PPP PROJECTS IN CONSTRUCTION

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M8: Risk Management (130)
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M10: Computer Methods in Construction (80)
M11: PPP Projects in Construction (80)
M12: Value Management in Construction (130)
M13: Construction Projects – Good Practice (80)

The scope of knowledge presented in the manuals is necessary in activities of managers - construction engineers, managing undertakings in conditions of modern market economy. The manuals are approved by the European AEEBC association as a basis for recognizing manager qualifications. Modern knowledge in the field of management in construction, presented in the manuals, is one of prerequisites to obtain EurBE (European Building Expert) cards, a professional certificate documenting the qualification level of a construction manager in EU. The manuals are designated for managers - construction engineers, students completing postgraduate studies “Management in construction” and students completing construction studies. Postgraduate studies are a recognized program, and graduates receive certificates recognized by 17 national organizations, members of AEEBC.

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More information:

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CHAPTER 1

INTRODUCTION

The advent of Public-Private Partnerships (PPP) is directly related to the revision of the state role as a provider of public services. After the Second World War, the state felt the need to invest in the re-construction of damaged infrastructures and in the re-settlement of services, thereby reinforcing its position in the economy through the constitution of major entrepreneurs in the public sector. Later, as the financial capacity decreased, the state started fading out its direct intervention in economic and social development, and progressively took the role of indirect supporter of that development (Franco, 2007).

In the OECD countries in the 1980s, the state started to use privatisation, outsourcing and concession schemes as a way of decreasing its direct involvement and passing to the private sector the responsibility for providing those services. Actually, privatisation has occurred in over 100 countries, most notably in the former communist countries of central and Eastern Europe (Akintoye et al., 2003) with the objective of recovering the market mechanisms that had been lost during the previous years. Similarly, the objectives of public service concession have been fostering the market mechanisms and reducing the weight of the public sector in the economy.

Later in the 1990s public management theory started to argue that a good part of the problems resulting from the market or coordination flaws could not be resolved with the exclusive action of the public sector, but need the participation of both public and private agents.

Simultaneously, most governments realised that the construction and operation of modern infrastructures could no longer be financed by the traditional model, that is, by using resources from taxes and various levies (e.g. fuel taxes, road user charges). For the above reasons, a substantial development of PPPs has been perceived in the countries of the European Union and OECD, as an alternative approach to the classic forms of privatisation and public concession (Reis et al., 2009). Actually, the recent disparity between the capacity to generate resources and the demand for new facilities has forced governments to look for new funding approaches and sources. In this context, the PPP scheme has been viewed
as a structuring solution working complementary to public budgeting. But this has also proved to be one of its main fragilities as the weaker European economies have mitigated their present deficits by transferring the public investment to privates in the short term while assuming heavy financial commitments for the future.

In fact, while the PPPs were initially seen by governments as a way of launching public investments without negative effects on the public debt in the short term (by getting better value for money, removing the need for upfront capital investment, balancing risk transfer and achieving greater accountability), they became a new source of fiscal concern because they did not reveal self-sustainability in many cases (Franco, 2007). Consequently, at the present time, the option for running a specific project under a PPP scheme must take into account the project specifics and be clearly matched against the benefits generated. A PPP must be seen as one of several possible options for conducting a public project and not as a solution to overcome the lack of public funds to do it.

Essentially, a PPP may be defined as a contract arrangement based on the mutual commitment between public and private organisations. It has to be stressed, first of all, that the establishment of partnerships between public sector and other entities is historical. Relevant examples of this can be found in the Portuguese discoveries of the 15th and 26th centuries. Two historical examples from the following centuries are the water distribution concession in France, granted to Perrier in 1782 and the construction of the Suez Canal in 1858 (Grimsey & Lewis, 2000). The latter is an interesting example of a PPP arrangement comprising the design, building and operation (DBO) of the waterway. A specific company, jointly owned by French and Egyptian stakeholders, was created for that purpose; financing was granted by mixed European and Egyptian funds; the contract was established for 99 years and then the ownership of the infrastructure passed to the Egyptian government. There are plenty of other historical examples where the public sector borrowed money from the private sector, mainly for acquisition of infrastructures and services. For example, in the later part of the nineteenth century many roads and railways in Europe and USA were developed by using private funds under a concession approach.

PPPs are becoming increasingly commonplace in the world as an arrangement between the public and the private sectors to finance, design, build, operate and maintain public infrastructure or services (to the extent consented by the national legal frameworks and public administration practices of each country). Following the evolution of PPPs for infrastructure projects, the forms of contracts have also changed, depending on the degree of risk allocated between partners, the amount
of expertise required from each partner to negotiate the contract and the potential implications for taxpayers. Geographically, PPPs have also spread significantly in Europe and other countries (Australia and the United States) but have had little impact in others (Canada, Japan, and South Africa).

The UK has been one of the first European countries to embrace and encourage PPP projects. As early as 1986, the UK Government initiated its first PPP project in the form of a PFI\(^1\) (Private Finance Initiative) approach and since then the total spread and reach of PPP projects in different shapes and forms have encompassed almost all the major public sector departments.

Prior to 1989 there were limits to the private finance in government activities and, since 1981, these have been expressed as “Ryrie Rules”, which stated that a project funded by the private sector:

a) should go ahead only if it could be demonstrated as more cost effective than a comparable publicly funded project; and

b) should result in a corresponding reduction of public spending (although this rule was subject to individual exceptions by ministers and was abolished in 1989).

After initiation of the PPP projects in 1992 the first rule was further relaxed. In 1999 the UK Government commissioned two separate but complementary reviews on government procurement – one by Sir Peter Gershon and a second one by Sir Malcolm Bates. The reports and findings of these two reviews formed the basis of the UK Government’s policy on PPP.

The sectors which saw a massive surge of PPP projects include information technology, health care, defence, education, transport (road – rail – air) infrastructure, environmental management including waste management, facilities management, housing, emergency services, leisure, prisons and street maintenance including street lighting.

The stated aims of the government were to achieve better value for money, removal of the need for upfront capital investment, balanced risk transfer and greater accountability. However, many see the growth of the PPP projects as a natural progression to the programme of privatisation that was undertaken in the UK during the 1980s and 1990s.

---

\(^1\) A PFI is a scheme by which the public sector sets up a level of service and the private operator provides the services in return for a charge. Under the PFI scheme, the public sector has been able to finance projects over the term of the contract, often 20 to 30 years.
By 2010 the total capital value of the PFI projects signed in the UK was £68bn, with a public sector commitment to spend a further £215bn over the life of the contracts.

