatives. This approach also can include the provision of a sinking fund in the calculation in order that the costs of replacement are taken into account also. In using the annual equivalent approach the following equations apply:

Present value of £1 per annum – (sometimes referred to by actuaries as the Annuity that £1 will purchase) this multiplier/factor is used to evaluate the present value of sums, such as running and maintenance costs that are paid on a regular annual basis.

$$\text{Present value of £ 1 per annum} = \frac{(1 + i)^n - 1}{i(1 + i)^n}$$

Where

i = rate of interest expected or discount rate
n = the number of years

Previously calculated figures for both multipliers are readily available for use from publications such as Parry's valuation tables etc.

Sinking funds – a fund created for the future cost of dilapidations and renewals. Given that systems are going to wear out and/or need partial replacement during the currency of a PPP contract it is thought to be prudent to 'save for the rainy day' by investing capital in a sinking fund to meet the cost of repairs etc. The sinking fund allowance therefore becomes a further cost to be taken into account during the evaluation process. Whether this approach is adopted will depend on a number of features including, corporate policy, interest rates etc. In practice sinking funds are seldom used.

Internal rate of return (IRR)

As well as present value, another DCF technique, known as IRR is also commonly used in PFI contracts to measure the rate of return expected to be earned by private sector capital in a project. IRR is most suitable to situations where a project is predicted to produce a negative cash flow during the early years followed by positive cash flows during the later or final years. This profile is of course typical for PFI projects where high construction costs at the commissioning stages are replaced by operating surpluses. Many investors are as much concerned with the actual rate of interest which they are earning on their capital as they are with the total profit on any particular investment. IRR expresses the benefits on investing as a single rate of interest rather than an end profit. The IRR is that rate of interest at which all the future cash flows must be discounted in order for the projects NPV to equal zero (see Figure 5.3). The IRR is defined mathematically as, the discount rate which, when applied to discount a series of cash outflows followed by cash inflows, returns an NPV of zero. The IRR can be thought of as the equivalent constant interest rate at which a given series of cash outflows must be invested in order for the investor to earn a given series of cash inflows as income in the case of a PPP project – a measure of the underlying return of the private sector; expects to receive by investing in the project. For the purposes of calculating IRRs all funders, including lenders are considered as investors. IRRs can be calculated for different cash flow streams of a project, depending on

- which category of investor the IRR is being calculated for;
- whether inflation is included in the underlying cash flows;
- whether tax is included in the underlying cash flows.

IRR is the standard measure of the return on equity investment in a PFI project. A technique known as iteration is used to calculate the IRR of the

profit. This involves selecting a trial discount rate and then calculating the NPV for that rate. The process is repeated for another rate until two rates are found which both have an NPV very close to and on either side of zero, that is very low positive NPV and a very low negative NPV. By using linear interpolation the actual IRR can then be calculated to within a certain degree of accuracy. Standard software is available to carry this out and is included as part of the financial model used in PFI calculations. Unlike NPV, IRRs cannot be used to value an investment, it is purely a means of analysis and depends for its success on an initial purchase price having already been established.

NPV or IRR?

Net present value
Discount rate – 10%

Year	*Discount rate*	*Option A*		*Option B*	
		Cash flow	*NPV*	*Cash flow*	*NPV*
0	1.000	−1,000	−1,000	−1,000	−1,000
1	1.100	340	309	200	182
2	1.210	305	252	235	194
3	1.330	270	203	270	203
4	1.464	235	161	305	208
5	1.611	200	124	340	211
Total		350	49	350	−2

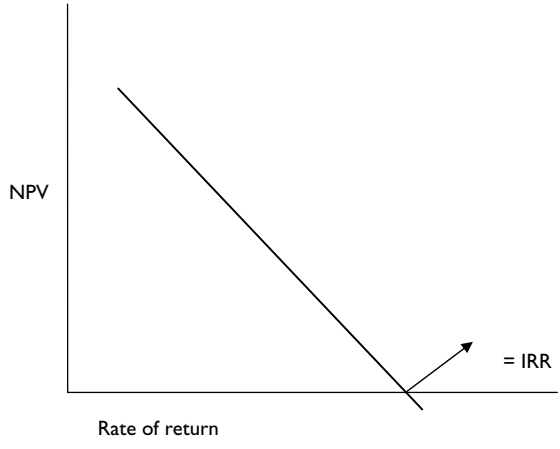

Figure 5.3 Internal rate of return (IRR).

NPV assesses the value of a future cash flow today, whereas IRR measures the investor's return on a project as follows:

Year	*Option A*			*Option B*		
	Cash flow	*Discount rate*	*NPV*	*Cash flow*	*Discount factor*	*NPV*
0	−1,000	1.0000	−1,000	−1,000	1.0000	−1,000
1	340	1.1208	303	200	1.0994	182
2	305	1.2561	243	235	1.2087	194
3	270	1.4078	192	270	1.3288	203
4	235	1.5778	149	305	1.4609	209
5	200	1.7684	113	340	1.6061	212
Total	350		0	350		0

The discount rate that gives an NPV of 0 is the IRR (Option A) = 12.08%
IRR (Option B) = 9.94%

The higher rate of return from option A means that the cash is received earlier with this option.

Both methods have their relative advantages and disadvantages and generally speaking IRRs are not a reliable alternative to NPV based calculations for the measurement of the value of an investment. In addition IRR has been criticised for certain implicit assumptions. The following assumptions are made in both forms of analysis:

- Future cash flows can be estimated with reasonable accuracy, and so there is no need to consider risk or uncertainty.
- The opportunity cost of capital is known or can be estimated with reasonable accuracy.
- All projects are simple investments involving an initial cash outflow followed by a series of inflows.
- Investment projects are independent of one another.

In practice, particularly during periods of inflation, risk and uncertainty often need to be taken into account. This is difficult when using NPVs, as present values are in the nature of absolute measures. However, the IRR is expressed as a rate of return so that it can easily be adjusted by a margin to allow for risk. Consequently, for its ease of understanding, its economy of presentation and its flexibility in allowing for risk IRR is preferable.

Whole life costs (WLC)

For a PPP project the consideration of WLC are crucial. Common terms used to describe the consideration of all the costs associated with a built asset throughout its life span are costs-in-use, life cycle costs, WLC, through

life costs etc. The shear number of alterative terms tends to create a great deal of confusion. According to BRE Digest 452, Edwards, Barlett *et al*. the term that is recommended for adoption should be whole life costing (WLC). There are a number of definitions for whole life costing; for example the definition from the ISO Standard 15686–5 Buildings and Constructed Assets is that it is

> a tool to assist in assessing the cost performance of construction work, aimed at facilitating choices where there are alternative means of achieving the client's objectives and where those alternatives differ, not only in their costs but also in their subsequent operations costs.

Although whole life costing can be carried out at any stage of the project and not just during the procurement process, the potential of its greatest effectiveness is during procurement. In addition, the ability to influence cost decreases continually as the project progresses, from 100% at project sanction to 20% or less by the time construction starts. Typically, about 75%–95% of the cost of running, maintaining and repairing a building is determined during the procurement stage.

Whole life cost procurement includes the consideration of the following factors:

- *Initial* or procurement costs, including design, construction or installation, purchase or leasing, fees and charges;
- *Future* cost of operation, maintenance and repairs, including management costs such as cleaning, energy costs etc;
- *Future* replacement costs including loss of revenue due to non availability;
- *Future* alteration and adaptation costs including loss of revenue due to non availability;
- *Future* demolition/recycling costs.

The scope of WLC is illustrated in Figure 5.4.

PPP prison projects are commonly awarded to a consortium on the basis of DBFO, and contain the provision that at the end of the concession period, typically 25 years, the facility is handed back to the HM Prisons in a well-maintained and serviceable condition. This is of course in addition to the operational and maintenance costs that will have been borne by the consortia over the contract period. However, for PPP consortia, given the obligations touched on in the pervious few lines, it is clearly in the consortiums' interest to give rigorous attention to costs incurred during the proposed assets life cycle in order to mitigate operational risk. However, some industry experts consider interest in WLC by PPP consortia to be window dressing with, in reality, very little 'deep green stuff' going on under the PPP banner. There now follows a simple example, based on the selection of material types, illustrating the net present value and

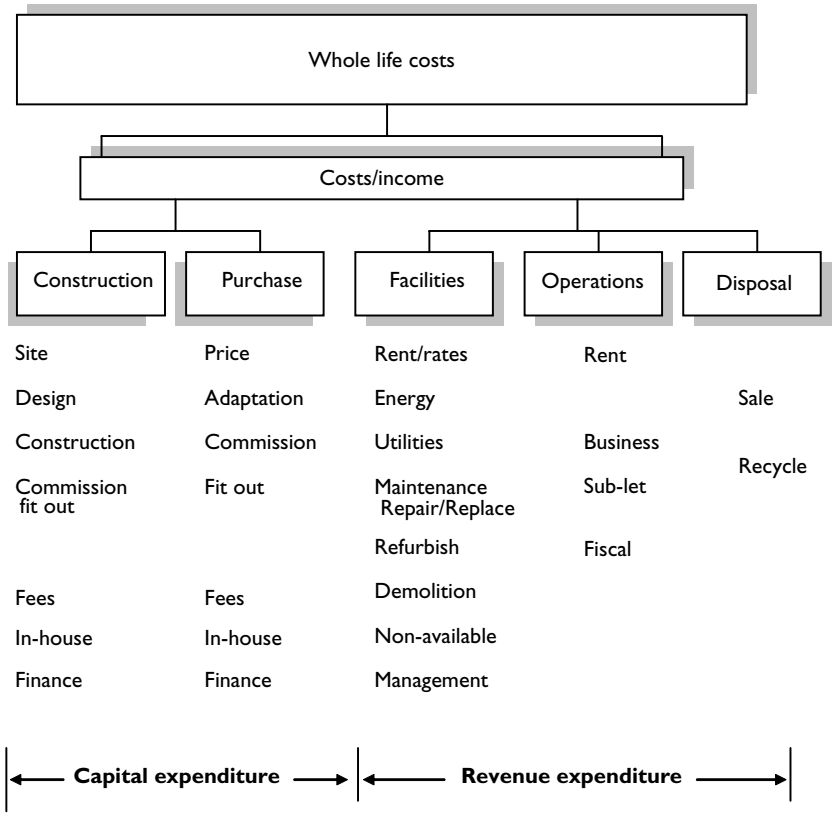

Figure 5.4 Whole life costs.

Table 5.2 Whole life costs

Material	*Initial cost*	*Installation cost*	*Maintenance cost per day*	*Other maintenance costs*	*Life expectancy*
A	£275	£150	£3	£100 every 3 years for preservative treatment	12 Years
B	£340	£150	£3	None	15 Years

the annual equivalent approaches to whole life cost procurement (Table 5.2).

This problem is a classic one, on which material, with widely different initial and maintenance costs will deliver the best value for money over the

life cycle of the building. In this example assuming a discount rate of 6% it is assumed that the materials are to be considered for installation in a PFI project, with an initial contract length of 25 years. In addition to the constraints imposed by the long-term nature of a PFI contract the service life of an element, product or whole building may be viewed in one or more of the following ways:

- technical life – based on physical durability and reliability properties;
- economic life – based on physical durability and reliability properties;
- obsolescence – based on factors other than time or use patterns, for example fashion.

Table 5.3 indicates a WLC calculation for material B in Table 5.2 presented in two ways – as a net present value and also as an annual equivalent cost. The calculation is repeated for each material or component under consideration and then a comparison can be made.

Results for material B

A replacement expenditure profile, excluding cyclical maintenance and energy over a range of elements for a PFI contract over a 35-year contract period is shown in Table 5.4.

Clearly, the choice of the correct type of material or component would appear to be of critical importance to a private consortia as future replacement and maintenance costs will have to be met out of the predetermined unitary charge. However in reality theory and practice are often very different. For example, for many public authorities, finding budgets for construction works is usually more difficult than meeting recurring running and maintenance costs that are usually included in annual budgets as a matter of course.

In addition to the NPV and annual equivalent approaches described previously, Williams identified that simple aggregation could be sometimes used effectively when evaluating whole life costs.

Simple aggregation

The basis of whole life costs is that components or forms of construction that have high initial costs will, over the expected life span, prove to be cheaper and hence of better value than cheaper alternatives. This method of appraisal involves adding together the costs, without discounting, of initial capital costs, operation and maintenance costs. This approach has a place in the marketing brochure and it helps to illustrate the importance of considering all the costs associated with a particular element but has little value in cost forecasting. A similarly simplistic approach is to evaluate a

Table 5.3 Whole life cost example

Year	*Present value of £1 per annum (PV of £1 pa)*	*Present value (PV £1)*	*Initial cost £*	*Other costs £*	*Annual cost £ £3 × 365*	*NPV of replacement + other + annual costs + initial costs £*	*Total NPV £*	*AEC £*
1	0.943	0.943	490.00		1,095.00	1,523.02	1,523.02	1,614.4
2	1.834	0.890			1,095.00	974.55	2,497.57	1,362.25
3	2.673	0.840			1,095.00	919.38	3,416.95	1,278.31
4	3.465	0.792			1,095.00	897.34	4,284.29	1,236.41
5	4.212	0.747			1,095.00	818.25	5,102.54	1,211.32
6	4.917	0.705			1,095.00	771.93	5,874.47	1,194.65
7	5.582	0.665			1,095.00	728.24	6,602.71	1,182.76
8	6.210	0.627			1,095.00	687.02	7,289.72	1,173.91
9	6.802	0.592			1,095.00	648.13	7,937.85	1,167.04
10	7.360	0.558			1,095.00	611.44	8,549.30	1,161.58
11	7.887	0.527			1,095.00	576.83	9,126.13	1,157.13
12	8.384	0.497			1,095.00	544.18	9,670.31	1,153.47
13	8.853	0.469			1,095.00	513.38	10,183.69	1,150.35
14	9.295	0.442			1,095.00	484.32	10,668.00	1,147.72
15	9.712	0.417		490.00	1,095.00	661.37	11,329.38	1,166.50
16	10.106	0.394			1,095.00	431.04	11,760.42	1,163.72
17	10.477	0.371			1,095.00	406.64	12,167.06	1,161.28
18	10.828	0.350			1,095.00	383.63	12550.69	1,159.14
19	11.158	0.331			1,095.00	361.91	12,912.60	1,157.24
20	11.470	0.312			1,095.00	341.43	13,254.02	1,155.55
21	11.764	0.294			1,095.00	322.10	13,576.12	1,154.03
22	12.042	0.278			1,095.00	303.87	13,879.99	1,152.67
23	12.303	0.262			1,095.00	286.67	14,166.66	1,151.45
24	12.550	0.247			1,095.00	270.44	14,237.10	1,150.33
25	12.783	0.233			1,095.00	255.13	14,692.24	1,149.36

Notes
AEC = Annual equivalent cost.
Other cost = replacement costs every 15 years.

Table 5.4 Replacement expenditure

Element	*Replacement expenditure (%)*
Windows/doors	22.95
Kitchens	15.79
Heating	11.82
Structural	10.63
Roofs	8.72
Bathrooms	7.79
Wiring	6.50
External areas	3.87
Internal decorations	2.48
Communal decorations	1.69
Over cladding	1.61
Rainwater goods	1.51
External walls	0.99
Off-road parking	0.82
DPC	0.73
Security/CCTV	0.60
Door entry systems	0.51
Fire precautionary works	0.50
Porches/Canopies	0.44
Plastering	0.07

Source: Whole life costs forum.

component on the time required to pay back the investment in a better quality product. For example, from a number of energy saving devises are available for lift installations, a choice is made on the basis of which over the life cycle of the lift, say 5 or 10 years will pay back the investment most quickly. This last approach does have some merit, particularly in situations where the life cycle of the component is relatively short and the advances in technology and hence the introduction of a new and more efficient product is likely.

Basing calculations on which financial decisions are made to include whole life costing does carry some risks.

- It requires a new set of skills that may be lacking in any part of the supply chain, and clients themselves are often unable to adequately describe how they expect the building or asset to be used. Although construction clients are pushing for whole life costed project plans, they may be unable to interpret these correctly themselves. There is a clear requirement for considerable training in whole life costing across the whole of the construction industry, and particularly within the design professions.
- Whole life costing requires a different way of thinking about cash, assets and cash flow. The traditional capital cost focus has to be altered, and costs be thought of in terms of capital and revenue costs coming

from the same 'pot'. Many organisations are simply not geared up for this adjustment. The common misconception that a whole life costed project will always be a project with higher capital costs does not assist this state of affairs. As building services carries a high proportion of the capital cost of most construction projects, this is of particular importance. Just as capital and revenue costs are intrinsically linked so are all the variables in the financial assessment process. Concentrate on one to the detriment of the others, and you are likely to fail. Perhaps, the most crucial reason is the difficulty in obtaining the appropriate level of information and data.