After the first wave of PPP schemes implemented in the UK, they began expanding through Europe\(^2\). Portugal is presently the European country with the largest percentage of public projects developed under the PPP approach (TC, 2008). Beyond the UK and Portugal, various member states of the European Union gained significant experience in the PPP scheme, namely, Ireland, Germany, Greece, Italy, Czech Republic, Poland, Hungary, Spain, Finland and the Netherlands, although different levels of development may be identified (figure 1.1.), and different levels of contract complexity have been achieved (Akintoye, Beck, & Hardcastle, 2003).

\(^2\) European Commission, through its grant mechanism, encouraged the adoption of PPP arrangements for developing infrastructure projects in Portugal, Italy, Netherlands, Greece and Ireland (Grimsey & Lewis, 2000).
Table 1.1. Growth of PPP Projects in UK: 1986 – 1998  
(Figures reflect the capital spending in years in which the contracts were signed)

<table>
<thead>
<tr>
<th>Year</th>
<th>Amount (in £m)</th>
<th>Notable projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>1986</td>
<td>150</td>
<td>Dartford Bridge</td>
</tr>
<tr>
<td>1990</td>
<td>330</td>
<td>Second Severn Crossing</td>
</tr>
<tr>
<td>1992</td>
<td>324</td>
<td>Birmingham Northern Relief Road/Skye Bridge</td>
</tr>
<tr>
<td>1993</td>
<td>42</td>
<td>Royal Armouries Museum</td>
</tr>
<tr>
<td>1994</td>
<td>11</td>
<td>Lothian Forth Health Board/Northern NHS Trust</td>
</tr>
<tr>
<td>1995</td>
<td>862</td>
<td>London Underground Northern Line trains</td>
</tr>
<tr>
<td>1996</td>
<td>6064</td>
<td>Channel Tunnel Rail Link</td>
</tr>
<tr>
<td>1997</td>
<td>1500</td>
<td>Manchester Metrolink, MoD projects</td>
</tr>
<tr>
<td>1998</td>
<td>2679</td>
<td>NHS hospitals</td>
</tr>
<tr>
<td>Total</td>
<td>11962</td>
<td></td>
</tr>
</tbody>
</table>
Regarding the type of projects in which they have been used, it can be said that although PPPs initially fell upon the water and road sectors with concession toll (clearly representing the financial return) there is a growing conviction that they can be used to satisfy necessities in infrastructures and services of a large variety of sectors. According to the EC Green Paper COM (2004), during the last decade, the PPP phenomenon developed in many fields falling within the scope of the public sector. The sectors which saw a massive surge of PPP projects are:

- **Energy** (power generation and supply, street maintenance including street lighting);
- **Transport** (toll roads, light rail systems, bridges, tunnels, airports);
- **Water** (sewerage, waste water treatment and water supply);
- Telecommunications (telephones);
- Environmental management (waste management);
- **Social infrastructure** (leisure, hospitals, prisons, courts, museums, schools and government accommodation).

The correct understanding of the meaning of a PPP, the characteristics that distinguish it from other models of contract and the multiplicity of entities it mobilises are essential factors for its adequate operation. These will be discussed in the next chapters of this book.
CHAPTER 2

THE PPP CONCEPT

2.1 THE CONCEPT

The concept of PPP is ambiguous, especially because of the large scope of meaning in which it has been used, covering several types of contracts involving the public sector. Various institutions are saying that it would be better to reduce its range in order to clarify the difference between public traditional acquisitions and privatisations. The definitions for different countries and organisations also highlight distinctive emphases in accordance with their specific interests and objectives. Figure 2.1. summarises four different definitions from four eminent international institutions.

![Figure 2.1. Definitions of PPP](image)
According to the definitions depicted in figure 2.1, it may be concluded that in the scope of a PPP, the public and the private sectors work together in a project, the main characteristic of which is the simultaneous focus on commercial and social objectives. So, besides the difficulty in establishing a universal and complete definition, Santos (2006) presents three characteristics considered common to all PPPs:

- Long-term contract (usually 20 to 30 years) between the public and the private sector for the provision of public services, with an adequate division of risks;
- Risk allocation to the entity holding more ability, know-how, experience and innovation to run it;
- Private sector participation goes beyond project financing (although being the main investor) and brings to the partnership the management, experience and innovation abilities for the project benefit.

Accordingly, PPPs are distinct from the traditional public procurement models. The private partner is not paid for constructing a facility but rather for providing services on investments realised during the construction phase. A key distinction between PPPs and traditional procurement approaches is that the risks associated with the ownership and operation of an asset are largely borne by the private sector instead of the public sector. Thus, if the public purchaser is able to reduce the overall whole life costs by adopting appropriate allocation and management of risks incurred, then a PPP may offer a viable alternative to more traditional forms of procurement or service provision.

The following characteristics also apply to projects conducted under a PPP scheme:

- Funded with high levels of borrowed capital;
- Substantial initial capital spending recovered over the project life;
- Income sharing ruled by a contract.

Essentially, a PPP is a scheme usable by public entities for contracting services to the private sector that has proved to be more efficient than the traditional approaches in a number of ways. This is mainly because it caters for adequate risk sharing between the contracting institution and the supplier, and allows for matching payments and services delivered; i.e. it delivers the best “value for money”.

However, the PPP will not always be the best possible approach for a given project from the public sector point of view. Actually, a number of difficulties in the past compelled the public sector to be more cautious than before when it
comes to embarking on a PPP contract. Most governments now require that before adoption, the adequacy of the PPP scheme must be strictly proved against the traditional public contracting approach.

A tool that is frequently used for assessing this is the Public Sector Comparator (PSC). The PSC is the estimated whole-of-life risk-adjusted cost of delivering the project by the public sector, fully accomplishing the output specifications. It is calculated by depicting the cost of the scheme if it were to be created and managed wholly within the public sector and based on the assumption that all the risks associated with the scheme are borne by the public purchaser. The PSC is used to test whether private investment bids offer better value for money in comparison with the most efficient form of public delivery. If the PSC is more expensive than the private sector bid, this is an indication that the PPP scheme will offer value for money. However, the public purchaser must still demonstrate that the scheme is affordable; that it has the resources to commission and pay for the scheme’s long-term operation. Because the client is typically committed by contract to make payments over 30 years, affordability is a crucial issue.

It is important to note that the PPP concept varies in accordance to the attribution package which will pass to the private sector that is agreed in the contract. In case of equipment or public infrastructure, the concept which better reflects the PPP spirit includes financing, conception, construction, operation/exploitation and maintenance of the equipment or infrastructure. Partnerships involving the above set of tasks are commonly named DBFO (Design, Build, Finance, Operate). Other forms of PPP projects may include arrangements such as DBO (Design Built Operate), JV (Joint Ventures), outsourcing and similar.

Finally, it is important to point out that a PPP is not self-sustainable by definition, and that is why it does not substitute the other ways of concession, where the need for self-sustainability remains. On the contrary, it must be compared to alternative ways of concession and it should only be used if it proves better. Self-sustainability is therefore a presupposition in the creation of a PPP, as specified in the Portuguese legislation (article 6th 1c of the Decree-law 86/2003): “… present to the private partnerships an expectation in obtaining adequate compensation to the amounts invested and to the risk in which incurred”.

2.1.1 THE PARTNERSHIP

The most important issue in a PPP is the partnership but defining this is not an easy task. A partner is “one of two or more persons contractually associated in a joint principal business” and it means that partnerships are not dictated by desire
or need, but often by the contract itself (NASCIO, 2006). However there is a key distinguishing factor of PPPs: the transfer of risk between partners.

In the PPP context, a partnership is a commercial relationship between two partners (a public entity and a private entity), whereby both parties share risks, rewards and responsibilities for the success or failure of the deal. On the other hand, the PPP is shaped by the action taken and partners involvement. That is why PPPs depend of the personal ethics of the partners, their abilities, motivations and objectives, the cooperation that they develop among them, the expectation created by the partnership, the operation transparency, the complementary know-how and skills of the partners, etc. All these factors influence the efficiency and effectiveness of the partnership.

In the past, both public and private sectors have displayed a degree of inhibition in respect of joining in common projects, as they have very different interests. The possibility of contradictory objectives of the parties anticipates that PPP structures may become very complicated. PPPs can take various forms and include both collaborative (non-legal binding) or contractual (legally binding) agreements (NASCIO, 2006). But the legal and financial environment surrounding the cooperation between the partners is not clearly regulated and there is an urgent need that it should be.

Obviously, a successful partnership can succeed only if “the top” of both the public and private sector organisations commit to working together; however, misunderstandings and conflicts may still develop between them. This may be amplified as the partnership enlarges both from the public partner side (many government departments represented, many other participating entities) and the private partner side (usually organised within a consortium comprising a myriad of company groups, e.g. financial institutions, infrastructure developers, consultants, insurance companies, and so on). Figure 2.2. shows a typical PPP structure for the development of an infrastructure project.
Figure 2.2. Stakeholders for an infrastructure project conducted under a PPP scheme

Establishing informal mechanisms which enable an opportunity for dialogue between the public and the private sides can be a good tool to help smooth out problems (United Nations, 2009). Equally important is to establish clear channels of responsibility for the entities participating from the public sector thereby demonstrating to the private partners that the state is fair when dealing with the private sector.

3 International Monetary Fund (IMF) states that “widespread corruption in government would be a serious obstacle to successful PPPs”
More people will be affected by a partnership than just the public officials and the private sector partner, for instance, service users, the press, affected employees, public labour unions, relevant interest groups and, of course, tax payers. The participation of the service users in the decision-making process may increase the likelihood that actions taken or services provided by public agencies reflect more adequately the public needs and that the benefits of the service provided are more equitably shared. Indeed, there must be general public benefit\(^4\) from PPPs. However, the way of achieving this may be difficult to put into practice. The National Council for Public-Private Partnerships of USA states that the public interest is fully assured through provisions in the contracts that provide for ongoing monitoring and oversight of the operation of a service or development of a facility. In this way, everyone benefits; the government entity, the private sector and the general public.

Problematic PPP relationships usually result from non-technical challenges that arise in the working environment. Lack of executive and project leadership, insurmountable communication issues, deficiencies in planning and undefined processes can create barriers to collaboration. It is important to define the objective of each group especially when many parties are involved in the project and it is clear that some objectives may be conflicting very often. Table 2.1 summarises the typical participating entities in a PPP and their chief objectives.

**Table 2.1. Entities involved**

(Font: Associação dos Industriais da Construção Civil e Obras Públicas do Norte – AICCOPN, Portugal)

<table>
<thead>
<tr>
<th>PARTICIPANTS</th>
<th>OBJECTIVES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public partner(^5) / Licensor</td>
<td>Beginning of activity / service availability</td>
</tr>
<tr>
<td>Private partner</td>
<td>Investment return</td>
</tr>
<tr>
<td>Financing institutions</td>
<td>Credit repayment</td>
</tr>
<tr>
<td>Users</td>
<td>Service availability</td>
</tr>
</tbody>
</table>

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\(^4\) Benefits because of the following reasons: better allocation of tax-payer money; efficiency gains achieved by the private sector and passed through to the end user through decreased user fees; and better project quality and management.

\(^5\) The Portuguese law (Article 2nd of Decree-law nº141/2006) states what public partners may be, the State and state public entities, funds and autonomous services and public entity businesses.
2.2 ALLOCATION OF RESPONSIBILITIES

Allocation of responsibilities is a key issue for setting up an effective PPP. Generally speaking, the tasks and risks assigned to each partner comprise the responsibilities therein. Accordingly, under a PPP approach, the public and the private sectors should agree on a collaborative framework for dividing and assigning tasks and risks to each other, so that the outputs of the partnership will exceed the mere sum of the outputs of each partner’s tasks and lead to “win-win” results (Campos, 2005). However, the objectives of the partners are not the same. In broad terms, the private partner aims for economic benefit (of the companies involved in the consortium) whereas the objective of the public sector is essentially social and affects several interest groups. More specifically, while the best way to deliver the public sector objectives may be through the partnership of public and private entities, the public sector retains the responsibility and democratic accountability for:

- deciding between competing objectives;
- defining the selected objectives and then ensuring that they are delivered to the standards required; and
- certifying that the general public interests are safeguarded.

In the case of PPPs introduced into public services, while responsibility for many elements of service delivery may transfer to the private sector, the public sector remains responsible for:

- deciding, as the collective purchaser of public services, on the level of services required, and on the public sector resources available to pay for them;
- setting up and monitoring safety, quality and performance standards for those services; and
- enforcing those standards, taking action if they are not delivered.