- The lack of available data to make the calculations reliable. The Building Maintenance Information Service define an element for occupancy cost as expenditure on an item which fulfils a specific function irrespective of the use of the form of the building. The system is dependent on practitioners submitting relevant data for the benefit of others. The increased complexity of construction means that it is far more difficult to predict the WLC of built assets. Moreover if the mal-function of components results in decreased yield or underperformance of the building then this is of concern to the end user/owner. There is no comprehensive risk analysis of building components available for practitioners, only a wide range of predictions of estimated life spans and notes on preventive maintenance – this is too simplistic; there is a need for costs to be tied to risk including the consequences of component failure. After all, the performance of a material or component can be affected by such diverse factors as

quality of initial workmanship when installed on site and subsequent maintenance;

maintenance regime/wear and tear. Buildings that are allowed to fall into disrepair prior to any routine maintenance being carried out will have a different life cycle profile to buildings that are regularly maintained from the outset;

intelligence of the design and the suitability of the material/component for its usage. There is no guarantee that the selection of so-called high quality materials will result in low life cycle costs.

Other commonly voiced criticisms of WLC are as follows:

Expenditure on running costs is 100% allowable revenue expense against liability for tax in the United Kingdom and as such is very valuable. There is also a lack of taxation incentive, in the form of tax breaks etc., for owners to install energy efficient systems.

In the short term and taking into account the effects of discounting the impact on future expenditure is much less significant in the development appraisal.

In addition, changes in the nature of development of other factors have emerged to convince the industry that WLCs are important. Critical success factors for WLC procurement can be said to be

- effective risk assessment – what if this alternative form of construction is used?
- timing – begin to assess WLC as early as possible in the procurement process;
- disposal strategy – is the asset to be owner occupied, sold or let?
- opportunity cost – downtime;
- maintenance strategy/frequency – does one exist?
- suitability – matching a client's corporate of individual strategy to procurement.

Appropriate allocation and management of risk

As discussed in Chapter 2 the allocation of risk has a major influence on the viability of a PFI project from determining value for money to the accounting treatment of PFI projects, on or off balance sheet.

Table 5.5 is an example of a risk matrix for one category of risk – design risk. It clearly shows which partner is expected to mange which risks. A risk register or matrix, is a mutually agreed list of all identified risks similar to those given in the table, together with the parties responsible for management and the value of the risk. The nature of the risks as well as their allocation will vary from sector to sector and to some extent from project to project within the same sector. The construction of a risk matrix usually comprises the following steps:

- identifying all risks involved in a project;
- assessing the impact of these risks;
- assessing the likelihood of the identified risks occurring;
- calculating the financial impact when risks occur. This should be done over a variety of possible outcomes.

Some typical risks encountered on PFI projects for which risk matrix assessment will be required are shown in the following list:

Construction risk, which occurs during the period from the start of construction through to the point prior to the facilities becoming operational. Projects may be delayed during the construction phase due to a variety of reasons, from long spells of inclement weather to difficulties with incorporating new materials or technologies. For a PFI consortium, this clearly is a high-risk phase at the start of the project as large amounts of debt will have been incurred whereas income will not

Table 5.5 Risk allocation

Risk	*Definition*	*Allocation*		
		Public sector	*Private sector*	*Shared*
Failure to	Failure to translate design to brief requirements of the client into the design.		¤	
Continuing development of Design	The detail of the design should be developed within an agreed framework and timetable.		¤	
Change of client's requirements	Changes made by the client leading to additional design costs.	¤		
Change in design requested by the operator	Changes of this nature could lead to additional design costs.		¤	
Changes to design required by external influences specific to the public sector client	Changes is required under this category could result in additional costs.	¤		
Failure to built to the brief	Misinterpretation of design or failure to build to the specification during the construction can lead to both additional design and construction costs.		¤	

Note
¤ denotes ownership.

flow, in the form of the unitary charge until the project is complete and ready for business. Most PFI deals allocate construction risk to the private sector.

Operation risk, which covers the operational period, the potential for risk being those events attached to incorrect estimates and predictions of future costs, inflation etc.

Availability of facilities risk, which is the risk of lost income arising from the non availability of the services. The probability of the risk occurring is high, since at some time in a 30-year concession, a fault is likely to occur that will severely restrict the use of the facilities or make them unavailable. A public sector client is currently able to make deductions from its service providers for poor performance. The payment mechanism transfers greater risk for poor performance to the private sector and

enables the public sector client to deduct pre-determined amounts from the unitary payments. See later notes on performance-related payments.

Volume risk, is the risk of actual usage of the services varying from the levels forecast. It is usually allocated to the public sector as private sector has little or no control over this factor.

Further information concerning the identification of possible risks can be obtained from PFI material prepared by the OGC. Having identified all of the relevant risks to be included in the matrix, it is necessary to quantify their possible consequences. For this it will be necessary to carry out the following:

- a DCF/NPV forecast showing the timing and impact of risks;
- a sensitivity analysis – an estimate of the net present value of the project will be based on a number of assumptions. Obviously over the life of a PFI project, typically 30 years plus, some of these assumptions could prove to be inaccurate, and a sensitivity analysis can attempt to identify the point at which changes in the assumptions are sufficiently significant to change the financial outcomes.

Valuing risk

Investment involves an initial outlay of cash in return for a future income. DCF is a method of investment appraisal which is based on the time preference for money. For example, an investor will attach a higher value to an investment offering an immediate return than one offering an identical return but at sometime in the future. The reasons for this are as follows:

- the effect of inflation – during the past 40 years inflation in the United Kingdom has ranged between 25% and 2% per annum which has the effect of decreasing the real value of money over time;
- risk – the longer that money is exposed to potential risks the greater the chance that uncertainties will affect the investment. Rather like overtaking a large slow-moving vehicle in a car, the quicker the manoeuvre can be completed the less exposure to risk;
- personal preferences – many investors prefer immediate rather than delayed returns;
- the opportunity to invest elsewhere.

Because of the long-term nature of PPP/PFI projects, risks will be transferred and benefits received by both public sector clients and private sector consortia at different times during the currency of the contract. The difference in value between income or payments made immediately and income or payments received or made some time in the future can be measured by the amount on interest that could be earned on the current income if it were

invested elsewhere until the relevant future date. This is done by using the amount of £1 multiplier. This process is often referred to as compounding and involves measuring the future value of money invested at some time previously. By contrast, discounting involves the reverse process, namely the calculation of the present value of money receivable at some point in the future.

The fact that PPP/PFIs are long-term contracts presents a problem when it comes to the evaluation of different solutions; however, established techniques such as DCF and in particular NPV, can help to solve this problem. Discounting cash flows to achieve a net present value is not without its problems however, but it has one great advantage in that it makes all the results directly comparable and the process is transparent. That is not to say that problems may arise when analysing the bids submitted from different consortia based on different discount rates. The discount rate can be considered as the rate of return required to cover costs, risk and opportunity costs of investment in a particular project. Opportunity costs may be explained as follows: if equity is used in a particular way then the following costs may be incurred: loss of interest in the cash that was on deposit and/or the inability to use the cash to invest in other projects. The choice of discount rate can clearly have a substantial impact on the valuation. The procedure for option appraisal in public sector projects is set out in The Green Book where the current recommended discount rate is 3.5%. The private sector will value the given criteria and arrive at an appropriate discount rate based on their perception of the impact of the value of costs, risk and opportunity cost over the lifespan of the contract; in other words, the risk can and will vary. Unlike the public sector client, the PFI consortia will have to borrow on the open market where perceived risk carries a premium in the form of high interest rates. With many PFI deals, risks are perceived to be higher during some phases than compared with others, but generally once the PPP/PFI project has been completed and the consortia begins to benefit from the unitary payment, the risks will decrease.

Risk workshops should be held comprising key stakeholders to identify the various risks. The usual approach is to prepare a risk register. The financial impact of the risks, some of which will be retained by the client and some of which will be transferred to the private sector will then be dealt with as follows:

- identify risks that are capable of being quantified;
- assess the probability of the risk occurring;
- develop a range of possible outcomes (worst case, medium case and best case) for each risk;
- value the outcome and the timing of each risk;
- assign probabilities to each outcome;
- calculate the expected value of each risk as the weighted average value of probability of the risk occurring, the outcome values and their probabilities;

- finally, value each risk over time, discounting at a rate of 3.5% to arrive at the NPV as explained earlier.

The relationship between risk, value for money and affordability is one of the most complex areas of the PFI due to the inherent risks in construction related projects and the long-term nature of PPP/PFI deals.

Understandably perhaps, in the early days of the PFI many involved with this new method of procurement and in particular the organisation asked to supply finance, rated it a high-risk strategy. The construction industry is a traditional and conservative sector which tends to view new ideas and innovations with suspicion and consequently finance came at a premium to reflect the perceived high risk. After more than 10 years and over 500 signed PFI deals, many of the risks, initially regarded as something of a leap into the dark are now well understood and documented by both the public and private sectors. For example, one major development that has helped to downscale some elements of PFI associated risk, is the adoption of standard forms of documentation instead of bespoken ones. This is not to say that the correct identification and valuing of risk is now insignificant; it still forms a pivotal role in the success of PFI projects at all levels. Models for identifying and evaluating risk will be discussed including sensitivity analyses.

A risk is an event, that may or may not occur and which may have a positive or negative financial impact. There are a number of such events which could arise during the construction and operation phase of a PFI project and therefore, it is important at the outcome to identify what risks may have an impact. Procurers in the public sector often had little incentive to manage risk effectively as the consequences of budget overrun were perceived to be slight. The public sector has a lamentable record in both risk identification and management in the field of construction projects and particularly high-risk, high-profile projects. Various investigations have attempted to discover why this is the case – the most recent by Mott MacDonald suggested that in general the civil servants who project manage construction projects are too optimistic about important project outcomes such as costs and completion times. The report went on to propose an optimism bias ratio to try to neutralise over optimistic projections. Given this, it would seem logical to transfer the responsibility, as well as the consequences for risk, to organisations better able to cope, which in the case of a PFI project is usually the private sector consortium. How are risks identified ? A risk has a number of key elements and they are as follows:

- it relates to a specific event or set of events within a defined time frame;
- it is an estimation of the probability of the event occurring;
- the consequences of the risk should be capable of measurement.

Table 5.6 Risk assessment

Risks	*Variables tested*	*Impact on NHS trust*	
		Traditional procurement	*PFI*
Inflation/RPI	−1% to +3%	Full costs	None
Capital costs	−2% to +10%	Full costs	None
Whole life costs	−5% to +10%	Full costs	None
Activity change	−1% to +2%	Support services and supplier full cost fluctuation.	Facilities charge and variable ancillary charge only fluctuate

Of course the private sector is not willing to take on board the responsibility for managing risk for nothing and for each category of risk transferred there will be financial implications. The appeal to the public sector of transferring risk to the private sector is obvious. For example, Table 5.6 illustrates the results of the impact of changes in assumptions made during the risk assessment/valuation stage of a PFI project. In the case of variations in inflation and RPI the model was tested to discover the impact of changes that varied from −1% to +3%. In the case of traditional procurement the full costs of any increase would be borne by the client; however, in the case of PFI no costs would be passed on to the client, in this case an NHS Trust.

The actual value of risk transfer and hence value for money when compared with traditional procurement will depend upon the extent to which the risks materialise during the contract period.

Table 5.7 contains a comparison between the risk adjusted values for both conventional and PFI procurement routes. The model used to value traditional procurement is referred to as the Public Sector Comparator (PSC). In this example a contract period of 35 years has been used and the following risks have been identified and included in a cost category. The cost impact calculated on an NPV basis is then calculated from both possible scenarios – the PFI route and the conventional procurement route – using the PSC model

- design (the period from commercial close to start of construction);
- construction and Development (referred to previously).
- performance (covers the operational risks affecting the availability of the facilities, the quality of the management and the performance of the services).
- operational (referred to previously).

Table 5.7 Valuation of risks

Total NPV of project risks	*PFI* *£'000*	*PSC* *£'000*
NPV of project cash flow	982,025	976,585
Project risks		
Design	179	2,846
Construction and development	6	5,127
Performance		882
Operating costs		2,084
Variability of revenue	−740	1,533
Sundry risk		4
Total NPV of project risks	−555	12,496
Total risk adjusted NPV	**981,470**	**989,081**
EAC of project cash flows	67,734	67,359
EAC of risk	−38	862
EAC of risk adjusted cost	**67,696**	**68,221**

- variability of revenue (this category considers the impact of various risk events on the public sector client's revenue).
- termination risks, (the impact of service provision being terminated (difficult to quantify)).
- residual value (often a neutral factor due to the long-term nature of PFI procured facilities and that most are handed back to the public sector at the end of the concession period at no cost).

From the calculations it can be seen that the PFI solution gives better value for money over the 35-year contract period, albeit by a small percentage. The costs of the risks assumed under the PSC approach are expected to be around £900,000 per annum more expensive than the PFI approach. The point being made now by government is that demonstration of value for money is only one reason for adopting PFI. The figures given in the table represent the cost to the project of the various risks when borne by the PFI consortia and the public sector client. The table does not represent the total level of risk transferred to the private sector, but rather addressees the additional risk transfer achieved through the PFI as opposed to conventional procurement.

Following the identification and valuing of risk the next stage in the evaluation process is to perform a sensitivity analysis whose purpose is to identify and value over the life of the contract factors or events. The technique measures the impact on project outcomes of changing one or more key input values about which there is uncertainty. For example, a pessimistic, expected and optimistic value might be chosen for an uncertain

variable such as the demand in 15 years' time for the service, or the cost of maintenance. Then an analysis could be performed to see how the outcomes change as each of the three chosen values is considered in turn, with other things held the same. Sensitivity analysis measures the economic impact resulting from alternative values of uncertain variables that affect the economics of the project. The results can be presented in the form of text, tables or graphs. This is a useful way of asking the 'what if' question. Not only is sensitivity analysis used in the preparation of the business case, it will also be used by the private sector consortia to calculate the possible impact of risks that they are required to manage.

For example consider the choice of heating systems and controls in a PFI school project. A decision must be taken on whether to install an expensive programmable system to control heating and ventilation. The control system will reduce consumption of energy by turning off equipment not needed when the building is unoccupied. The cost of the system will be justifiable if the NPV of future savings is greater than the cost of the new equipment. It is relatively straightforward costs-in-use calculation to calculate the costs of the control system (purchase and installation) and the consumption of energy, however, the amount of savings that may accrue are not so certain as they are particularly susceptible to the price that will have to be paid for energy over the life cycle of the contract. Therefore, to test the sensitivity of the savings three values of energy price changes are considered – low, moderate and high price increase. These can then be used to calculate possible outcomes, that is to say cost of new controls minus energy costs:

1	low energy price rises	(£20,000)
2	medium energy price rises	£20,000
3	high energy price rises	£50,000.

In the first case, assuming energy price increases are minimal, the new equipment would actually cost £20,000 more than the projected savings; however, in the case of medium or high price increases considerable savings could be made. Note that this analysis contains no indication of the likelihood of increases occurring; however, if even moderate increases were predicted then the controls should be installed.

There are several good reasons to use sensitivity analysis during the preparation of a PFI business case. First, it shows the significance of project variables of the profitability of the project as well as identifying critical inputs in order to facilitate choosing where to spend extra resources in data estimates and in improving data estimates. Second, the technique is useful in preparing for the 'what if' question and assessing the robustness of the business case. It does not require the application of probabilistic techniques and finally it can be used when there is little data and time. The major disadvantage is however

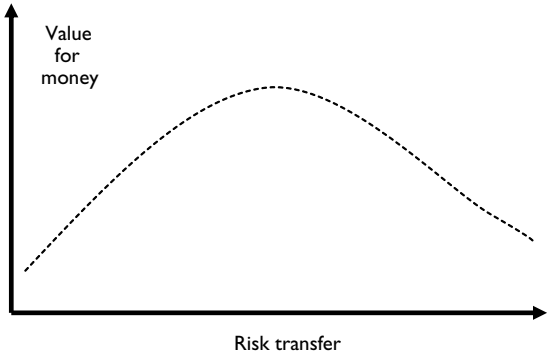

Figure 5.5 Risk transfer.

that there is no probabilistic measure of risk exposure; although it may be fairly reasonable to expect one of several outcomes, the analysis contains no explicit measure of their respective likelihoods. There are however a number of proprietary software packages available that claim to combine probability functions within a sensitivity analysis.

In almost all PPP/PFI projects it is the public sector that is more capable of managing certain risks. Value for money is improved by the transfer of appropriate risk as the supplier will be able to reduce the probability of the specific risks occurring, or the financial consequences if they do occur at some point. However, if risk which cannot be best managed by the private sector supplier continues to be transferred, value for money will reach the point of diminishing returns and decline since the premium demanded by the private sector will outweigh the benefit to the client. Indeed to transfer risk beyond the optimum point may simply not be financeable (see Figure 5.5).

Establishment of project timetable

Various IT systems are available to aim project managers as shown in the following section.