Similarly, in the case of state-owned businesses, while PPPs bring the private sector into the ownership and management of those businesses, the public sector remains responsible for safeguarding public interest issues. This particularly includes putting in place independent regulatory bodies, remaining in the public sector, the role of which is to ensure that high safety standards are maintained, and that any monopoly power is not abused.

In order to achieve the objectives of the public sector, the private partner is expected to implement the appropriate technical knowledge and management skills and to raise the necessary financial resources for developing the facility or
providing the service contracted. Concerning the responsibilities of partners involved in PPP arrangements, Portuguese law (article 5th of Decree-Law 141/2006) establishes that the private partner must deliver and manage the activity contracted under the monitoring and control of the public partner, so that the public interests underlying the contract are met.

Finally, efficient stakeholder management is critical to the effective development, specification and delivery of all projects. Accordingly, the partner organisations will be expected to place great importance on the development of healthy and proactive relationships with stakeholders at the relevant stages of the project life cycle.

2.3 LEGAL FRAMEWORK

2.3.1 THE EUROPEAN COMMISSION GUIDANCE ON PPP

In general terms, there is no special legal or statutory framework for PPP procurement. However, where applicable, European Commission (EC) public procurement rules and in particular the EC Public Sector Procurement Directive 2004/18 in addition to the general EC Treaty principles have to be followed, where relevant.

- European Commission PPP Green Paper: 2004

In April 2004 the European Commission issued a green paper entitled “On Public Private Partnerships and Community Law on Public Contracts and Concessions”. The term “public-private partnership” is not defined at the Community level. Accordingly, there is no specific system governing PPPs under the Community law, therefore the Green Paper analyses PPPs with regard to the Community law on public contracts and concessions. In general, the term refers to forms of cooperation between public authorities and the world of business which aim at ensuring the funding, construction, renovation, management or maintenance of an infrastructure or the provision of a service.
PPPs that qualify as "public contracts" under the directives coordinating procedures for the award of public contracts must comply with the detailed provisions of those directives. PPPs qualifying as "works concessions" are covered only by a few scattered provisions of secondary legislation; and PPPs qualifying as "service concessions" are not covered by the "public contracts" directives at all.

Nevertheless, all contracts in which a public body awards work involving an economic activity to a third party (whether covered by secondary legislation or not), must be examined in the light of the rules and principles of the EC Treaty including, in particular, the principles of transparency, equal treatment, proportionality and mutual recognition.

The aim of the Green Paper was to explore how procurement law applies to the different forms of PPP developing in the Member States, in order to assess whether there is a need to clarify, complement or improve the current legal framework at the European level. It describes the ways in which the rules and the principles deriving from Community law on public contracts and concessions are applied when a private partner is being selected, and for the subsequent duration of the contract, in the context of different types of PPP. The Green Paper also asks a set of questions intended to find out more about how these rules and principles work in practice, so that the Commission can determine whether they are sufficiently clear and suitable for the requirements and characteristics of PPPs.

- **European Commission PPP Communication: 2005**

Following the public debate on the PPP Green Paper, in November 2005 the Commission adopted a Communication on PPPs and Community Law on Public Procurement and Concessions. This Communication presents policy options with a view to ensuring effective competition for PPPs without unduly limiting the flexibility needed to design innovative and often complex projects.

- **Guidance on institutionalised PPPs: 2008**

In February 2008 the Commission adopted an Interpretative Communication on the application of Community law on Public Procurement and Concessions to Institutionalised Public-Private Partnerships (IPPP). The Communication explains the EC rules to comply with when private partners are chosen for IPPPs.
Depending on the nature of the task (public contract or concession) to be attributed to the IPPP, either the Public Procurement Directives or the general EC Treaty principles apply for the selection procedure of the private partner. The Communication expresses the view of the Commission that under Community law one tendering procedure suffices when an IPPP is set up. Accordingly, Community law does not require double tendering — one for selecting the private partner to the IPPP and another one for awarding public contracts or concessions to the public-private entity — when an IPPP is established.

The Communication also states that as a matter of principle IPPPs must remain within the scope of their initial object and cannot obtain any further public contracts or concessions without a procedure respecting Community law on public contracts and concessions. However, it is acknowledged that IPPPs are usually set up to provide services over a fairly long period and must, thus, be able to adjust to certain changes in the economic, legal or technical environment. The Communication explains the conditions under which these developments could be taken into account.

2.3.2 LEGAL ISSUES IN EU MEMBER STATES

Member States of the EU have adopted specific legal provisions for adequately dealing with projects conducted under the PPP scheme. Two case studies are presented below: the UK legal issues concerning the PPP/PFI schemes and the Portuguese PPP legal framework.

Legal issues – UK

General issues

The legal aspects relating to the PPP projects, in the UK context, are perhaps best explained through three different facets:

1. Pre – 1997 government policies;
2. Post – 1997 government policies; and,
3. The European Commission guidance on PPP.

However, it is necessary to point out that apart from the EC guidance, there is no specific legislation controlling PPP projects in the UK public sector; all the different sectors have created their own terms of engagement for PPP projects.

6 There is a distinction between PFI (Private Finance Initiative, a UK term) and PPP, which is not widely understood. PFI is only one type of PPP used in UK (Quick, 2006). A PFI is a more specific and formal long-term partnership covering both the capital assets and the services that jointly forms a project.
with input and support from regulatory, legislative and executive authorities. Although the first standard PFI contract was published in 1999, the different sectors have developed their own forms of contractual arrangements to suit their particular requirements.

In many sectors, there is non-statutory guidance which provides model documentation and advice in relation to the PPP processes. Some of this documentation is listed in the table below.

**Table 2.2. Standard documentation for PPP/PFI arrangements**

<table>
<thead>
<tr>
<th>Standard Guidance</th>
<th>Standardisation of PFI Contracts</th>
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<td>Waste Management (Waste Infrastructure Delivery Programmes)</td>
<td>WIDP Procurement Pack and Model WIDP Guidance Documents</td>
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<td>Standardisation of Waste Management PFI Contracts</td>
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<td>Operational Task Force</td>
<td>Contract Management Guide</td>
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7 Source: Partnerships UK 2010
Following the enactment of the Public Contracts Regulations (2006 No. 5), the use of the competitive dialogue procedure for PPP/PFI procurement is advised by the government, with the negotiated procedure only to be used in exceptional circumstances. It is to be noted that the competitive dialogue procedure does not exist under the Utilities Contracts Regulations.

Pre – 1997 government policies

The PFI was initially slow to start. In 1993 and 1994 only three projects, which involved over £5m of capital expenditure, were signed. A "Private Finance Panel" was set up in 1993 and the UK government took a view that PFI should be considered for any public sector project (the "universal testing rule"). In 1996 a government inquiry considered a number of issues, including:

• whether PFI spending was extra or in substitution for government spending;
• whether the private sector would be setting priorities between schemes;
• whether the implications for future public expenditure were being suitably controlled;
• whether, and if so how, better value for money would be achieved;
• whether it was sensible to consider all projects for PFI;
• the specification of outputs and transfer of risks.

As a result of this, the government undertook that future spending implications of PFI would be listed in the Financial Statement and Budget Report; stated that value for money gains were expected from close integration of services with design, better allocation of risks and the correct incentive structure; and identified cases where PFI would not be appropriate.

At the beginning of the 1997 Parliament session, the new government abandoned the "universal testing rule" and commissioned Sir Malcolm Bates to review the system of PFI. As a result of accepting the recommendations of the review the government abolished the Private Finance Panel and replaced it with a Treasury Taskforce, consisting of two "arms":

(a) a policy arm, responsible for rules, procedure and best practice governing PFI and PPPs, together with PFI-oriented staff training of public sector employees; and
(b) a projects arm, to approve ("sign off") the commercial viability of all significant projects before the procurement process began (by publishing a contract notice in the EU Official Journal) and monitor them (and other projects, where time and resources permitted) to ensure progress. The Treasury later defined "significant project" as "big, high profile, highly
reproducible or ground breaking" and the Taskforce undertook to monitor 80 such projects. Local authority projects are signed off and monitored by the Project Review Group, which is chaired by the Taskforce and also contains representatives of the Public Private Projects Panel Ltd (the "4Ps"), and an adviser to local government established by the Local Government Association in April 1996.

The Bates Review recommended that individual departments should remain responsible for their own PFI projects, and that departmental Private Finance Units (PFUs) should be strengthened by the appropriate expertise. As a result, the Taskforce Projects Arm was not expected to be needed indefinitely, and it was set up with a life of two years (until late 1999).

**Post 1997 government policy**

As the initial term of the Taskforce came towards its end, the government announced in November 1998 that Sir Malcolm Bates would conduct a second review: the report was produced in March and published in July 1999. Its principal conclusion was that centralised project support was still needed but that the Taskforce Projects Arm should be replaced by a joint public-private sector body, subsequently named Partnerships UK (PUK). The role of PUK is explained in further detail below. Statutory arrangements for PUK are contained in the Government Resources and Accounts Bill, which was enacted in 2000.

In parallel with the second Bates Review, the government asked Sir Peter Gershon to examine civil procurement in central Government. This report was also published in July 1999 and recommended that an Office of Government Commerce (OGC) should be created within the Treasury. The Taskforce would continue within the OGC, but with a "slimmed down projects capability".

The National Audit Office (NAO) had also been examining the early PFI projects and producing a number of reports, which gave rise to corresponding reports by the Committee of Public Accounts (PAC). Based on this work, the PAC produced a general report drawing together its previous recommendations. The NAO had also produced a report setting out the factors that it will take into account in future assessments of PFI projects; particular emphasis was placed on the value for money (VfM) obligation in all PPP projects.

In July 1999 the Treasury Taskforce appointed Arthur Andersen as consultants to examine value for money aspects of those PFI projects where the delivery of services and payments for them had begun. In addition, the Institute for Public

In March 2000, the government restated its policy on PPPs and PFI in a document entitled Public Private Partnerships: The Government's Approach. This policy document stipulated the roles and responsibilities that public sector and private sector were to abide by in terms of all PPP arrangements.

**Legal issues – Portugal**

**General issues**

The evolution of the legal framework of PPPs in Portugal is characterised by the casual surfacing of legislative documents, in accordance with the needs felt in each sector. In view of the legal void at the PPP level, the government has adopted legal regimes especially designed for each project (or set of projects) inspired by the concession model and traditional public procurement approaches although introducing negotiation procedures in view of the contractual nature and complexity of this type of project (T.C., 2008).

It became clear that the launch of PPPs in Portugal was initially pursued through the fulfilment of various investment needs, with casuistic legislation being produced by the government to match different sectors, since the legal framework, applicable to every sector and types of partnerships did not exist. For example:

- The legal framework of the concession programme that approved the construction of several motorways, either in real and shadow tolls was established in 1997: Decree law no 9/97 (toll concessions); Decree law no 267/97 (non toll concessions or SCUTs);
- For the environment sector (water, sewage and waste), the first laws regarding PPP were brought forth in 1993/1994: Decree law no 372/93 (opens the access to the private sector); Decree law no 379/93 (defines the legal regime); Decree law no 147/2005 (regulates the legal regime);
- The legal framework that launched the partnership programme in the healthcare sector was presented in 2002: Decree law no 185/2002 (defines the principals and the instruments for establishing partnerships in the healthcare sector). This supported the first hospital projects conducted under a PPP scheme;

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8 SCUT stands for “without costs for user (in Portuguese: “Sem Custos para o UTilizador”)"
• For railroad passenger transportation, the framework legislation was published in 1999.

Meanwhile the State Budgetary Framework published in 2001 (Law no 91/2001, republished within the Law no 48/2004) imposed restrictions to multi-annual expenditures, in order to control long-term financial risks that PPP projects brought to the state accounts. Another obligation resulting from this lawsuit was that the value for money should be demonstrated for all projects conducted under a PPP scheme i.e. the evaluation of the economy, efficiency and effectiveness of the partnership contract in comparison with the traditional public procurement model for providing the same goals, without recurring to private financing and management (the rule of the Public Sector Comparator).

**Major guidelines**

Regarding major guidelines, Portuguese law concerning PPPs accomplishes the EC directives and procedures. Therefore, the Decree-law no 86/2003, applicable to all the economic sectors (revoked and amended by the Decree-law no 141/2006) establishes that the essential goals of PPPs are the increase of efficiency in the allocation of public resources and in the improvement of the quality of services, driven by effective control systems enabling permanent evaluation by the users and the public partner. Furthermore, regarding risk sharing, it states that risk allocation should follow from the assessment of the best possible capabilities to manage them, and that the contract should evidence the effective transfer of risks to the private partner. So, preferentially, the public entity should be responsible for supervising and monitoring the project development, while operating, management and financing should be allocated to the private partner.