Prince

Projects in Controlled Environments (PRINCE) is a project management method covering the organisation, management and control of projects. It was first developed as a UK government standard for IT projects but is now used widely in both the public and private sectors and although originally developed for the needs of IT projects, the method has also been used on many non-IT projects. The latest version PRINCE 2 is a

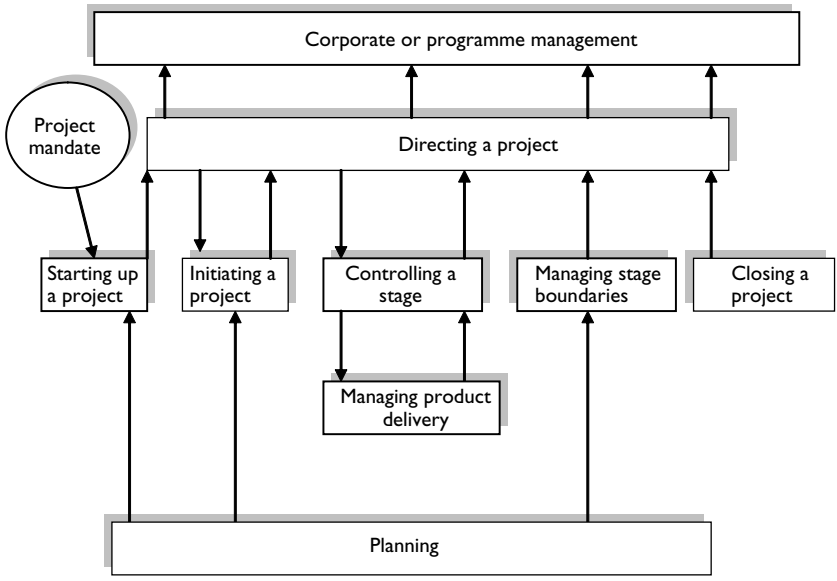

Figure 5.6 PRINCE 2.

process-based approach for project management providing an easily tailored and scaleable method for the management of all types of projects. Each project is defined with its key inputs and outputs together with the specific objectives to be achieved and activities to be carried out (see Figure 5.6).

A project is divided into manageable stages enabling efficient control of resources and regular progress monitoring throughout the project. PRINCE 2 is driven by the project's business case which describes the organisation's justification, commitment and rationale for the deliverables or outcomes. The system has been designed to be of use to all the various interested parties involved with a project. The advantages of using a system such as PRINCE 2 are as follows:

- a controlled and organised start, middle and end;
- regular reviews of progress against plan and against business case;
- flexible decision points;
- automatic management control of any deviations from the plan;
- the involvement of management and stakeholders at the right time and place during the project;
- good communication channels between the project, project management and the rest of the organisation.

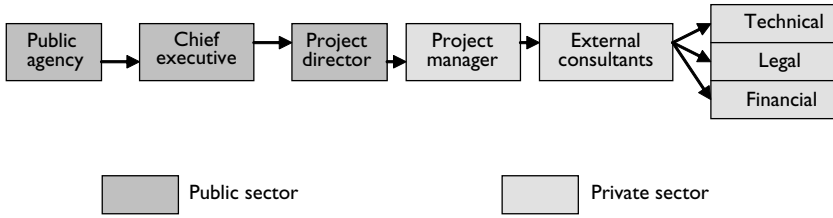

Figure 5.7 PFI management structure.

Appointment and suitability project team

In the case of a PFI project, Figure 5.7 illustrates the typical management structures to be found in public sector awarding bodies. The project manager can either be in house or external depending on whether the public sector sponsor has the appropriate expertise and in some cases the project manager could be supplied by the construction arm of the provider. There is an emerging trend for both public and private sectors to utilise a common project manager.

The advantages of using an internal (public sector) project manager range from lower costs to the opportunity of developing in-house skills. The project management of PFI projects is one area where there appears to be a very wide gap between the pool of resources that are available to the public sector as compared with the private sector. For although many public sector sponsors recognise the benefits of having an in-house project manager such as greater loyalty and accountability and retaining control over decision making, many find that the necessary skills and experience are not available within the public sector skills pool.

The project director

The role of the project director can be described as management of the various stake holders in the project. The project director is sandwiched between the sponsors and the special purpose vehicle and must ensure that both sides of the prospective partnership have equal input into the project. Once the procurement process has been commenced to the stage where a preferred bidder has been selected, the project director should represent the client, that is to say the public sector sponsor, through the final stages of the procurement process through to financial close. After agreement the project director's role then focusses on overseeing the construction phase and controlling any changes that are introduced.

The project manager

The project manager's role in PFI projects is evolving as the process matures. Until recently, project managers have either worked for the sponsor or the special purpose vehicle. However, more and more these two roles have been merged into one with one project manager working within the special purpose vehicle. In a recent survey carried out by the Project Management Faculty of the RICS, of Chartered Surveyors active in PFI projects, it was found that the project manager's role varied considerably from project to project. In some instances the project manager would be involved from the initial stages of invitation to tender and preferred bidder through to the operational phase, whereas in other cases the project manager would just be brought in for the construction phase. It was also discovered that the best results were delivered on projects where a project manager was appointed early and had an understanding of the sector, that is, health, transport etc. From the project managers' perspective the following items require particular attention:

- Definition of the project scope – scope being defined as the output specification. To define a project correctly there is a need for a high-quality investment appraisal that includes a clear definition of business objectives and a consideration of the full range of options. Also included within the business plan should be an analysis of business, technical and financial issues and the trades offs between them. In addition an understanding of The Green Book principles – 'Appraisal and Evaluation in Central Government' is essential. Without a clear project definition there is the risk that the process could deliver the wrong project – too few beds in a hospital, absence of recreational facilities in a prison. Another consequence of poor definition is lack of flexibility and the increased risk of encountering late changes or changes whilst on site, the major cause of delay in PFI projects.
- A mechanism for managing change. Most PPPs involve a major shift in public sector management culture.
- Establishment of the project's affordability at a very early stage. Failure to do this can lead to massive abortive tendering costs. For example, the collapse of the £1.1 billion Paddington Health Campus Project in 2005 left a legacy of £14 million of costs, including £7,800 million of consultants fees.
- Good governance, particularly in the case of projects with several (multi-clients).
- Strong stakeholder management.

External consultants

It is usual for a public sector client to appoint private sector consultants to advise on aspects of the particular PPP process. These can typically include

legal advisors, financial advisors, quantity surveyors, external auditors and equipment advisors etc. The nature and extent to which external expertise is sought will of course depend upon the nature and complexity of the project. The cost of employing such a vast array of expertise can of course prove to be very expensive.

Bibliography

Ashworth, A. (1993) How life cycle costing could have improved existing costing. In Bull, J. W. (ed.) *Life Cycle Costing for Construction*, Blackie Academic & Professional, Glasgow.

Blackwell, M. (2002) *The PFI/PPP and Property*, Estates Gazette.

BSI (2000) BS ISO 15686–1:2000, Buildings and constructed assets, Service life planning. General principles. *British Standard Institution*.

Bull, J. W. (1993) The way ahead for life cycle costing in the construction industry. In Bull, J. W. (ed.) *Life Cycle Costing for Construction*, Blackie Academic & Professional, Glasgow.

Clift, M. and Bourke, K. (1999) *Study on Whole Life Costing*, BRE Report 367, CRC.

Curwin, J. and Slater, R. (1996) *Quantitative Methods for Business Decisions*, Fourth edition, International Thomson Business Press, London.

Flanagan, R., Norman, G., Meadows J. and Robinson, G. (1989) *Life Cycle Costing – Theory and Practice*, BSP Professional Books.

Griffin, J. J. (1993) Life cycle cost analysis: a decision aid. In Bull, J. W. (ed.), *Life Cycle Costing for Construction*, Blackie Academic & Professional, Glasgow.

HMSO (1992) *Life Cycle Costing*, HM Treasury, Her Majesty's Stationery Office, London.

Larsson, N. and Clark, J. (2000) Incremental costs within the design process for energy efficient buildings, *Building Research & Information*, 28; (5/6), 413–418.

MacKay, S. (1999) Building for Life, *The Building Economist*, 4–9.

Paulson, B. C. (1976) Designing to reduce construction costs, *Journal of Construction Division*, ASCE, 102; 587–592.

Smith, D., Berkhout, F., Howes, R., and Johnson, E. (1998) *Adoption By Industry of Life Cycle Approaches – Its Implications For Industry Competitiveness*. Kogan Page Ltd., London.

Stone, P. A. (1968) *Building Design Evaluation: Costs-in-Use*, E & FN Spon.

Treasury Taskforce (1999) *Policy Statement No.2; Public Sector Comparators and Value for Money*, Office of Government Commerce.

Williams, B. (2001) *EU Facilities Economics*, Building Economics Bureau Ltd.

Chapter 6

World PPP models

PPPs are being adopted by governments worldwide with European PPPs, including the United Kingdom, accounting for 85% of all PPP contracts (see Figure 6.1).

Even where there is strong political motivation to develop PPPs the complexity of the individual projects/contracts and the need to develop the capability to create an enabling environment, results in progress being slow initially. In countries where PPPs have been introduced, generally speaking, they have developed along the following lines:

A highly centralised 'big picture' model was developed in Ontario, Canada. The Ontario SuperBuild Corporation, effectively a private company, was created in December 1999 in response to a report by the Ontario Jobs Investment Board in which the Board called attention to the province's severe infrastructure decline. Many of the schools and hospitals in Ontario date back to the 1920s whereas roads and sewerage treatment plants are now over 50 years old. The scenario is a classic one. Billions of dollars of investment is needed and new projects are required to come on stream but without the traditional long lead in time and unpredictable completion dates. The government responded by creating the SuperBuild Corporation as a $20 billion, 5-year initiative, to address Ontario's infrastructure needs and meet the economic challenges of the new millennium. The intention was that the initiative's goals would be achieved through the use of PPPs. SuperBuild's mission was to coordinate strategic planning and capital expenditure which in the past had been dealt with by each provincial ministry, hospitals, education etc., who received their funding. Ministries are required to take stock of the age, condition and value of capital assets as well as projecting future capital needs. Hospitals and universities also must develop long-term capital asset plans as a condition for receiving capital investment support. Approvals for capital plans by ministries must be referred to SuperBuild and then to the Cabinet Committee on Privatisation which undertakes a strategic review and develops a capital plan for the government. In May 2005, the SuperBuild Corporation was rebadged the Ontario Infrastructure Project Corporation with a focus on non-traditional

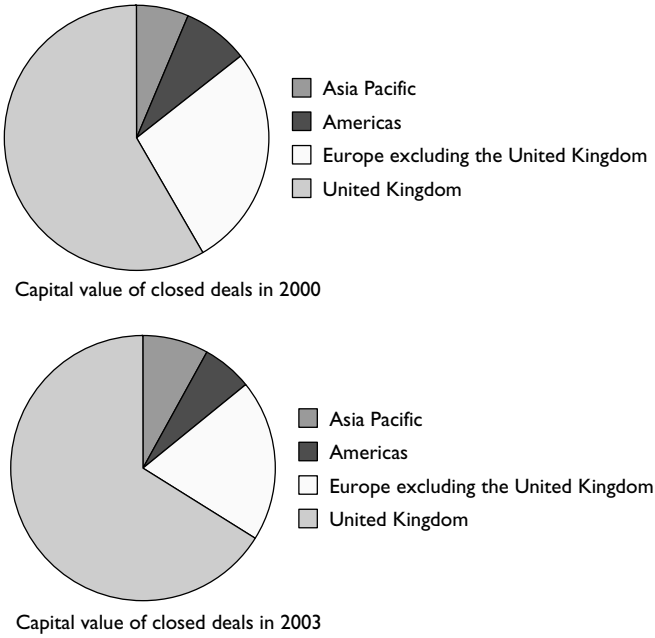

Figure 6.1 Worldwide value of PPPs.
Source: Dealogic.

procurement strategies. Perhaps being conscious of the poor image of PPPs in certain parts of the media, the government decided to rebadge them as Alternative Finance and Procurement, stating that the drive to renew public sector projects would be based on a set of policies to guide private sector participation in public sector projects entitled, *Building a Better Tomorrow*. This framework establishes very clear requirements that must be met at every step of any public infrastructure project where the government has a financial interest. The framework now applies to every major project in Ontario like the North-South Light Rail Transit Project in Ottawa, the Durham Courthouse and the North Bay Hospital. The principals for the new initiative are based upon protection of the public interest, which is sought to be achieved in the following ways:

Projects will be undertaken only if they will improve the delivery of public services or contribute to the Province's economic competitiveness.
Appropriate public ownership and control over core public services. Core services like hospitals will always be publicly owned.

The third is value for money. Projects will only get the green light if a strong business case can be made to show that they will benefit taxpayers.
Accountability. Stakeholders, both the public and private sectors, will be held accountable for delivering the project and projects will be subject to review by an independent third party.
And, finally, fairness, efficiency and transparency.

A somewhat different approach is the de-centralised model which has been developed in Portugal where PPPs are becoming a important element of infrastructure with a number road and water treatment projects. However, despite the increased use of PPPs, no specific structures have been put in place by the government to assist and co-ordinate delivery of projects. This has very much been left to individual government departments and local authorities. The Portuguese government has established an informal task force to provide advice on forms of PPPs, legislative barriers etc. The disadvantages of this approach are the necessity to reinvention the wheel for every new PPP project resulting in lengthy and expensive procurement processes and the loss of expertise gained during projects.

Finally, the most common model is a mix of centralised and de-centralised approaches, as exemplified by models developed in the United Kingdom and the Republic of Ireland. In these models there exist a central co-ordinating and policy development units mainly focused on project development and procurement. The unit has no role in project delivery.

From a procurement and construction industry viewpoint the adoption of PPPs by countries outside of the United Kingdom has not involved, in majority of cases, such a seismic change of culture compared to the United Kingdom. This is due to the fact that in many European countries, France for example, where les partenariats public-privé was introduced in June 2004, design and construct contracting is the norm and therefore contractors are fully used to maximising the potential to deliver value for money by re-engineering initial concepts, as well as being charged with the risk management and responsibility of delivering the final project to time and to cost. In a study of French Hospital Design the BDP concluded, that despite the fact that in much of the EU input costs, that is labour costs and professional fees are higher than in the United Kingdom that:

- French hospitals can cost between one half to three quarters of the cost of United Kingdom hospitals per m^2;
- building services are less than one half of those in the United Kingdom;
- contractor-led design teams seem to lie behind much of the economy;
- there is a greater likelihood to use standard components from well-developed supply chains and
- ambitious ICT and M & E installations were incorporated.

The benefits of PPPs have been discussed in the previous chapters, however, necessary prerequisites before a PPP programme can be stated here. These include;

- political support over the lifetime of the project;
- enabling legislation including the existence of an appropriate concession law that can be readily applied to projects. For example, in France partnerships between the public and private sectors (SEMs) have been well established for a number of years. Even so the legislation to allow the UK PFI model to be used was not in place and it was necessary in July 2004 to amend the Code des Marches Publique and
- the availability of expertise in both public and private sectors. The United Kingdom and London in particular is currently the leading centre for PPP expertise.

In Chapter 1 the United Kingdom privatisation programme of 1980s and 1990s was discussed. In a wider context since 1980 over $1,100 billion of state-owned assets in over 80 countries, 100 countries have been transferred to the private sector. Key drivers have included the need to reduce budgetary deficits, attract investment, improve corporate efficiency and liberalise markets. Activity reached a peak between 1997 and 1999 during a period of buoyant equity markets and with receipts totalling around $140 billion a year. The drop in activity to $100 billion in 2000 and $30 billion in 2001 was partly due to less favourable equity markets conditions, although privatisation programmes in some countries were reaching maturity. Countries to have taken the largest privatisation programmes are Japan, the United Kingdom, Italy and France. A wide range of sectors have been involved including banking, defence and utilities.

Europe

The state of PPP development varies widely between the EU Member States, but PPPs are established as one of the tools which are available to governments. The enlargement of the EU in 2004 from 16 to 25 states has created a huge market for PPPs. Yet, despite this, the number of successful PPP projects in Europe is still small and the pattern of PPP activity across member states is patchy. In part, this can be explained by the widespread lack of understanding of what PPPs are and where and how they can be best utilised.

With the enlargement of the EU an infrastructure gap now exists in Europe and this in turn could have a negative impact on economic growth and general prosperity. For example, many of the new member states have traditionally relied on railways for transportation and as a consequence their motorway networks require considerable investment. The World Bank

estimates that infrastructure investment needs for the accession candidates to be €65 billion over the next 15 years, with countries such as Poland requiring €21 billion alone. Inadequate infrastructure also affects the efforts of the EU to reduce the significant social and economic disparities which exist both between and within member states. Governments have limited financial resources to devote to increased capital expenditure and improved public services and face restrictions, including those of the Maasticht criteria on their ability to raise debt. Public investment in Europe has been falling as a share of GDP in the EU. Although there are a number of EU statements and reviews concerning PPPs, there is no discernable EU PPP policy. The majority of EU activity in this area has concerned Trans European Networks (TENs), where the EU has a direct interest in using PPPs to assist delivery of the network.

According to PricewaterhouseCoopers in reviewing the various EU outputs on PPPs, the following themes tend to occur

- the need for an appropriate and consistent legislative framework;
- the need to clarify the public procurement rules for PPPs;
- the interaction of PPPs with competition policy;
- the need to develop new financing instruments;
- identifying ways of providing support at EU level;
- the identification of appropriate PPP project;
- the development of institutional capacity in the public sector.

Across Europe there are many examples of traditional infrastructure schemes that were in part financed by the EU under its various grant schemes such as the European Regional Development Fund and the European Social Fund. These schemes have been in place for many years, but there are few, if any examples of PPP projects with EU grant funding. One example of a combined EU and private funding is Athens International Airport. The Hellenic Republic and a private consortium created a private company, Athens International Airport SA, in effect a special purpose vehicle, which owns and operates the airport. The construction project was undertaken as a joint venture between a group of Greek and foreign companies led by German contractor Hochtief. Hellenic Republic owns 55% of the project with Hochtief AC holding the remaining 45%, the total cost of the project was €2,155 billion, including an EIB loan (46%), EU grant (12%) and state subsidy from the Hellenic Republic (7%).

Given that the EU does not prevent the use of private funding as a means of co-funding together with EU grants, so long as various requirements are met, it is surprising that more schemes using this mix of funding have not gone ahead. Some of the problems seem to centre around the lack of practical guidance and advice from the EU together with the lack of precedents but it is thought that this approach must be more fully exploited in

the coming years. Again according to PricewaterhouseCoopers the issues to be resolved are

- ensuring open market access and competition;
- protecting the public interest;
- ensuring full compatibility between PPP arrangements and state aid;
- defining the right level of grant contribution;
- selection of the most suitable PPP type;
- ensuring active partnership;
- involvement of the European Commission from an early stage.

Trans-European transport networks – TEN-T

In July 1996 the European Parliament and Council adopted Decision No 1692/96/EC on Community guidelines for the development of the trans-European transport network (TEN-T). These comprise roads, railways, inland waterways, airports, seaports and inland ports together with traffic management systems such as electronic fee collection systems for toll roads. Since its launch the programme has not met with the targets for project completion and the Commission admits it is not advancing as quickly as expected. By 1998 the investment in the first year was about €38 billion against the financial resources needed to complete the network by 2010 which are estimated to be between €400 billion and 500 billion and there were serious concerns that without a funding increase the network would not be fully completed. The initial intention of the TEN-T programme was to subsidise various projects with EU aid of up to 10% of total costs with the balance being met out of public and private sector funds. In June 1999 in order to give added impetus to the programme the ceiling of EC aid was raised to 20% of the total cost of the project.

The EIB is the EU long term financing institution and its mission is to facilitate the involvement of the private sector in the provision and financing of public infrastructure. In the past, the EIB has co-funded several major infrastructure projects in London, most notably the modernisation of the London Underground with contributions of £130 million in 1998 and £900 million in 2000. In 2005 in was announced that the EIB was to lend €145 for the extension of the Docklands Light Railway. The project is a PPP and the EIB funds will be lent directly to the SPC, Woolwich Arsenal Rail Enterprises Ltd. (WARE) which is owned by AMEC Investments Ltd and the Royal Bank Project Investments Ltd. WARE will design, construct, maintain and make available to the DLR extension under a 30 year concession, granted by the Docklands Light Railway Ltd., which is ultimately owned by Transport for London. The provision of passenger services and rolling stock will remain the responsibility of the DLRL. The project will be financed from the combination of a commercial bank facility, provided by

a syndicate led by the Royal Bank of Scotland and the loan provided by EIB, together with junior subordinated loan stock and ordinary shares. Contrary to perceptions there appear to be no reasons why PPP approaches cannot be combined with EU grant funding but a mixture of uncertainty as to how such projects should be procured exists; the additional complexity of combining the procurement requirements of PPPs with those for grant funded projects and the lack of previous projects have combined to make governments wary of such deals.

Apart from TENs there is little actual progress concerning the development of PPPs in the European context and there is a considerable amount of uncertainty as to how PPPs interact with EU legislation which tends to have a negative impact on their development. Recent EU initiatives have included the Eurostat statement on accounting treatment for PPPs and a Green Paper on PPPs, both of which have been referred to previously.

France

Société d'économie mixte (SEMs) tend to be local organisations and were introduced as part of the process of a decentralisation programme in the early 1980s. An SEM is a private limited company, which combines capital from local authorities, the major shareholders and financial partners. Approximately 15% of the capital of an SEM is held by the private sector. Today there are approximately 1,300 SEMs in France and employ more than 65,000 people of which 50% are in services, for example transport, Strasbourg-CTS, ski-lifts, etc., 25% in housing and the remaining 25% are in development for example Annecy Business Park.

The rise of PFI style approaches in France have been described as '*a real cultural revolution*' by Alain Madelin the general secretary Entreprises Générales de France in June 2004. France has a long tradition of associating private enterprise with public works and services, for example, the construction of the canal du midi and the Effiel Tower. Until recently French law has offered two well-developed vehicles for establishing such associations; the marché public (procurement contract) and the délégation de service public (public concession contract). However, on 10 June 2004 the Council of Ministers passed *l' ordonnance n° 2004–559 sur les contrats de partenariat*, permitting private consortia to design, finance and build public sector projects, such as prisons, hospitals and schools known collectively as Les partenariats public-privé (PPPs). The text introduced by the French Secretary of State for State Reform is meant to enable the Government to make a number of legal texts clearer, simpler and more comprehensive, without having to go through lengthy parliamentary procedures for each individual contract. The text covers an unprecedented range of 30 laws and around 15 codes, impacting on the administrative procedures as well as on public health, commercial law and public procurement. The text sparked

political controversy for lifting the threshold for mandatory tendering procedures to €6.2 million from €0.9 million. It also plans the introduction of new forms of contracts allowing public sector organisations to enter into long-term framework agreements for the conception, construction, management and operation and in some cases funding of public services and equipment. To date the use of PPPs in France has been limited by the fact that government contracts were limited to 3 years and deferred payments were prohibited by law. This new PPP model has created a third form of contractual structure by increasing the possibility for private enterprise to collaborate with French State and local government entities. The PPP is new to France and as a result presents some uncertainties. For example, while most commentators seem to agree that the use of PPPs should not be standardised, there is disagreement over whether they should be used only in exceptional cases or simply with moderation. In addition while the proponents of PPPs have supported their arguments with examples of PPP type projects in other countries in which French companies could participate, the possibility that a foreign company could participate in a PPP project in France does not seem to have, as yet, entered the debate. Bouygues Construction, the French construction giant and its wholly owned sister company, Ecovert FM, already have already established a successful track record of PPP contracts in the United Kingdom in hospitals and schools. Bouygues are a perfect example of the synergy of construction and service delivery necessary for a successful PPP. In November 2003 the ByCentral consortia, that included Bouygues signed a €210 million, 30-year contract, to construct, operate and maintain the North West London NHS Trusts Emergency Care and Diagnostic Centre. This success followed on from the West Middlesex Hospital in Barnet in 2000 and King's College Hospital redevelopment in 2002. Bouygues's success in the UK PPP market is seen by some analylsts to hinge on the ability of the company to organise and control not only the design and construction, but also the service delivery through Ecovert FM. The logistical capabilities of the Bouygues group enabled them to win and enter into the North West London Hospital contract to deliver 26,000 m^2, 214 bed contract in 28 months, together with the maintenance of 40,000 m^2 new and existing buildings for 30 years.

At any rate the success of PPPs in France is expected to be heavily dependent upon the success of the first ones. As a result these contracts will probably be negotiated with particular care and should also be closely followed by the media. Contracts are expected to be announced in France shortly for PPP projects in the prison (€ 1.4 billion). The first PPP contract to reach financial close in France since June 2004 is a 6-year contract with Bouygues to finance, maintain and modernise all the public lighting in Auvers-sur-Oise – a small town of 7,000 inhabitants.

The news that PPPs are now legal in France had a mixed reception, with small and medium enterprises as well as architects expressing concerns,

whereas large international contractors, who were already active in foreign PPP markets welcomed the news and predicted that the move would create 50,000 new jobs. The first sector to take advantage of the wide-ranging liberalising legislation is healthcare as part of the French Government's ambitious investment programme '*Hospital 2007*'. The aggregate capital value of this initiative is estimated at approximately €6 billion of which around €1.4 billion in total relates to some 35 PPP based projects. The healthcare sector in France is decentralised and the relevant granting authority resides therefore at the local authority level. Interestingly, in the United Kingdom the financial and budgetary advantages for government is seldom given or admitted as one of the principal reasons for the use of PPPs. Interestingly, in France, budgetary and political reasons rather than value for money and increased efficiency are the principal rational. PPPs can, it is claimed provide high quality public sector facilities while taxes and government borrowings remain stable.

Australia

Australia, which in global terms has a relatively small economy, currently has about 5% of the global PPP market. The participation of the private sector in the provision and delivery of public services in Australia has gradually increased over time. This has occurred in part through privatisation at both the Commonwealth and State level, including the public floatation of Qantas and Telstra, as well as various airports and rail and freight businesses. Although, like the United Kingdom the outright sales of public assets are now in decline and Governments are anxious to explore alternative methods of private sector participation including PPP/PFI. At present the jewels in the crown, that's to say the electricity and other utilities, remain in public ownership and seem likely to remain so in the short to medium term. The size and structure of Australia presents both opportunities and challenges for PPP implementation with one of the challenges being the large amount of investment needed in ageing infrastructure set against a pattern, during the recent past, for total public spending to fall, leaving insufficient funds to meet public sector capital building programmes, against rising expectations of end-users. At present a well-developed PPP market, similar to the United Kingdom does not exist in Australia and there have been few signs of a willingness by the Commonwealth to develop a coherent PPP policy (see Figure 6.2). This manifests itself in a PPP market in which, predominantly projects are secured using a model based on UK PFI. However, the level of sophistication and development shown in some current UK models such as ProCure21 and LIFT – see Chapter 2 – have not yet been considered by Australian governments. Also, it appears that within States there is little appetite for the widespread use of PPP projects to provide schools, hospitals and other public services. Other barriers to the

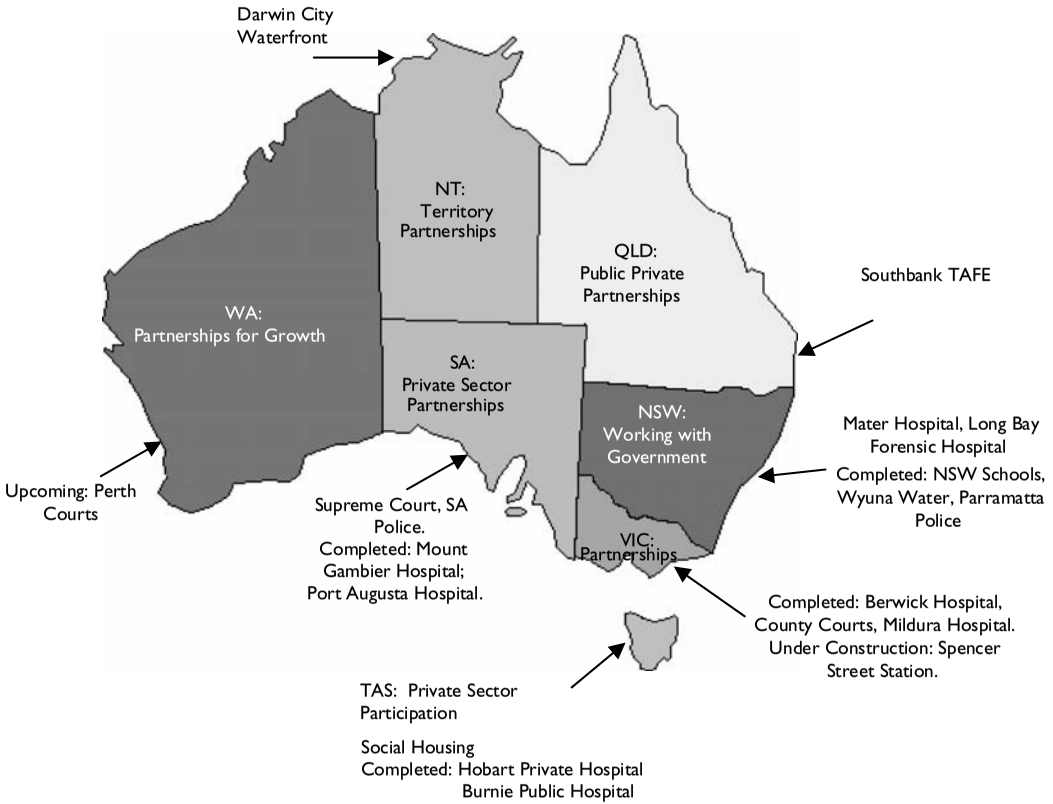

Figure 6.2 PPPs in Australia.

Source: ABN-Amro.

widespread adoption is the size of Australian economy – it is small in global terms making it difficult to pass the bankability test required by funders. Additionally, the multiple Governments, each with their own policies on privatisation, and PPP, will ensure that development in the PPP market will be different in effect to that experience in the United Kingdom. The private sector has repeatedly noted that the success of PPP projects in some degree is dependent on which jurisdiction is involved in the process. There may be conformity in the approaches to date, but not in the forms of contract. As discussed in Chapter 1, one of the main reasons why PPP/PFI received such a poor start in the United Kingdom in the period 1992–97 was the lack of expertise in the public sector; it would appear that Australia has yet to fully come to grips with the concept of developing public sector entities as 'best clients'. According to the 2001 Infrastructure Report Card prepared by Engineers Australia and other groups including the Australia Council for Infrastructure Development (AusCID), it was an estimated $150 billion of additional investment that is required to repair, upgrade and complete Australia's water, energy, road and rail infrastructure. That sum alone would mean spending another 1% of GDP annually for at least 20 years before any investment is made in schools, hospitals and other assets.

Other reasons cited for the slow take up in the use of PPP projects in Australia is the need for Governments to come to grips, in practical terms, with how such projects should be implemented. There have been high profile failures in PFI projects, for example, in Queensland, the axing of the Brisbane Light Railway Project in July 2000 following years of planning and input from a private sector consortia in the preparation, left the private consortia attempting to recover financial compensation for abortive work. In Sydney, the Airport Link lasted only a few months before going into receivership, due to an overoptimistic projection of passengers, who failed to materialise. This failure, in particular, sent shock waves through the private finance sector and was probably the reason behind the cancellation of several other similar projects throughout Australia. In addition to these failures there have been a number of projects that have either been abandoned, after an extensive tender phase or taken far longer to complete. There has also been strong public opposition, particularly from trades unions however, but while it is safe to say that there has been a degree of opposition to the 'user pays' element of PPP projects in Australia, for example toll roads, recent research into public attitudes to PPPs in Australia show a growing acceptance of their use. Typical contract value varies between $50 million and $200 million (£20–£80 million).

There are now more schemes being planned for social infrastructure like schools and hospitals. The leaders of most of these projects are investment banks, most notably ABN-Amro which won and closed four PPP deals in succession; the Victorian County Court, Berwick Community Hospital, Spencer Street and NSW Schools project, in an approach that is

unprecedented worldwide. The bank took 100% of the equity and underwrote capital market issues. Subsequently the bank negotiated fixed price contracts with construction, transport, retail and maintenance companies to carry out the work. The downside to this approach is that public sector services are not the bank's core business, their natural role is to finance engineering, not how the long-term partnerships with the public sector are going to be managed. The next wave of socially orientated projects needs to get more interest from contractors and service providers leading the consortia. ABN-Amro have now sold its equity stake in several projects thereby creating a secondary market about which some people have reservations.

Another thorn in the side of PPP development is Australian tax legislation and in particular Section 51 AD and Division 16D of the Commonwealth Income Tax Assessment Act 1936. Where this legislation applies, tax deduction for certain costs associated with ownership, including interest charges, depreciation and maintenance costs cannot be applied and could deny certain value, even essential tax advantages to private sector consortia.

With its federal structure Australia faces, from a PPP perspective, the task of developing a strategy that delivers interstate homogeneity. All Australian jurisdictions have policy documents governing the identification, establishment and operation of PPPs and these documents draw heavily on the detailed set of manuals first released by the State Government of Victoria in June 2001. Despite various technology and terminology differences, there is a tendency towards homogeneity. Victoria continues to lead the way with respect to the development of PPPs and in 2003 hosted the first National PPP Forum with the objective of better co-ordination, information sharing and support among Australian governments in relation to PPP projects. In addition, The Victorian Department of Treasury and Finance is in the course of preparing the whole of Government standardised commercial principles and contractual provisions. Interstate/territory homogeneity is thought to be essential to minimise bid costs for both the public and private sectors. Despite the attempts to homogenise Australia wide PPP policies and approaches at grass roots level, there are many differences of emphasis which at present could form a barrier to public and private sector organisations wanting to move from state to state. For example, whereas all PPP policies are concerned with the private sector involvement in the provision of public infrastructure and services in the area of public infrastructure, each State currently envisages slightly different types of work within their framework. Whilst in the area of public services although all States are open to the private delivery of traditional public services, it is clear that policies are designed to be flexible in their application, that some States have a narrower ambit, applying merely to services which are associated with the infrastructure provided. The Commonwealth policy for example, specifically excludes from the definition of 'private financing' all contracts

for services where:

- the government has not traditionally owned the relevant asset;
- the terms of the contract is less than 5 years;
- the service is commonly provided by the private sector.

In addition most States, restrict the private provision of services to non-core staff, core services being defined to include police, teachers, clinicians, etc. Similarly, there are different views about the criteria in terms of project value and length of contract period between States with long-term varying between 'not less than five years' to '25 years or more'.

The procurement process used in Australia will be recognisable to UK PPP practitioners:

Initial Appraisal and Project Development
Call for expressions of interest
Evaluation of the above
Call for detailed proposals
Evaluation of the above
Negotiations with preferred bidder(s)
Contract and Final Close

One of the most significant differences between the Australian and United Kingdom model is the so-called 'public interest test' which usually takes place at a very early stage of project development. This process, which varies from state to state, is aimed at protecting public rights to infrastructure and services and essentially addresses the following issues:

- openness and accountability;
- consultation with affected groups;
- guaranteed public access to infrastructure;
- consumer rights;
- privacy;
- community health and safety.