Furthermore, this Decree-law defines the general rules applicable to the conception, preparation, procurement, award, construction, operation, monitoring, control and surveillance of projects conducted under a PPP scheme and defines the basic features that the relationship between a public and private entity must meet, in order to consider it a PPP. These features are:

1. Long-term continuous contract (minimum duration of three years);
2. The satisfaction of a collective need by the private partner;
3. Risk sharing between the public and the private entities;
4. Total or partial financing ensured by the private partner (PPP contracts must be over 10 million euro public expenditure and 25 million euro total investment);
5. The private partner should assume a substantial part or all risks involved in the operation stage.

According to the same Decree-law 141/2006, PPP arrangements can be organized into two different types: contractual and institutionalised. Contractual PPPs include diverse modes of association or collaboration between public needs and private investments. Contracts assume the forms of: concession of public works; concession of public services; continuous supply and provision of services; and management and collaboration. The latter arrangement arises when the contract is for the operation of an existing facility or infrastructure not belonging to the public partner. Institutionalised PPPs include all forms of joint ventures involving public and private stakeholders.

Beyond the major guidelines, several legal provisions have been published in Portugal regarding specific sectors (environment, health, transportation), some of them published after the Decree Law 141/2006.

**The Code of Public Contracts**

Further to the legal environment established by the Decree-law no 141/2006 and the sector specific regulations, there are other legislation that should be attended when launching PPP projects namely the Local Finance Law and the Code of Public Contracts (Decree-law no 18/2008, changed by the Amendment 18A/2008). In fact, PPP contracts ought to be handled through public procurement law because they involve public funds and the public partner is also the awarding entity. The legal provisions are those resulting from the transposition of the European Community Directives regarding the awarding process for water, energy, transportation and postal services sectors, as well as the rules regarding ordinary public procurement and contracting of works, services and supplies. The Code of Public Contracts set up five distinct types of procurement procedures that the contracting authority can select according to the estimated contract value, the type of contract (public works, concessions, etc.), the nature of the public entity (central government, municipality, public firm, etc.), or special conditions (defence contracts, results of previous tender processes, author protection rights, etc.): open tender, restricted tender with or without previous publication of the contract notice, negotiated procedures and competitive dialogue.

During the execution phase of projects conducted under a PPP scheme, the Code of Public Contracts highlights the duty to inform, monitor, survey, analyse contract changes and supervise the share of benefits, as well as monitor and evaluate the private partner performance. Beyond this tight internal control PPPs
are also submitted to the external scrutiny of the National Audit Court (NAC) which has broad powers (political, jurisdictional and technical) of surveillance, monitoring, control and auditing all spending of public money in Portugal.

2.3.3 PPP GOVERNANCE IN EU MEMBER STATES

The governance of the PPP scheme has been developed following different routes within EU Member States. Two case studies are presented below: UK and Portugal.

Partnerships UK

Partnerships UK (PUK) was a new public private partnership which would work with both the public and private sectors to address the key weaknesses in the PFI/PPP process. By working in partnership with the public sector, it would seek to make the public sector a more effective client and ensure the best possible deal for the public sector in privately financed investment programmes. In effect, it was set up to enhance the public sector's "intelligent client" capability.

The aim of PUK is to deliver better value for money by working on the side of the public sector. For a particular project, it would align itself with the public sector procuring authority and inject more detailed examination of practical considerations into the decision making process and drive forward the conclusion of deals. In this way, and by making available its experienced development staff and resources to assist with the development of projects, it would help departments and other public sector organisations make a better job of procuring and delivering PPP/PFI deals.

PUK has no form of monopoly or guaranteed market but seeks to win business on the strength of its offer. The government was confident that it would be good for the public sector and the private sector alike:

- For the public sector, because its activities would boost the flow of investment into the nation's infrastructure and help the public sector achieve stronger value for money purchasing in PPP/PFI deals;
- For the private sector, because it would contribute to the creation of a better flow of well-structured projects and bring about a long-awaited reduction in the cost, delay and uncertainty experienced by bidders for PFI projects.

By May 2010, over 920 projects had been overseen by PUK.
In 2010, the UK Government set up a second unit, Infrastructure UK (IUK), whose role is to provide a new strategic focus across a range of sectors. IUK comprises HM Treasury's PPP policy team and Infrastructure Finance Unit and the capabilities within PUK that support the delivery of major projects and programmes. IUK advises government on the long-term infrastructure needs of the UK and provides commercial expertise to support major projects and programmes. It looks across all key infrastructure networks and both the public and the private sectors to identify and address key cross-cutting issues. It is also responsible for identifying and attracting new sources of private sector investment in infrastructure; supporting HM Treasury in prioritising the government's investment in infrastructure; and helping to build stronger infrastructure delivery capability across government.

**Parpublica, Portugal**

Parpublica (created by the Decree-law no 209/2000) is the state entity responsible for managing public assets. It acts on behalf of the Ministry of Finance regarding several aspects of public corporate management over the public sector firms, and the launching of projects through the PPP scheme. Anytime a sector minister or a public entity wants to promote a project using a PPP approach, the first step is to inform Parpublica, with the aim of providing technical support to the Ministry of Finance regarding the project evaluation and procurement process. Moreover, prior to launching the tendering procedure, the decision to embark on a PPP (and the authorisation for the corresponding expenditure) is enforced jointly by the Minister of Finance and the sector minister responsible for the project.

Parpublica must further integrate the committees nominated to proceed with the process: the monitoring committee focusing on the technical aspects of the project and the tendering committee regarding procurement issues. After the contract is awarded the main goal of Parpublica is to monitor and control the economic and financial aspects of the partnership and it should be informed of any possible changes by the sector ministry.

**General Financial Inspections**

General Financial Inspection (IGF) is a public body depending on the Ministry of Finance, created by the Decree Law no 205/2006. This is one of the most important state departments regarding the internal control (expenditures and revenues) of the public budget. IGF has a fundamental role in controlling PPPs.
Supreme Court of Auditors

In Portugal PPPs are also submitted to the external scrutiny of the Supreme Audit Court in accordance with the interpretation of article 2nd of the Law no 98/97, which legitimises its broad powers (political, jurisdictional and technical) of surveillance, monitoring, control and auditing of all spending of public money. Therefore, using the recommendations of INTOSAI\(^9\) beyond the confirmation of the project legality, the Supreme Audit Court audits project expenditure and future budget commitments for the State, assesses the underlying motivations for selection of the PPP approach, evaluates the efficiency of the use of public money (the value for money of the partnership), compares the earnings achieved with the traditional public procurement approach, analyses the transparency and validity of the procurement process, looks at the efficiency and effectiveness for the provision of public service and evaluates the environment and sustainability aspects of the partnership.