Other crucial elements of the Australian process are like the UK model demonstrating value for money using a PSC reference project and ensuring manageable transfer of risk. The much criticised PSC model is one used by most States to determine value for money although there is disunity among States as to how much detail of the PSC should be released into the public domain. The future for PPPs, in Australia therefore can be said to be mixed. Compared to the United Kingdom the constraints of the fiscal and political characteristics of Australia will always be a limiting factor in its widespread adoption. Also, the lack of a comprehensive source of information for

public sector officials will continue to ensure that projects will continue to be identified as suitable for a PPP approach, when, clearly, they are not.

Alliancing

One high profile construction project success story for project alliancing in recent years was the construction of the $155 million National Museum of Australia in Canberra that was opened to the public in March 2001. This was the first time that project alliancing had been used to procure a construction project in Australia and is widely considered to have delivered outstanding results namely

- Completion on time
- Completion with budget
- A very high score for quality – 8 points out of 10.

The terms alliancing and partnering do not have the same legal connotations as partnership or joint venture and therefore there has been a tendency, particularly in the construction industry, to apply them rather loosely to a whole range of situations many of which clearly have nothing to do with the true ethos of partnering or alliances, and this is to be regretted.

Alliancing and partnering agreements are not unique to the construction industry. For example, in the United States alone, between 1988 and 2001 more than 100,000 alliances have been formed including companies that are thought to be resource rich and self-sufficient, like Ford and IBM. Alliance activity of the top 1,000 US firms accounted for 35% of revenue in 2002, up from less than 2% in 1980. These approaches are divided and categorised as follows:

Strategic alliances can be described as two or more firms that collaborate to pursue mutually compatible goals that would be difficult to achieve alone. The firms remain independent following the formation of the alliance. Alliancing should not be confused with mergers or acquisitions.

A project alliance is where a client forms an alliance with one or more service providers designers, contractors, suppliers, etc. for a specific project and this section will continue to concentrate on this aspect of alliancing – see Figure 6.3.

For the National Museum project, a number of alternative procurement routes were examined by a public federal government hearing during 1997. Finally project alliancing was selected for the National Museum of Australia project because

- there was an absolute cap on funding
- there was a very high expectation of quality on this Australian centenary flagship project
- there was a 'must meet' deadline.

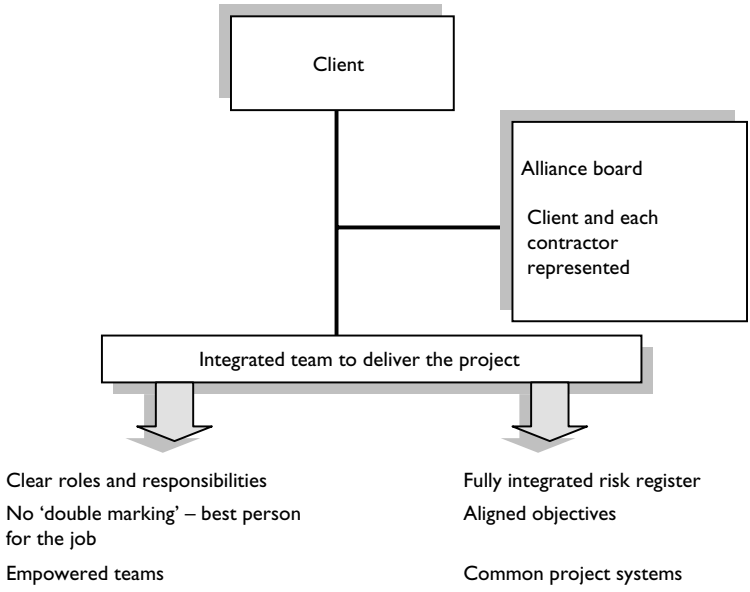

Figure 6.3 Alliance structure.

The principal features of a project alliance are the following

- The project is governed by a project alliance board, that is composed of all parties to the alliance that have equal representation on the board. One outcome of this is that the client has to divulge to the other board members far more information than would, under other forms of procurement, be deemed to be prudent.
- The day to day management of the project is handled by an integrated project management team drawn from the expertise within the various parties on the basis of the best person for the job.
- There is a commitment to settle disputes without recourse to litigation except in the circumstance of willful default.
- Reimbursement to the non-client parties is by way of 100% open book accounting based on

    1 100% of expenditure including project overheads.
    Each non-client participant is reimbursed the actual costs incurred on the project, including costs associated with reworks. However, reimbursement under this heading must not include any hidden contributions to corporate overheads or profit.
    All project transactions and costings are 100% open book and subject to audit.

2 A fixed lump sum to cover corporate overheads and a fee to cover profit margin.
This is the fee for providing services to the alliance, usually shown as a percentage based on 'business as usual'. The fee should represent the normal return for providing the particular service.

3 Pain/gain mechanism with pre-agreed targets.
The incentive to generate the best project results lies in the concept of reward, which is performance based.

A fundamental principle of alliances is the acceptance on the part of all the members of a share of losses, should they arise, as well as a share in rewards of the project. Risk/Reward should be linked to project outcomes which add to or detract from, the value to the client. In practice, there will be a limit to the losses that any of the alliance members, other than the client, would be willing to accept, if the project turns out badly. Unless there are good reasons to the contrary, it may be expected that the alliance will take 50% of the risk and the owner/client the remaining 50%. The sharing of pain gain is generally based on objectively measurable outcomes in key performance areas, such as

- time of delivery
- safety
- environmental compliance
- industrial and community relations.

Performance based remuneration ensures that some of the contractor's remuneration, the profit margin referred to in point 2, is at risk unless it achieves the indicators. See Figure 6.4.

For example

In an alliance project with a total value of £50 million, alliance member, Contractor A, decides that the maximum amount of exposure to loss that their organisation is prepared to accept is 10% or £5 million, so that in the case of an overspend of £2 million then Contractor A's exposure will be limited to £200,000 or 10%. The setting of a 10% limit for loss however, also limits the extent of any share of gain, therefore if the project final cost turned out to be £45 million then the share of the saving for Contractor A would also be limited to 10% or £500,000 (see Figure 6.4).

Therefore, alliance members form a quasi-joint venture, because they operate at one level as a single company, however, they do not merge their companies in any legal sense. They remain independent but they must work with each other in order to meet the KPIs to realise risk and reward. Therefore if the project fails to meet agreed project KPIs, then all alliance members share the loss.

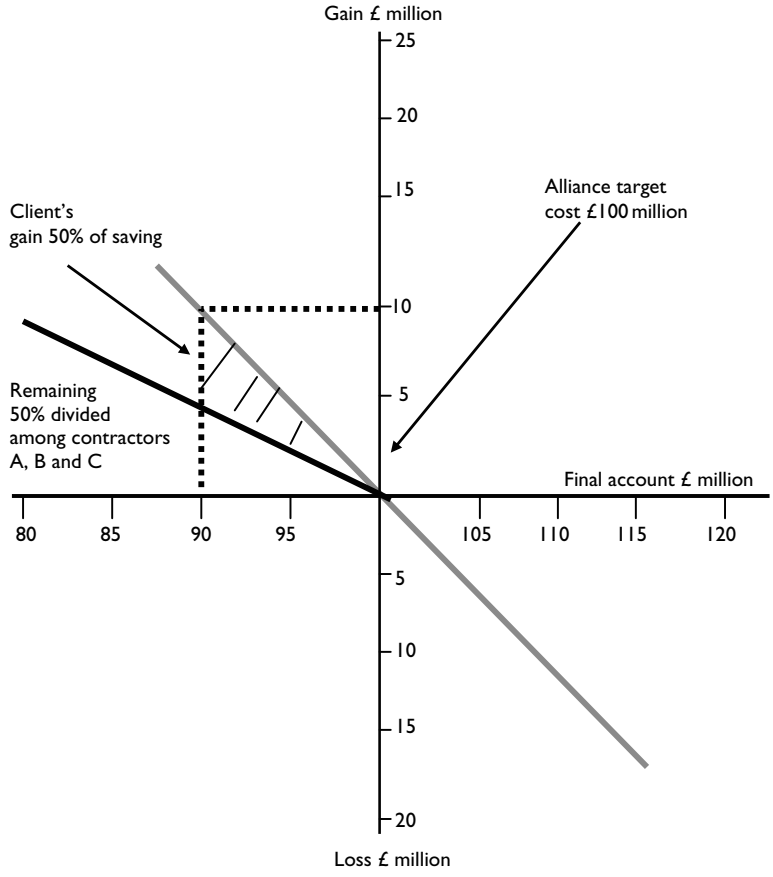

Figure 6.4 Pain/gain mechanism.

Notes
Assume that the alliance has four members, who have decided to share the gain and loss percentages as follows;

Client: 50%.
Contractor A: 20%.
Contractor B: 20%.
Contractor C: 10%.

There are some significant legal and financial aspects that need to be put in place in an alliance agreement, but while important, it is the behaviour of the parties which determines whether an alliance will be successful. Choose your alliance members carefully!

Therefore given the operational criteria of an alliance, it is vitally important that members of the alliance are selected against rigorous criteria.

These criteria, usually demonstrated by reference to previous projects undertaken by the prospective alliance members, vary from project to project but a few guidelines could be:

Demonstrated ability to

- Complete the full scope of works being undertaken from the technical, financial and managerial perspectives.
- Re-engineer project capital and operating costs without sacrificing quality.
- Achieve outstanding quality with an outstanding track record.
- Innovate and deliver outstanding design and construction outcomes.
- Demonstrate safety performance.
- Demonstrate conversance with sustainability issues.
- Work as a member of an alliance with a commitment to non-adversarial culture and change direction quickly if required.
- Have a joint view on what the risks are and how they will be managed.

Figure 6.5 is based on the procedure used to appoint alliance members for the Australian National Museum project. The risk/reward mechanisms for this project was calculated over three areas:

Time Substantial monetary penalties were agreed to all non-client alliance members if the project was completed late.

On the other hand there was no monetary benefit to non-client alliance members if project completed early.

Design integrity If design integrity was not maintained there was a substantial cost penalty to the non-client alliance members.

Maintenance of design integrity was verified by an independent panel that reviewed the design as it developed and documented.

The verification ensured that an alliance member had to consider the impact of design changes on design integrity.

Quality The Australian government funded a quality pool to reward outstanding results in

Workmanship
Cultural excellence
Safety
Environment
Public relations.

The benchmark for measuring outstanding results was 'business as usual' of the alliance parties, a score higher than 'business as usual' generated a monetary reward and vice versa. The measurement was verified by an independent panel.

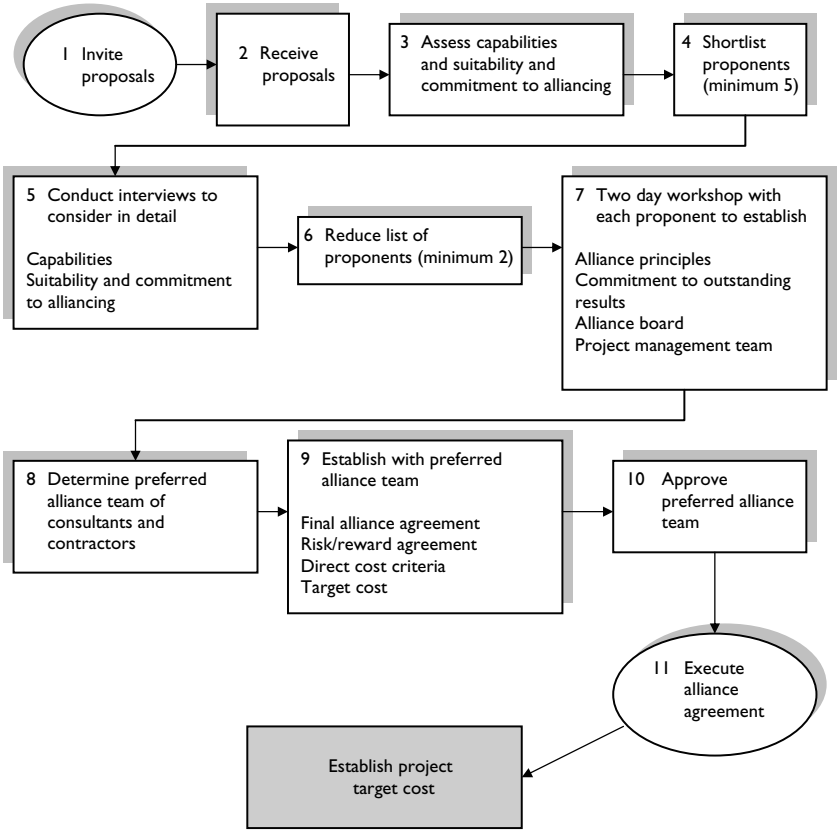

Figure 6.5 Alliancing process.

Source: New South Wales.

Establishing a target cost and dealing with variations

One of the key tasks in the establishment of the alliance board is the development of the target cost – it is not possible to do this before this point. The target cost is intended to be the best estimate of what the integrated teams thinks the project will cost. It is important that all alliance members feel comfortable with the target cost which should allow for inherent uncertainties consistent with the state of knowledge at the time of preparation. Under a conventional contract, the tender sum is just the starting point with subsequent variations and claims resulting in a substantially higher final account cost to the client. In a project alliance the target cost

must allow for all matters that would normally be the subject of a variation under a conventional say JCT (05) contract. the alliance members collectively assume responsibility for all sorts of risks that are normally retained by the client under a traditional approach; for example,

- Design changes
- Late delivery by suppliers
- Inclement weather.

Reasonable provision has to be made within the target cost for such items.

The circumstances under which variations arise are limited. Generally, normal changes due to design development are not considered. Changes that could give rise to variations are

Significant increases or decreases in the scope of work, for example, adding in new buildings, parts of buildings or facilities.
Fundamental changes in the performance parameters.

If the alliance members agree that a variation is declared, then members fees as well as the target cost are adjusted.

Some of the benefits of the alliance approach are illustrated in Figure 6.6. In the traditional approach to procurement each contractor, as well as the client, will include a sum for contingencies for unforeseen circumstances, whereas in an alliance, profit and overheads are agreed in advance and the contingency allowance can be reduced and managed collectively.

It is difficult to conclusively demonstrate that the outcome when using alliancing will deliver cost reductions compared to a more conventional delivery approach. More likely is the assurance of

- Timely completion as a result of
  - Better management of changes
  - Increased levels of innovation
  - Better collective management of risks and opportunities.
- Quick, cooperative and effective response to unpredictable events.
- Emphasis on opex rather than capex.
- Potential for lower capital costs as a result of
  - Inherent buildability
  - Sharing of cost savings
  - Innovative execution strategies.

Under a traditional procurement model using competitive lump sum tendering, the contractor submitting the lowest price is tested against

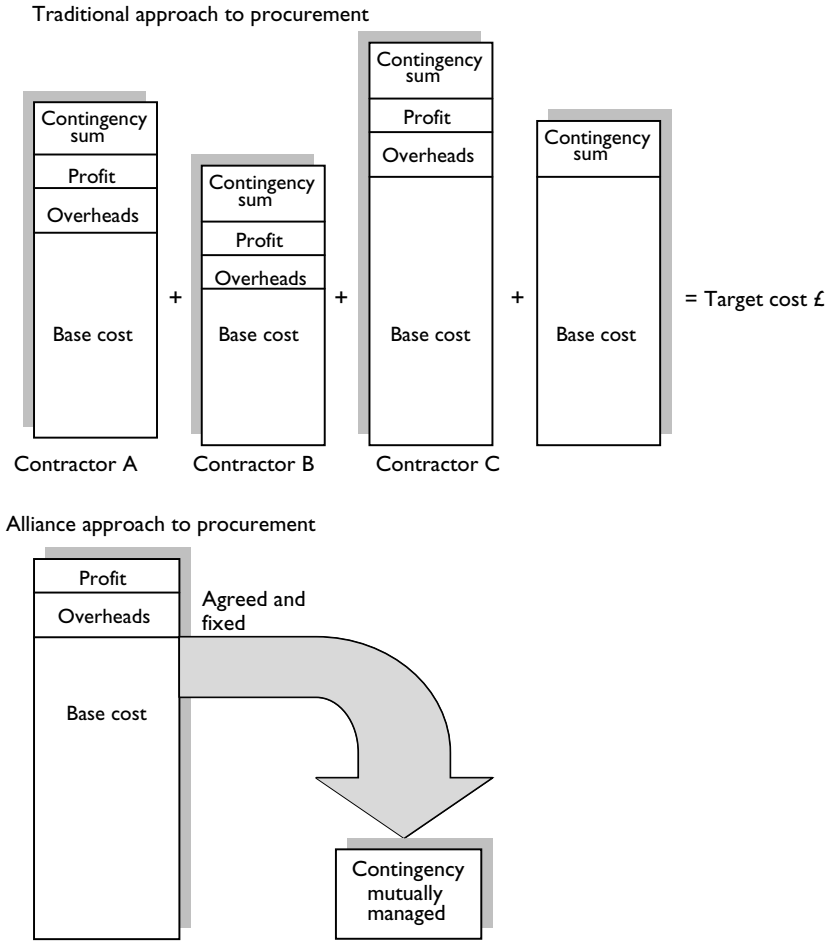

Figure 6.6 Comparison between traditional and alliance procurement.

what the market will bear. However, when using alliancing, the client has no way of knowing whether the target cost is the best value for money. History has proved however, that traditional lump sum contracts have consistently failed to deliver projects to budget and to time, whereas with alliancing, a group of highly dedicated and focused people working together in a collaborative non-adversarial environment, will deliver a project to cost and to time.

Although there have been some high profile success stories with alliances, in general failure rates for alliances are high at around 50–60% – a salutary lesson for those about to dash headlong into this form of procurement.

Reasons for alliance failure, and conversely critical success factors, have been identified as

- Poor partner selection.
- Mismatch of organisational structures or culture.
- Poor systems for information sharing.
- Lack of trust.
- Lack of commitment.

Ireland

The economic case for the use of PPPs in Ireland has been strengthened by the prolonged period of exceptional growth output in Ireland over recent years. The doubling of the size of the Irish economy since 1993 has placed huge pressure on physical infrastructure, especially in public transport and on roads infrastructure. The national development plan 2000–06 includes a minimum indicative target of €2.35 billion to come from private finance out of a total investment of approximately €52 billion. The genesis of PPPs in Ireland therefore has been significantly different from its beginnings in many other countries, notably the United Kingdom. The drivers in Ireland are accelerated delivery of national priority infrastructure projects together with the attainment of value for money over the full life cycle of the asset. Other key differences between PPP in Ireland and elsewhere include the structured consultation with key stakeholders as part of the partnership approach to the process and the pilot or pathfinder project approach adopted by the government to the developing market for PPPs in order to ensure learning by doing and to facilitate the development of guidance material to assist the streamlining of the process. The stakeholder consultation process is a significant development in the Irish model. In particular, the employee consultation process is a vehicle for meaningful two-way communication between State Authorities and employees and their representatives in the course of which relevant issues arising in connection with PPP projects are signalled and discussed. Such consultation could

- provide information concerning PPP projects and/or;
- seek constructive feedback on issues impacting on employees with a view to reaching agreement in advance of any changes;
- develop a spirit of understanding behind the drivers of PPP among the staff and trades unions in relation to managing the change.

Such an approach is in marked contrast to early PPP projects in the United Kingdom where fierce trades union resistance marked the announcement of each new project born out of suspicion about the nature of PPPs and the consequences for the public sector.

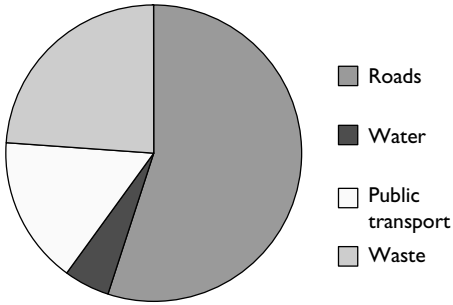

Figure 6.7 Principal areas of PPP investment in Ireland.

In 1998 the Farrell Grant Sparks Report was the first major work on PPPs in Ireland and concluded that there was scope for the use of PPPs in Ireland, in particular in areas such as roads, public transport, water and waste services (see Figure 6.7). As a result, a number of high priority pilot projects were commenced later that year.

The first PPP projects in Ireland were roads contracts which were signed in early 2000 after which the process stagnated. However, in 2003 the National Development Finance Agency was established and its roles were as follows:

- advising the State authorities on the optimal means of financing public investment projects in order to achieve value for money;
- to advance monies and enter into other financial arrangements in respect of public investment projects;
- to raise finance for national development projects including certain design work, build, operate and finance PPPs;
- to establish companies for the purpose of securing finance for public investment projects including the guarantee of repaying funds to any such companies upto a value of €5 billion.

In 2005 the Minister for Finance announced that the Irish Government had accepted new proposals for a new initiative aimed at accelerating the delivery of PPPs for key capital infrastructure projects. The initiative involves the consolidation of the relevant skills and capacity required to support PPPs in a new specialised Centre of Expertise focusing on three key areas – Education, Health and Justice.

In common with other countries, PPPs have not been widely accepted. From the public sector's perspective, questions have been asked about the level of risk transfer on some of the early road projects and whether the PPP

process really does represent value for money. The N4/N6 Kilcock Kinnegad project awarded to the EuroLink consortium in March 2003 helped to restore some confidence. The 30-year project transfers traffic risk to the private sector. Upfront funding of €146 million was provided by the public sector against a 30-year total scheme estimate of €500 million. During the operational period the private sector consortium is expected to generate sufficient income from toll revenue to cover all remaining construction, operating and funding costs, not to mention private sector profit and a return of a share of future profit to the Government. The profit or loss on the project will essentially depend on the penchant of the Irish travelling public to commit to paying tolls on an inter-urban route. With the debt financing to be repaid by the private sector to the banks in the region of €150 million, this is a significant risk.

The Irish roads programme also benefited from the co-financing approach described earlier. Between 2000 and 2006 the finance for the programme came from the following sources.

Cohesion fund	€231 million
European regional development fund	€530 million
Exchequer	€3,555 million

A large proportion of the cohesion funds were used for project preparation, planning and design work.

Conclusion

The following range of views on PPPs have frequently been expressed:

- PPPs are useful for the implementation of large-scale infrastructure projects.
- PPPs are an instrument for generating private sector creativity and innovation.
- PPPs do not affect public responsibility – the government as the service provider ultimately remains responsible.

When assessing the potential for PPPs to enhance the social and economic development in a particular set of circumstances, the following criteria should be addressed:

- Does the government support PPPs to enhance levels of funding or deliver value for money through enhanced procurement efficiencies?
- To what extent are legislation and the institutional setting supportive of PPP development? PPP implementation may require governments to review legislation on taxes, foreign investment, etc.

- To what extent will governments adjust standard procurement procedures?
- Is the local private market prepared to buy into the concept and prepared to invest in acquiring the necessary skills and expertise?
- Are lending institutions and commercial banks prepared to become actively involved?
- Are local end-users and trades unions prepared to participate in the process?
- Is the government prepared to invest in a sustainable PPP process by establishing a core of PPP expertise and central agency?
- In what sectors should PPPs be used and how are projects to be prioritised?

Bibliography

Building Design Partnership (2004) *Learning form French Hospitals* BDP, London.
IPPR (2004) *3 Steps Forward, 2 Steps Back – Reforming PPP Policy* – IPPR.
Policy Framework for PPP in Ireland (2003) Department of Environment, Heritage and Local Government.

Chapter 7

Case studies

This chapter will concentrate on case studies from a variety of PPP procurement models.

Case study 1 The PFI – The redevelopment of West Middlesex University Hospital

Background

The redevelopment of the West Middlesex Hospital was set against the government's agenda for the modernisation of the NHS. Towards the end of the twentieth century the West Middlesex Hospital University Trust was faced with trying to deliver quality healthcare with a standing building stock of which at least 48% of the accommodation was classified as being in a condition that was below acceptable standards for functionality and condition – 'operational but major repair or replacement needed soon'. West Middlesex Hospital originated as a Poor Law Infirmary and Workhouse in 1839 and a large proportion of the accommodation prior to redevelopment was pre-1900. As a consequence, in 1999 the Trust found itself with a £22.8 million backlog of maintenance. The piecemeal development of the site over a period of 50 years had resulted in a fragmented facility where patients had to be transported in electric ambulances from one department to another and duplication of services such as X-ray. There is a great deal of uncertainty, in the short to medium term, on the actual nature and scope of services that the Trust were expected to provide in West London, due in part by the possible reorganisation of local healthcare provision. During the period 1980–95 there were several unsuccessful attempts to redevelop the hospital and much of the more recent stock was temporary construction. The PFI gave the opportunity to the Trust to redevelop the hospital.

Objectives of the project

Given the poor condition and functional relationships of much of West Middlesex Hospital's building stock, there was a clear and urgent need to

replace the substandard accommodation and in doing so create a more coherent and effective site. In particular the objectives of the project were as follows:

- to improve the clinical and environmental quality of services;
- to improve the strategic fit of services;
- to meet training and research needs;
- to get the best deal for the Trust.

The key considerations were,

- strategic flexibility – the ability to increase or reduce the hospital's capacity significantly over the medium term. The Trust was emphatic that the development of the hospital should be very flexible and minimise the risk of being seen as a 'white elephant' and of little long-term value. If trends continue as expected, with acute hospital services increasingly shifting from inpatient to outpatient day case treatment the Trust wanted a solution that could enable them in the future to withdraw from one or more of the buildings and associated land could be disposed of to reduce the cost base. The levels of uncertainty within healthcare planning make it extremely difficult to predict the precise configuration of services, even in the medium term.
- quality – improved accommodation and services for both patients and staff;
- cost reduction and value for money – elimination of site-related inefficiencies in services and practices and the redesign of services to standards representing best practice.

During the preparation of the OBC, four options were initially considered:

- do nothing/do minimum;
- major redevelopment;
- partial redevelopment;
- develop a greenfield site.

The greenfield site option was rejected early in the process as, not unsurprising, no available site was identified within a five-mile radius of the existing hospital. Of the remaining options the weighted scores given by the Project Board were as follows:

Option 1 – do minimum	437
Option 2 – major redevelopment	726
Option 3 – partial redevelopment	748

Following further financial and economic appraisals Option 3 was selected as the preferred option and the one which was best fit to the requirements of the Strategic OBC. As part of the OBC a PSC was prepared to show the following:

- the capital cost of the PSC;
- the operating cost of the PSC;
- the risk retained profile of publicly funding the PSC solution.

The equivalent annual cost over 35 years for the PSC solution was £68.2 million compared with £67.7 million for a PFI deal.

Bidding process/timetable

The bidding process was based on current NHS guidance and the Capital Investment Manual. The public funded option was assumed to be preferred option at the OBC stage. The timetable for the project was as shown in Table 7.1.

In the view of the NAO the trust ran an effective bidding competition which included a faster bidding process than was normal which eliminated an extra round of bidding, reducing the time and costs of both the Trust and the bidders. It should be noted that if this strategy was to be used in future PFI deals, then the following safeguards need to be put in place to maintain competitive tension when using this approach. It is recommended that the public sector client should

- obtain greater bid detail at an early stage;
- keep the main aspects of the deal constant in the closing stages;
- be prepared to walk away from the preferred bidder;

Table 7.1 West Middlesex Hospital – key milestones

Key milestones	*Date*
OJEU announcement	August 1998
PQQ issued	October 1998
6 longlisted candidates issued PITN	November 1998
3 shortlisted candidates issued FITN	June 1999
Select Preferred Bidder	December 1999
FBC approval	October 2000
Financial close	January 2001
Start of construction (new build)	August 2001
Completion of construction (new build)	March 2003
First patient day	May 2003
Hospital completely operational following refurbishment	June 2004

- make it clear to bidders that this process is to be applied;
- ensure that there are no major open issues for negotiation.

It took the Trust a year to close the deal, against its expectation of 8 months, due to contractual and design issues. Following an announcement in the OJEU on 28 August 1998, a total of 52 expressions of interest were received. The interested companies were invited to an 'open day' where the Trust presented their requirements and conducted tours of the site. The Negotiated Procedure was used in accordance with the European Public Procurement Directives. Of the initial expressions of interest, 13 candidates responded to the pre-qualification process and the responses were evaluated by a team including clinical directors, the audit team and legal advisors, broadly based on three criteria:

- financial and economic standing of the consortia;
- technical assessment and competence;
- overall impression of documentation.

As a result of the evaluation, from the 13 pre-qualified bidders, 6 were issued with a Preliminary Invitation to Negotiate (PITN). These were,

AMEC/Balfour Beatty
Bouygues/Ecovert
Impregilio/RCO
Laing Hyder/Granada
Sir Robert McAlpine/Gardner Merchant
Taylor Woodrow.

After receiving further information from the PITN candidates three bidders were short listed and issued with a Final Invitation to Tender (FITN):

Bouygues/Ecovert (Bywest)
Impregilo RCO (New Health)
Sir Robert McAlpine (Summit).

The three bidders were given 4 months in which to prepare their bids. However, interim submissions were required at various points during this period to ensure that the bidders understood the Trust's requirements. All bids had to be compliant with the Trust's requirements and free from any qualifications and fixed price up to financial close stage. Bidders had to confirm their compliance with the service level specification and demonstrate their compliance with the Trust's requirements for design and construction by producing a range on graphical information. In addition all the bidders had to provide statements of support from funders/equity providers. The

Table 7.2 Bidders ratings

Criteria	*Bouygues/Ecovert (Bywest)*	*Impregilo/RCO (New Health)*	*Sir Robert McAlpine (Summit)*
Design	Good	Compliant	Compliant
Healthcare	Good	Compliant	Compliant
Construction	Good	Compliant	Compliant
Services	Good	Compliant	Compliant
Human resources	Good	Compliant	Compliant
Value for money	Good	Compliant	Compliant

next stage in the process was the choice of the preferred bidder for which the evaluation criteria were set as follows:

- healthcare
- design and construction
- services
- human resources.

This is in addition to evaluation of affordability of the unitary payment and value for money. Table 7.2 illustrates the rating given to the three bidders. Actual selection was based on a point-scoring system although the comments in the table reflect the views of the selection panel as reflected in the FBC.

Bywest were the unanimous choice for preferred bidder status as they were able to demonstrate the strongest design from a clinical point of view, providing the greatest benefit for patients and staff. The construction was awarded highest score for a simple, straightforward programme that avoided the need for temporary accommodation. On service provision Bywest demonstrated a higher commitment to training and quality assurance and flexibility. On value for money the differences were more marginal with Bywest being more favourable over a 35-year period as shown in this table:

	Bouygues Ecovert (£000)	*New Health Impregilio (£000)*	*Summit McAlpine (£000)*
NPV of unitary payment at 01/04/99	95,200	95,486	96,631

Note
Bywest's unitary payment subsequently rose to £123.8 million at Preferred Bidder Stage.

Contract details

The contract details of the PFI deal are as follows:

- redevelopment of existing sites through a combination of new build at a cost of £50 million and refurbishment of existing buildings at a cost of £12.2 million;
- the provision of a new 434-bed hospital providing a wide range of outpatient, day cases and inpatient acute hospital services;
- in addition the contract required the provision of non-clinical support services such as
  - portering;
  - site security;
  - waste management;
  - catering etc.

The contract term, 35 years with an option to extend to 60 years, and the final deal cost, at 2001 prices, discounted over 35 years – £125 million against an estimated cost of £91 million in 1999. The increase in cost was due to a number of factors including the decision of the Trust not to include the proceeds from the sale of land in the deal, resulting in Bywest having to raise £12.2 million of additional funding as well as the extension of the contract period from 30 to 35 years. The winning consortia was Bywest which comprised Bouygues UK and its sister company Ecovert FM who received a unitary payment of £9.3 million per annum; the cost fees for professional advisors was £2.3 million. The project structure is illustrated in Figure 7.1.

The final solution proposed by Bouygues/Ecovert utilised framed construction and non-load bearing plasterboard partitions internally. Although the partitions are not de-mountable, the internal planning can be altered to keep abreast of changing requirements. The structural grid has been arranged to ensure good internal future flexibility, including the locations of service risers at strategic positions for future adaptability. A similar approach to flexibility was applied to the provision of wards, operating theatres and outpatients department.

Financial arrangements

The hospital redevelopment had a net financing requirement of around £36 million after a £13 million injection from the sale by the Trust of surplus land. Later it was decided not to use the £13 million from the sale of the land in this way and the consortia were required to raise a total of £59.81 million in senior debt. Gearing was in line with similar PFI deals:

senior term debt 91.0% – long term swap rate – 5.63%;
subordinated debt and equity – 9.00% – 14%.

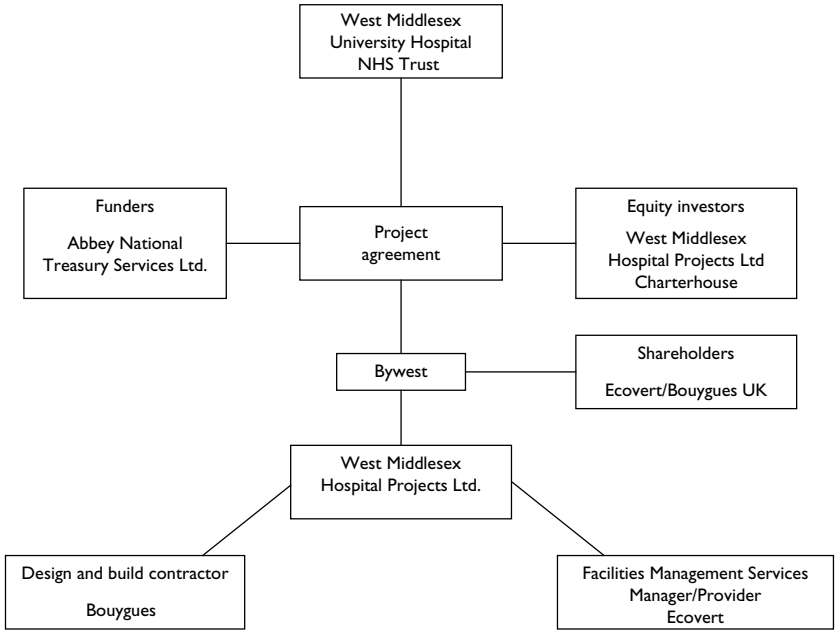

Figure 7.1 Contract structure – West Middlesex Hospitals.

Two methods of funding were considered: a bond issue; bank option.