GASEPC

GASEPC is an office department depending on the Ministry of Finance (Secretary of Treasury) and it is devoted to the specialised control of the budget and multiannual expending regarding public firms and PPP SPVs (Special Purpose Vehicles) in order to increase efficiency, effectiveness and financial sustainability of the state firms, as well as following up new financial requirements for projects running under PPP schemes.

\(^9\) INTOSAI is the professional organisation of supreme audit institutions in countries that belong to the United Nations or its specialist agencies.
CHAPTER 3

ADVANTAGES AND PITFALLS OF THE PPP SCHEME

3.1 GENERAL CONTEXT

International experience reveals that both the public authorities and the private sector may benefit\(^\text{10}\) from participating in projects conducted under the PPP scheme. Partnerships UK (PUK) states that PPPs are good both for the public sector and for the private sector, mainly because:

- for the public sector because its activities would boost the flow of investment into the nation's infrastructure and help the public sector achieve stronger value for money by purchasing in a PPP/PFI deal;
- for the private sector because it would contribute to the creation of a better flow of well-structured projects and bring about a long-awaited reduction in the cost, delay and uncertainty experienced by bidders for PFI projects.

Private sector organisations operate in a fluid and fast moving environment. If they do not generate profitable business, they will not survive. Accordingly, the reality of the private sector market-place exerts a powerful discipline on management and on employees to maximise efficiency and take full advantage of business opportunities as they arise. The PPP approach offers the private sector the opportunity of finding the best approaches for delivering the facilities or services demanded by the public sector and ensuring the best value for money for taxpayers. Compared to the private sector, the public sector can be less equipped

\(^{10}\) Despite the potential benefits of public private partnerships, it should be noted that these are not a universal panacea or the only means to deliver quality public services on a value for money basis. It is important to encourage governments to prioritise and identify realistic goals to ensure that public services are provided in a manner that is fair, safe, affordable, and environmental sustainable.
to challenge inefficiency and outdated working practices, and to develop imaginative approaches to delivering public services and managing state-owned assets. Moreover, the PPP scheme offers the private sector a number of opportunities for diversification. This can never be fully replicated in the public sector, since it has to conform with a multiplicity of policy objectives, and holds a more risk adverse culture driven in part by the desire to safeguard taxpayers’ money.

The investment in infrastructures or in provision of public services allows for indirect advantages for society in general, for people and companies: more well-being for people and bigger earnings to others, more private investment and even more tax benefits to the state. These are clearly issues of major importance to many stakeholders and will be further discussed in the subsequent chapters.

3.2 FOR THE PUBLIC SECTOR

PPPs are an essential element of an emerging model of effective governance. Actually, governments worldwide have increasingly turned to the private sector to provide infrastructure services that were once delivered by the public sector. The Green Book about Public Private Partnerships – COM (2004) 327 final – presents the factors which justify the government attraction for PPPs:

- In view of the budget constrains confronting Member States, it meets a need for private funding for the public sector;
- Desire to benefit more in public life from the know-how and working methods of private sector;
- It is also part of the more general change in the role of the state in the economy, moving from direct operator to organiser, regulator and controller.

The benefits of the PPP scheme for the public sector are clear. A project can gain in quality if the government consults the private sector at an early stage as the best way of achieving a particular goal. The option for a PPP instead of the traditional public procurement models presents several advantages which together assure better value-for-money for public services (Marques & Silva, 2008).
3.2.1 BUDGETARY MANAGEMENT

The lack of government funding to provide infrastructure assets and services and/or the budgetary constraints have been the main reason for considering the PPP option for a project (Reis, Fortuna, & Mariano, 2009). During periods of slow growth, the public sector revenues are frequently not sufficient to meet spending demands, necessitating painful spending cuts or tax increases. Accordingly, in most countries governments consider the PPP as an attractive off-budget mechanism for delivering infrastructure services and have promoted them as a part of their overall strategy. Under this perspective, the public sector takes the role of client for public services using the funds provided by the private sector. It allows increasing the investments in infrastructures without improving its indebtedness (substituting the investment expenses by current expenses) and additionally it can become an income source for the privates. By imposing a limit to the necessity of public investment, the PPP scheme allows anticipating the creation of projects, avoiding the necessity of waiting for the budget capacity and freeing resources which will allow for other projects to be launched and/or to cover other expenses. However, the lack of financial availability of the public sector may not be considered as the main reason for deciding to promote a project under a PPP scheme, because private funding may bring about additional costs (usually the cost of borrowing money is higher for the private sector than for the public sector) and administrative costs (for the management of PPP contractual regimes) to be considered. Furthermore, in most cases, the public sector still bears most of the risk involved in the project and this can make the PPP less efficient than public direct investment.

3.2.2 BETTER RISK ALLOCATION

Adequate risk transfer from the public sector to the private sector is a key requirement if PPPs are to deliver high-quality and cost-effective services to the state and the users. With PPPs the government seeks to harness the innovation and discipline of the private sector, by introducing investors who put their own capital at risk. This is achieved either by permitting private sector ownership of a state-owned asset or business, or by a contractual arrangement whereby the private sector bears the financial risk involved in delivering a particular service or other form of specified outputs.

11 For this purpose, many countries have created a PPP-enabling environment through the establishment of necessary legal and regulatory regimes, initiated sector reforms, streamlined administrative procedures, and have formulated policies to promote PPPs.
However, a PPP scheme does not necessarily mean that the private partner takes all risks, or the most important part of the risks resulting from the operation. Besides, the main purpose of any PPP is the attribution of risk to the side which has better conditions for its management at the lowest cost. The proper division of risks between partners will be done case by case, taking into account the capacities of the partners for evaluating, controlling and managing them, therefore minimising the cost of the risks taken. The less the risk is transferred to the private sector, the more the operation will resemble a public investment; the larger the amount, the more the operation will look like a concession (figure 3.1.).

![Risk allocation in PPPs (from: KPMG International Cooperative)](image)

**Figure 3.1. Risk allocation in PPPs (from: KPMG International Cooperative)**

To conclude, the objective of the PPP approach is not to maximise the risk transfer from the public to the private sector but to optimise the sharing of risks between the two parties. Moreover, the allocation of risk to the private sector that underpins a PPP can provide for greater certainty and predictability in relation to the cost and quality of public service delivery. The stage of risk allocation is dealt with in greater detail in another section of this book.