Due to a number of recent telecom bond issues at around the time of financial close and the limited number of private placement investors it was judged to be unsuitable to be financed by way of a bond issue.

Senior debt – bank finance

Abbey National is the senior lender with funds available in three tranches. The repayment begins 15 months after completion and is due semi-annually.

Subordinated debt and equity

Charterhouse Project Equity Investments Ltd provided the subordinated debt. The SPC West Middlesex Hospital Projects (WHP) also contributed capital.

Accounting procedure

Under conventional procurement PSC the new building will be on balance sheet; under a PFI scheme it will be off balance sheet. The new building will

be treated as an asset of the project company for the period of the concession, upon which ownership reverts back to the Trust.

Risk transfer

The final calculations showed a risk adjusted saving of £5.5 million compared with the PSC. The following table illustrates the allocation of risk:

Bywest	*Trust*
Construction costs	Clinical service provision
Project Management – lack of details	NHS regulatory changes
Availability of facilities	
Incorrect estimates of maintenance	
Income from income generating schemes	

Key benefits

Key benefits for the client and patients include improved standards of accommodation and facilities and the provision of a more compact and coherent site releasing savings of £1.1 million for reinvestment in improving the local NHS (see Table 7.3).

Key financial and economic benefits

- Transitional funding of £1.7 million released from 2004/05
- Cash savings of £1.1 million re-invested from 2004/05
- Cash savings of £0.6 re-invested from 2000/01
- More affordable than PSC option (£233,000 in year 2004/05)
- Better value for money that PSC option (£7.6 million over 35 years).

(KPMG)

Conclusions

The redevelopment of the WMH achieved significant clinical, service and financial benefits. The project delivers the following:

- an increase in revenue savings;
- the elimination of £22.8 million of backlog maintenance;
- £28 million from the sale of surplus land.

One of the most often-voiced criticisms of the PFI is that the cost of the deal does increase during the procurement process. The WMH was no exception

Table 7.3 West Middlesex Hospital – key details

	PFI deal	*Conventional procurement*
Final deal cost at 2001 prices (discounted over 35 years) – excluding clinical costs	£125 million	£130 million
Cost profiles	Annual unitary charge – £10 million	Full capital construction costs – £62 million followed by on going maintenance and running costs
Risk allocation		
Public sector	Clinical services Changes in Trust requirements Changes in NHS requirements	Most risks retained by public sector
Private sector	Construction design Meeting performance targets	
Cost of advisors	£2.3 million	Between £1.2 million and £2.4 million
Assessment of other benefits	Greater price certainty Greater time certainty Payment linked to delivery of service Incentive to use whole life cost approach	Cost overruns passed on

Source: NAO (2002) The PFI Contract for the redevelopment of West Middlesex Hospital, HMSO.

with capital costs rising from £38,000,000 at the SOC stage to £51,932,975 at OBC stage to a figure £65,112,035 at the time the PSC was prepared. These increases were due to a variety of factors including increases in the following: on costs – £2.72 million, fees – £1.43 million and Trust design changes – £2.06 million.

Case study 2 ProCure21 – Milton Keynes Diagnostic and Treatment Centre

Note It is perhaps useful to refer to the detailed description of the ProCure21 process in Chapter 2.

As discussed previously in Chapter 2 ProCure21 is a procurement strategy based on a framework agreement. For the public sector the new EU

Directive outlines the principals that must be satisfied before a framework can operate as follows:

- *Fundamental terms and conditions, including an 'economic test'*. The economic test can take a number of forms, the most common perhaps being a schedule of agreed rates. For example, in the case of NHS ProCure21, the economic test is satisfied by a process that results in so-called calculation 'agreed margins', based on the model of business as usual, which are allied to a framework organisations cost model. In addition these agreed margins are also used in ProCure21 for other matters such as benchmarking, continuous improvement etc.
- *No renegotiation of terms and conditions*. In the event of a framework contractor being awarded a contract then it should be possible to take a pre-drafted contract without having to renegotiate any of the substantive terms and conditions. It is not permitted under the directive to renegotiate the price basis or any other term the framework members are appointed under, hence the agreed margins approach adopted by ProCure21 is considered by NHS Estates far better, as it uses actual cost/open book accounting on specific schemes and can involve the use of standard contracts for schemes etc.

Figure 7.2 Milton Keynes Diagnostic and Treatment Centre.

Objective of the project

The Milton Keynes Diagnostic and Treatment Centre (see Figure 7.2) is a £12 million publicly funded, 60-bed day and extended day surgery facility. Included within the project are 4 operating theatres, 2 new procedure rooms and a pre-assessment unit. The time scale for the project was ambitious, starting on site in May 2003 and open for business in May 2004. The rapid time scale was thought to be possible because they elected to use the ProCure21 approach.

Bidding process/timetabling

Table 7.4 Milton Keynes D and TC bidding process

Date	*Process*
26 November 2002	PSCPs invited to Trust Open Day
05 December	Open Day
10 December	Interviews
11 December	PSCP chosen by Trust
20 December	First Project Meeting
27 January 2003	First Designs
27 February	Detailed planning application
May	Planning consent
May	Design complete
June	Start on site
December 2004	Treatment Centre Open

Contract details

In many ways ProCure21 procurement is much less complicated than say the PFI. Contracts are standard PPC 2000, there is no service provision and no financial requirement from the private sector. The contract and the general approach however require and encourage partnering by the framework contractors.

Key points

The main characteristics of the Milton Keynes project were the savings of both time and cost. The rapid timetable was achievable because of the following factors:

- As a result of the ProCure21 selection process, conducted prior to the project, the framework was already in place thus eliminating the need for lengthy traditional procurement processes. The only matter that had to be established was a 'culture fit' between the Trust and the PSCP. It was estimated that up to 9 months was save by adopting this approach.

- Once the PSCP had been selected, the first project meeting took place in December 2002. The forum benefited from; access to expertise within the PSCP, NHS knowledge from the Trust, including the clinicians, which resulted in a steep learning curve, few early mistakes and blind allies and a structure that encouraged buildability. Using this understanding of the NHS it was possible to achieve the following:
  - 4 weeks from sketch plan to 1:200 plan;
  - a further 4 weeks to produce detailed planning application;
  - a high-quality contemporary design.

During this process it was possible for the project team to access expertise and information from other ProCure21 projects and avoided reinvention of the wheel.

- From the financial aspect, time was saved as there was no requirement for the selected PSCP to submit fully priced bills of quantities, etc. The PSCP submitted a guaranteed maximum price, which was constantly monitored and subjected to a process of transparent accounting. In addition, during the design process value management and value engineering workshops were used for cost control as well as being used as a source of innovative approaches to the project.
- In addition the NAO (*Improving Public Services through Better Construction* – March 2005 HMSO) identified the following advantages:
  - A specialist VAT recovery service offered to the NHS clients by the ProCure21 team has saved NHS around £0.7 million in consultancy fees that would otherwise have been payable.
  - Improved Health and Safety: latest data indicates that ProCure21 schemes have an improved mean average accident rate, approximately 0.07 accidents/£ million compared to the rate on previous non-ProCure21 projects (0.16 accidents/£ million).
  - The reduction of costs associated with claims from contractors: litigation has been non-existent on the schemes completed to date, indicating a 3% saving of project costs based on previous data.

Conclusions

As discussed previously in Chapter 2, there have been problems with the implementation of ProCure21. These mainly centre around the allocation of projects or the rate of call-off from the framework. Anecdotally evidence suggests that a proportion of the PSCPs consider that the costs associated with ProCure21, that is, the £170,000 annual fee plus the costs associated with the initial pre-qualification process have to date not been covered by profit from ProCure21 projects. It would seem to date that the

clients, that is to say various NHS Trusts are content with the process, where as PSCPs regard the system as being flawed and having too many (11) PSCPs in the framework with little regulation or direction from NHS estates on selection resulting in illogical spread of work, with trusts using the ProCure21 system to appoint their already favoured contractor. Nevertheless, in May 2005 a group of universities, led by Cambridge University, set up a group to develop framework agreements, based on ProCure21 in an attempt to deliver better value for money in the sector. The plans are to be developed in conjunction with the government sponsored body – Constructing Excellence – and there were statements from CEBE that the adoption of the framework approach could deliver savings of upto 25%.

Case study 3 PPP – A new approach to Highway Maintenance and Management – Birmingham City Council

Background

This case study concentrates on a PPP/PFI project for a local authority made possible through PFI credits from 4Ps. Birmingham City Council is the largest metropolitan local authority in the United Kingdom and is home to about one million people as well as being a workplace for nearly half a million people. Nearly three million people live within a 30 minute car journey of the city centre and a comprehensive public transport system brings nearly 1.2 million people within a 30 minute public transport journey. In 1986 care and control of the highway network in Birmingham passed to the City Council which currently has responsibility for 197 km of principal roads, 237 km of classified roads and 2.054 km of unclassified roads. It is essential for the continuing prosperity not only of Birmingham but also the West Midlands that the transport infrastructure can meet current and future demands.

However, it is recognised that currently the road network cannot provide an acceptable service and that a major cash injection is required in order to remove the backlog of highway infrastructure works that have accumulated during the past 20 years.

It was estimated that in Birmingham 14% of the principal roads were classified as 'in a failed condition' as well as a further 12% classified as 'in a critical condition', that is, less than 5 years of remaining life. A best value review in 2000 of the City Council's highway service indicated that it needed a major cash injection to remove the backlog of highway structural works that had accumulated over the past 20 years or so. Current funding and restrictions on annual budgets have precluded the use of whole life costing for maintenance and management of the road system.

The Government's 10-year transport plan, Transport 2010, includes a target to eliminate all local authority maintenance backlogs by the end of the plan period – 2011.

Objectives of the project

Alarmingly, the most recent surveys indicated that the rate of deterioration on the roads of Birmingham was increasing and that any postponement of highway maintenance could prove to be detrimental to the economy of the area. Given the poor condition of the road network it was necessary to bring about a step change in the maintenance and management of the road network. Before the implementation of the project in was estimated that the following amounts were necessary deliver an efficient road network:

- £50 million to return the existing net work into a reasonable condition;
- £47 million maintaining and strengthening bridges and other structures;
- £75 million upgrading street lighting;
- £5 million upgrading road drainage.

Once the required standards are met there will then be the need to provide good asset-management practices to keep the network in good repair.

The project originated from the Best Value Review of the highways maintenance service which indicated that approximately £50 million was needed to bring the road network to a fair and reasonable condition. The City Council considered a number of project and procurement options before concluding that a PFI contract that included the maintenance and management of the whole road network was most likely to provide value for money.

The aims and objectives of the project are as follows:

- to focus and manage travel to reduce effects on the environment;
- to improve transport facilities and services;
- to prevent social exclusion caused by lack of access to transport facilities;
- the rehabilitation of the road network such that it becomes capable of carrying existing and future predicted capacities;
- the implementation of a flexible, affordable and sustainable maintenance regime based on value for money;
- a reduction of the number and value of liability claims against the City Council.

Bidding process/timetable

The procurement timetable as included in the OBC was as seen in Table 7.5.

The selection process prior to the ITN was in two stages, with bidders required to submit a PQQ and an ISOP which contained more detailed

Table 7.5 Birmingham City Council – bidding process

Stage	*Actual or planned date*
OJEU Notice to TED	19 May 2004
Issue information Pack/PQQ invitation to submit outline proposals (ISOP)	June 2004
Bidder's open day	15 July 2004
Return of PQQ and ISOP	13 August 2004
First Stage short list confirmed	October 2004
Issue ITN	November 2004
Bid Submission	February 2005
Second Stage short list for BFO	April 2005
Invitation to submit BFO	April 2005
Return of BFO	July 2005
Selection of preferred bidder	August 2005
Contract Award	January 2006
Contract commences	April 2006

questions relating to the bidders' proposals. The ISOP was evaluated only if bidders satisfied the PQQ and a maximum of four bidders were selected for the short list.

Bidders were selected on the following criteria:

- their economic and financial standing, taking into account such matters as statements from the bidder's bankers, evidence of insurance and statements of accounts and turnover;
- the capability to secure appropriate financing for the contract;
- the ability and technical competence of bidders to meet fully the Council's requirements for the project including
  - the organisational, managerial and technical capability to carry out the project;
  - the technical capacity and capability to perform the complete range of services in the project;
  - quality management procedures.
- technical, financial and economic record for projects of a similar nature;
- proven understanding of the skills required for project organization and delivery.

All bidders applying for the PQQ and ISOP documentation were invited to attend a Bidders Conference with the opportunity to meet and discuss the project with members of the client's project team. Following the formation of the short list several clarification meetings were held during the bidding process.

Table 7.6 Birmingham City Council – risk transfer

Risk category	*Risk description*	*Local authority*	*Share*
Design	Changes requested by Local Authority	☐	
Design	Compensation delay events	☐	
Design	Force majeure		☐
Design	Force majeure termination		☐
Design	Local Authority omissions or defaults	☐	
Design	Relief events		☐
Core invesment	Changes requested by Local Authority	☐	
Core invesment	Compensation delay events	☐	
Core invesment	Inclement weather		☐
Core invesment	Local Authority default	☐	
Core invesment	Relief events		☐
Finance	Changes in government funding of Local Authorities	☐	
Finance	Changes in status of Local Authority	☐	
Finance	Interest rate changes before contract signature	☐	
Finance	Refinancing		☐
Finance	Taxation changes before contract signature	☐	
Operations	Changes in Local Authority policy	☐	
Operations	Changes requested by Local Authority	☐	
Operations	Compensation delay events	☐	
Operations	Relief events		☐

Contract details

The total financial value of the project will be approximately £2.2 billion over a 25-year contract period. The contract has a core initial investment period, the first 5–7 years, which it is considered will bring the existing highways network up to standard. Over this period the Council will continue to contribute approximately £42 million per annum, resulting in an affordability gap of £778 million over contract period. To cover this gap the Department for Transport has awarded the City Council £379 million PFI credits – see Chapter 2 – which equates to the NPV of the £778 million thereby allowing the Council to meet the unitary payments to the successful bidder. New works are generally excluded from the contract. However, a schedule of minor works is to be prepared in order to give the PFO contractor the opportunity to carry out this type of work. In total the contract will be the United Kingdom's largest private roads project to date.

Risk transfer

An indicative risk register is shown in Table 7.6 that was included in the bid documentation that was used during the procurement process. All risks not

included on the register were expected to be transferred to and managed by the successful bidder.

Conclusions

The IPPR in its report *Building Better Partnerships* endeavoured to develop a rationale for the development of PPPs and came to the conclusion that one of the principal reasons why PPPs where chosen by the public sector was 'public sector rescue'; at least two of the studies seem to reinforce this view.

Bibliography

National Audit Office (2002) *The PFI Contract for the Redevelopment of West Middlesex University Hospital*, The Comptroller and Auditor General.

Richardson, S. (2005) *Universities Join Forces for Procure21-style Framework*, Building, 06 May.

West Middlesex University Hospital NHS Trust (2001) *Full Business Case for the Redevelopment of West Middlesex Hospital*.

Chapter 8

Conclusion

The preceding chapters have outlined the scope and the range of construction-related PPP procurement models currently in use in the United Kingdom as well as elsewhere in the world. There are still many misconceptions about PPPs and in particular the PFI, but in order to make PPPs work efficiently there is no doubt that all the participants should be prepared to engage in and demonstrate the following:

- partnering
- communication
- commitment.

In order to achieve true partnership there still needs to be a massive culture shift in the UK construction industry away from silo working and towards truly collaborative working between demand and supply as well as throughout the supply chains. The private sector, despite criticisms of high-bid costs and long lead in times, shows no signs of withdrawing from the market, whereas there is evidence that the complexity of PPPs is a deterrent to new market entrants. In the public sector there is a need for the emergence of a client with a professional approach with a clear vision and understanding of value for money issues as illustrated in Figure 8.1. A report by Cambridge Economic Policy Associates for the Scottish Executive in 2005 came to the conclusion that in the case of PFI projects carried out in Scotland, on more than half the projects the price changed at the preferred bidder stage because of changes to the design or service specification. Further, in 20 of the 24 projects that were examined the changes were initiated by the public sector client and much of this was due to poorly drafted service level specifications – see Chapter 4 and contract conditions.

PPPs are just one strategy in a whole raft of initiatives introduced during the past 15 years or so in an attempt to improve UK construction performance. The main thrust of these new construction procurement strategies is the promotion of collaborative working and includes partnering, alliancing and SCM. Some PPP models, ProCure21 and BSF for example, require

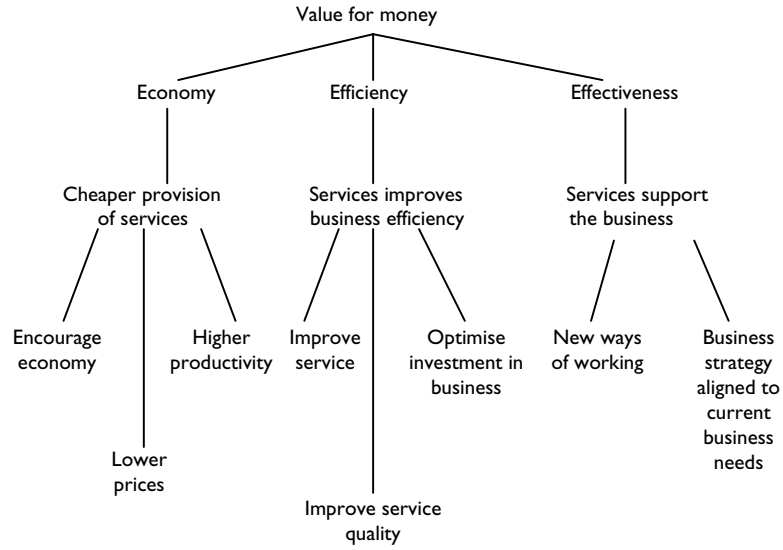

Figure 8.1 Value for money drivers.
Source: OGC.

potential participants to demonstrate that these new approaches are being practiced by their organisations as a prerequisite for consideration. However, despite this, anecdotally there is evidence to suggest that to date, these collaborative techniques have not filtered across to the PFI and that to some extent a 'them and us' situation still exists within these deals. In general PFI projects have tended to remain in non-core areas of public sector business where arm's length contracts can be established. For example, with the question of risk transfer many contractors with experience in PFI projects are fully aware of the risks associated with say a school or hospital project and can plan accordingly. The major negotiation and horse trading takes place within the members of the consortium to determine which part of the operation will take responsibility for and manage each category of risk.

According to PricewaterhouseCoopers partnering in PPPs has tended to be used in cases where the parties are unable to scope the project fully at the outset. In addition it is suggested that partnering in PPPs has focussed primarily on the behaviours of the parties in addressing uncertainty, rather than the scope for joint working to deliver better added value projects. And while aspects such as performance measuring and monitoring are a part of PPP contracts there is little understanding as to how collaboration between the various parties involved can help to deliver increased performance. Although many definitions of partnering exist, one common theme is that

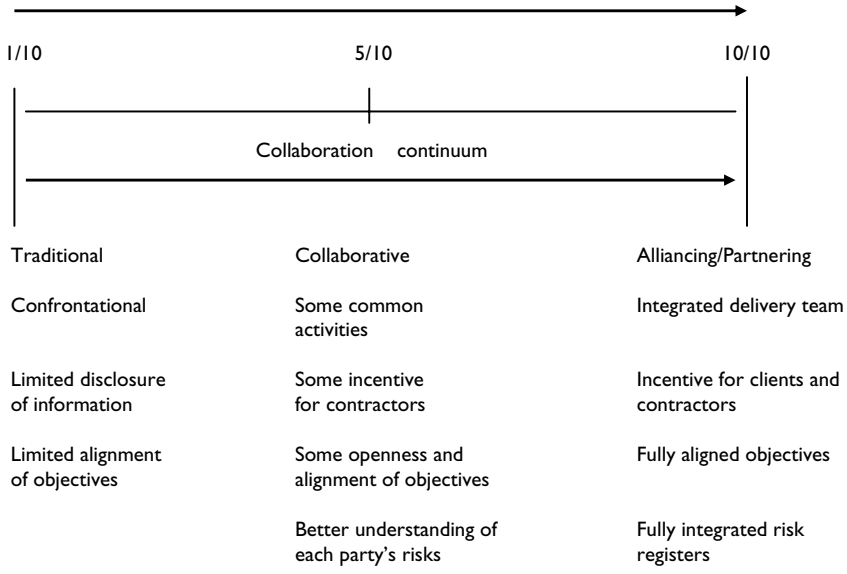

Figure 8.2 The collaboration continuum.

all members of the supply chain align themselves to the objectives and outcomes of the project.

One of the principal ways to sustain relationships in the supply chain is through the promotion of collaborative working and transparency. The transition from traditional approaches to a collaborative approach is illustrated in Figure 8.2. During the transition emphasis should be given to establishing collaborative relationships with supply chain partners and developing methods to incentivise suppliers to improve their performance, such as the pain/gain agreements discussed in Chapter 6.

In practice 10/10 is probably not possible, except perhaps in certain areas of the mature North Sea oil and gas industry. Realistically, a degree of collaboration between 5 and 7 on the continuum is the most that can normally be achieved. As with all new procurement strategies, monitoring progress and seeking continuous improvement is a basic requirement for all supply chain members.

The potential partnering applications in PPP projects are as follows (see Figure 8.3).

- Bilateral partnering between the client body and the PPP company, for example the SPV in the case of a PFI project. This is in effect the approach used in PPPs currently, although in a PPP the SPV shareholders

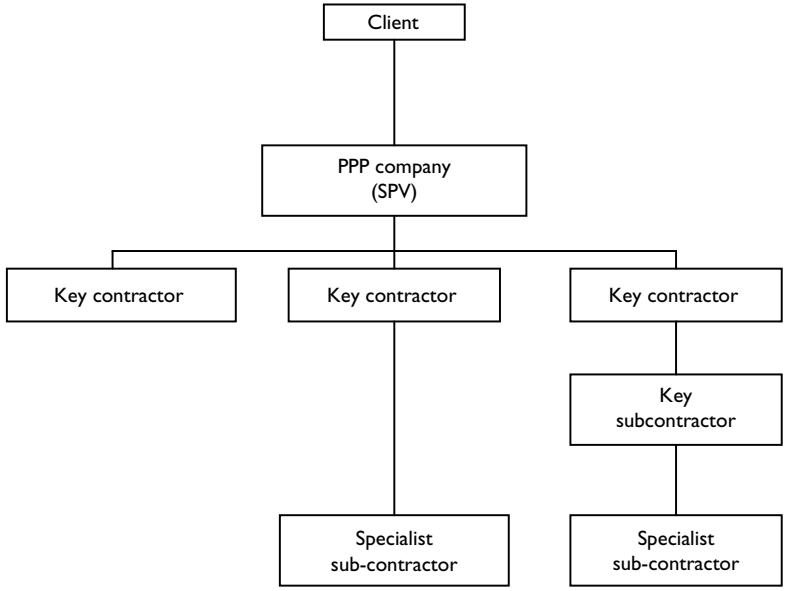

Figure 8.3 Partnering and PPPs.

are usually also the key contractors and may therefore be involved without the need for a multi-party agreement.

- Multi-party partnering incorporates the client, the lead contractor and the key sub-contractors. Alliancing, see Chapter 6, is arguably the most developed form of partnering. In an alliance project parties include all of the key players and the client. In the case of alliancing there are no separate bilateral contracts between these parties and they share in all of the project gains and risk according to predetermined formulae. In multi-party arrangements that are still full alliances, bilateral contracts will still exist but there will be some sort of multi-party agreement which may be more or less binding and which deals with working arrangement, risk and cost sharing.
- Finally, supply chain partnering which excludes the client but involves several of the contracting parties. Under this arrangement the suppliers independently form a partnering arrangement among themselves. In effect the lead contractor acts as a client to the rest of the contractors in the partnering. This approach excludes the client from any savings the partnership realises and may mean that the partnership's objectives conflict with those of the client.

A report by the Association of Chartered Certified Accountants (ACCA) came to the conclusion that partnership is an ideal to be aspired to rather

than a description of the actual working practices between public and private sectors. In many cases a 'them and us' situation exists with all the implications for project accountability and performance monitoring. Trust between the two sectors was not always present and in any case outcomes that are subjective in nature, for example hospital cleaning, are difficult to write in contractually effective ways and cause monitoring difficulties. The ACCA report also concluded that few if any contingency plans were drawn up against the possibility of default by the private sector.

Are PPPs working?

The NAO is the independent government auditor that investigates the way in which public money is spent on a variety of projects. Such is the concern of the motives and effectiveness of the PFI that the NAO has produced around 37 reports both on specific PFI projects as well as themes relating to the PFI. In fact when compared with other forms of government spending, the PFI projects have had a disproportionate number of report/audits. Of course 'working' means different things to different groups of people and in a relatively immature market place characterised by long-term projects there is clearly difficulty in trying to assess the success of the PFI to live up to its aims of delivering value for money and efficient public services. Fortunately, over the recent past there have been many reports by independent organisations such as the NAO, Audit Scotland and The Henley Research Study into the performance of PFI projects. Evidence appears to support the view that PPPs transfer construction risk to the private sector more effectively than traditional procurement approaches but as yet there is insufficient evidence to conclude whether PPPs transfer post-asset completion risks more effectively than traditional strategies; for example it is unclear how the actual cost of say a DBFO scheme compares with expected costs

Bundling of PPP projects

There have been problems with smaller capital projects associated with the relative higher procurement costs associated with this size of project. Respondents to the report *Public Private Partnerships in Scotland – Evaluation of Performance* prepared by the Cambridge Economic Policy Association concluded that it was difficult to justify PPP bid costs for projects with a capital value below £40 to £50 million. Research by PUK into a sample of 35 smaller capital schemes showed that while their construction and operational performance was at least the equivalent of larger projects, the procurement process tended to take just as long as for larger projects at an average of 30 months. As procurement costs related to technical, financial, design and legal advice are relatively higher in smaller projects the transaction and development costs are relatively large.

Therefore in an attempt to reach the critical mass for PPP projects it may be necessary to bundle perhaps as many as 20 or so smaller projects in order to attract the necessary funding. There are particular challenges with this approach as the outcomes of the distinct projects could be blurred. If projects are to be bundled then public sector clients should consider the following:

- the level of detail to be included for each individual project in order to ensure innovation and design quality;
- the time and resources necessary for each project in order to ensure the design quality of each individual project.

In Scotland in the schools sector, bundling projects had successfully reduced authority costs as a percentage of capital investment; average authority costs in this sector are 2% of total costs.

Single tender bidding

Such has been the drain on PFI expertise within the United Kingdom during the past few years that single tender bidding has started to appear. For example, on the context of PFI healthcare the client receives just one bid which in effect turns the process into a negotiate contract which may give the single consortia too much power; on the other hand, if single bids are ruled out, firms may decide to pull out of the PFI market altogether, thereby making a limited market even smaller and increasing the pressure to allow them. Increasingly, PFI procurement is being curtailed because insufficient consortia are available or interested; one of the reasons being cited is the loss of bid costs, estimated to be between £4 million and £100 million for healthcare projects. This has resulted in several PFI hospital schemes including the £350 million Derriford Hospital Plymouth and the £190 million Stobhill and Victoria Hospitals in Glasgow. One reason for the lack of interest in UK PFI projects is the growing market in Europe where UK PFI expertise is at a premium and, of course as mentioned previously, the deal to provide a new £1.1 billion hospital in Paddington finally failed in 2005 after five years and an estimated £14 million of costs and fees. According to the Major Contractors Group, PFI procurement is still stuck in the slow lane and is typified by heavy front end costs, for example, in the healthcare sector:

- from expression of interest to financial close – 22–62 months;
- from BFO to financial close – 12–24 months;
- average bid time – 35 months;
- average bid costs: £7.7 million – 8% of overall value.

Despite the sometimes poor press most developed countries are looking at the possibilities offered by PPPs (see Chapter 6). International Financial

Services, based in London is an organisation which promotes the UK financial services industry in over 40 countries throughout the world.

As a major justification for the use of the PFI, this aspect, according to the ACCA was one of the most difficult to assess for a number of reasons. First, it found that it is virtually impossible to compare the PFI deal with the PSC project because the PSC quickly becomes out of date. In addition, because the FBC are not in the public domain, and because they contain commercially sensitive issues, there has been little external financial scrutiny of the deals post implementation. The report went on to point out that due to a complex weave of sub-contractors who are responsible for the operation and maintenance of PFI schemes it is extremely difficult to isolate the costs of operations and maintenance making it difficult for the public sector to benchmark costs when it comes to amending the contracts and negotiating new ones. In both the case of road and hospital projects the cost of capital to the SPC was 11% and 10% respectively, that is 6% and 5% above Treasury Stock. In the case of roads contracts this equates to approximately £56 million, which as has previously been explained is supposed to equate/off set the risk transferred to the private sector. However the ACCA report concludes that there are very few risks associated with this type of contract as all payments are guaranteed by the government and the report concludes that overall the contracts that were studied were costing more than originally expected although no real conclusions as to value for money could be arrived at. In the 13 hospital projects included in the study it was identified that the extra costs of raising capital in the private sector was approximately £62 million. However Zitron disagrees that it is cheaper for the government to borrow money than the private sector as the real cost of borrowing is the inherent risk in the project and the cost of financing to the private sector had the element of risk built into it, whereas government funding of a project was underpinned by what is, in effect, a blank cheque signed by the taxpayer. In fact Zitron continues, it is probably a benefit that the risk element in the price of private capital is more explicit.

Bibliography

ACCA (2004) *Evaluating the Operation of PFI in Roads and Hospitals – Research Report No. 84*, The Association of Chartered Certified Accountants (ACCA).

HM Treasury (2003) *Meeting the Investment Challenge*, HMSO.

Low, C., *et al.* (2005) *Public Private Partnerships in Scotland – Evaluation of Performance*, Cambridge Economic Policy Association.

National Audit Office (2001) *Managing the Relationship to Secure a Successful Partnership for PFI Projects.*

PricewaterhouseCoopers (2005) *Partnering in Practice – New Approaches to PPP Delivery*. pwc.

Zirton, J. (2004) *Are PPP Projects Working?* MPA 21st Annual Conference Proceedings.

Glossary of PPP terms

Best and Final Offer (BAFO) In a negotiated procurement process, the bid containing final pricing and deliverables submitted by bidding contractors based on the outcome of the negotiations conducted during the initial bid stage. More detailed than earlier submissions, in the case of the PFI this phase may be omitted and the process can move on to the preferred bidder phase.

Build Lease and Transfer (BLT) Similar to a BOT project except that a lease of the project site, buildings and equipment is granted to the private sector during the term of the project.

Build Own and Operate (BOO) A method of financing projects and developing infrastructure, where a private company is required to finance and administer a project in its entirety and at its own risk. The government may provide some form of payment guarantee via long term contracts, but any residual value of the project accrues to the private sector.

Build Own and Transfer (BOT) A concession contract in which a private consortium, build, operate and then transfer the facility back to the public sector at the end of the term. The public sector sponsor is responsible for raising the finance.

Bundling The grouping together of associated services/projects in order to acquire more advantageous financing as a single service/project.

Concession The length of time that a private company administers a project/service before transferring full ownership back to the government.

Due diligence Essentially an audit of a transaction or business proposal to ascertain the financial, technical and legal integrity of the proposal. In PFI models this is usually conducted after conclusion of the best and final offer phase (BAFO) by funders.

Equity funding A form of financing for PFI projects that usually contributes around 10% of the total debt and tends to be more expensive than other forms of borrowing. The remainder of debt being made up from senior debt – see later. Equity gives ownership rights including the right to variable rates of return to the shareholders.

Framework agreements Agreements laying down terms, conditions and cost models governing future contract.

Green Book Guidance issued by HM Treasury on how to appraise investment in public services.

Internal Rate of Return (IRR) The point at which project risk is balanced against project returns and the net present value of the project is exactly zero.

Interest Rate Swap A binding agreement between counterparties to exchange periodic interest payments on some predetermined principal, which is called the notional principal amount. For example one party will pay fixed and receive variable.

Invitation to Negotiate (ITN), Invitation to Tender (ITT) The ITN/ITT is the package of tender documentation issued to bidders inviting them to negotiate and submit costed bids. It should be specific in terms of the services that are required, specified in output terms – the boundaries or constraints on the services, scope of engineering, proposed contractual terms applicable including length of contract, payment mechanisms, timetable for the procurement process, criteria for evaluation of bids and the extent to which bidders are encouraged to submit variant bids.

LIBOR London Inter Bank Offering Rate – Normally the bank base rate of interest.

LIFT Local Improvement Finance Trust is a form of public private partnership involving Partnerships UK plc (PUK) and the Department of Health in a joint venture.

Market testing The process of determining whether the market has the interest, capacity or expertise to carry out proposed projects.

Mezzanine debt Mezzanine debt sits between senior debt and equity. The cost of mezzanine debt is higher than senior debt as there is a perceived higher risk involved. This form of debt is not that common and will usually only be for large projects with a capital value in excess of £100 million.

Monoline Insurance Credit insurance provided to lenders or bondholders for a project company's debt.

Non-recourse A lending arrangement where the lender is not permitted to request payment from the parent company if the borrower fails to meet their payment obligation, or which repayment is limited to a specific source of funds.

Output specification A statement of the needs to be satisfied by the procurement of external resources. The prospective contractors must resolve how the requirements will be best met.

Public sector comparator (PSC) The Public Sector Comparator should express in money terms an estimate of the best available method of delivering the output specification through conventional procurement

paths. That is using central funding and with the public sector retaining all the consequences of risk.

Senior debt Long-term loans secured against the assets of the special purpose company and repayable from the unitary charge, it is ranked first in the order of priority and is repaid ahead of subordinated debt or equity and has a lower risk rating than either.

Special purpose vehicle/company A separate legal entity that is established by private sector organisations for the purpose of delivering a PFI project. Up to the financial close the consortia is referred to as vehicle, and after financial close it becomes a company. It has no other business interests.

Subordinated debt In the context of PFI, debt finance for a project company which ranks in the order of priority ahead of equity but after senior debt.

TUPE The application of the Transfer of Undertakings (Protection of Employment) Regulations to PPP transactions. The regulations apply when there is a transfer of a qualifying undertakings.

Unitary charge The predetermined payment made to the special purpose company for the duration of a PPP contract. The payment, which is subject to deduction for poor or under performance includes sums for repayment of debt and payment for service delivery etc. It only becomes payable once the service is available to the public sector.

Index