### 3.2.3 EXPOSURE TO PRIVATE SKILLS

The services made through PPP reveal advantages in terms of quality, efficiency and value when compared to other contract approaches (Reis, Fortuna, &

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12 KPMG is a global network of professional firms providing audit, tax and advisory services.
A PPP is an important tool for introducing private sector efficiency (not only in management activities but also in the actual definition of the projects) in the development of public infrastructure projects and in the provision of public services and is thus associated with flexibility. Additionally, the transference of the technological, operational and management know-how, from the private sector allows for better value-for-money in public services (NASCIO, 2006) (figure 3.2.).

Figure 3.2. Exposure to private skills

Another issue is competition that stimulates innovation in public management and may be fostered through the PPP approach. By exposing the provision of public services to competitive tendering, PPPs enable the quality and costs of such services to be benchmarked against market standards, thereby helping to secure productivity improvements within the economy as a whole. Competition also brings innovation and the more interesting PPPs are the ones in which the bidders are able to introduce substantial innovation.
Quality is another relevant feature of the infrastructure or service to be provided under a PPP scheme. If the provider operates in a competitive market, market disciplines will implicitly foster quality maximisation. If such disciplines do not exist, and cannot be easily introduced, quality standards can be enforced through regulation or by performance requirements in the contract. Actually, the definition of the quality standards required and their reflection at the service level are important elements to assure that the services required are made with a high quality level in order to satisfy all the needs identified by the public promoter. For Rubens Alves\textsuperscript{13}, the specification of the required quality standards and the provision of binding contract clauses at the service level are the key elements of PPP contracts “to ensure that the services contracted are provided with the level of quality needed to meet the public needs”.

By harnessing private sector disciplines in this way, PPPs can help improve value for money, therefore enabling the state to provide more public services and to a higher standard within the resources available. Accordingly, the quality of services or infrastructures delivered in the scope of PPP arrangements tends to be higher than those achieved under a traditional procurement approach. Also, the need of private companies to generate returns means that they are compelled to look for ways of enhancing the service they offer to their clients and to adapt to their changing requirements and expectations, otherwise clients will go elsewhere.

### 3.2.4 OPTIMISE WHOLE-LIFE DESIGN AND COSTS

The innovation of the private sector and the search for new opportunities for developing profitable business are incentives for private companies to try out new ideas which can lead to increased efficiency. This in turn should translate into a combination of better quality and significantly lower cost services than would be the case with traditional public investment and government provision for the same services. Additionally, incentives related to innovation can reduce the cost overruns. NZSIF\textsuperscript{14} notes that the “Australian experience shows that, on average, cost overruns in PPP projects are 1\% of the total project cost compared to 15\% of the total project cost for non-PPP projects”.

\textsuperscript{13}Rubens Teixeira Alves is KPMG’s director in Brazil
\textsuperscript{14}The New Zealand Social Infrastructure Fund (NZSIF) is a fund that enables New Zealand investors to participate in the development of social infrastructure assets through public-private partnerships.
Long-term contracts induce public authorities to think more strategically about the services required, whilst there is the incentive for private sector service providers to consider whole life costs (HM Treasury, 2006). All life time costs (not only the conception and construction, but also the long way operation and maintenance costs) of an infrastructure or service must be analysed. In this way, the public promoting institution can persuade the future private partners to achieve the quality level with reasonable costs and it can transform the PPP in an option which generates higher efficiency and return on investment.

In the case of a DBFO contract, for example, the same private provider has to build the facility and subsequently operate the service for the period contracted. This will induce cost savings of the facility whilst keeping high levels of quality because the costs of keeping the quality of the service contracted will directly depend of the quality achieved for the facility (Camargo, 2004). This is especially profitable for enterprises, and in this way, the public promoter does not need to verify the construction as frequently as happens in traditional contracting. By transferring the responsibility for public services provision to the private sector, the public promoter may essentially act as a regulator, especially in the areas of planning and service performance (verifying if the quality service indicators are properly developed) instead of focusing on the construction and on the daily management, as tends to happen in the traditional model.
3.2.5 TIMELINESS OF SERVICES

Another significant benefit derived from the PPP approach is faster project delivery than usually achieved under traditional procurement. The private sector is normally far more skilled than the public sector in running business activities and some elements of service delivery, including managing complex investment projects to time and budget.

The attribution of the conception and construction responsibility to the private sector, combined with the availability related to payments for the service provided, offer relevant motivation to the private sector for delivering the project as soon as possible so that the payment flow may start. This motivation allows the conclusion of the work without delays, or even ahead of the schedule, therefore satisfying the promoter in the most politically sensitive point – the opening date. According to data published by NZSIF on a value-weighted average basis, “PPP projects are delivered 3% ahead of schedule compared to 24% behind schedule for non-PPP projects”.

Figure 3.4. Average PPP projects delivered (Adapted from NSZIG)
3.2.6 SOCIAL AND ECONOMIC RESPONSIBILITY

The most important feature is that essential infrastructure investments can be performed as soon as they are needed and without delays, because they aim to satisfy public needs, attract new investments, create new jobs and stimulate local economic growth. Additionally, the general public should benefit from the PPPs through better allocation of tax-payer money, i.e. the benefits of efficiency gains made by the private sector should be passed through to the end user by decreasing user fees (United Nations, 2000). Because these long-term contracts involve many public and private partners, the establishment of projects in a PPP scheme conserves existing jobs and creates new ones. Finally, because PPPs foster economic activity they generate fiscal income for the state that is later redistributed to the citizens.

3.2.7 SUMMARY

Summarising the previous paragraphs on the effects of PPP for the public sector, it may be concluded that:

- PPPs enable the public sector to tap into the disciplines, incentives, skills and expertise which the private sector has developed in the course of the normal everyday business;
- PPPs enable the full potential of the people, knowledge and assets in the public sector to be released;
- PPPs thus enable the public sector to deliver its facilities and services better than through the traditional approach and to focus on the activities which are primarily in its scope of action: procuring services, enforcing standards and protecting the public interest.

3.3 FOR INVESTORS AND BANKS

The entities involved in financing a project conducted under a PPP scheme exceed their ordinary funding activities and mainly act as investors. The level of exposure for investors is very high, even if the project is considered solid by the partners involved (public and private) and able to generate enough funds to
reimburse and compensate the capital invested. Thus, only the entities with reputable financial capacity, looking for diversification of their activities and holding a strong strategic view will be eager to integrate consortia for this kind of projects because they must ensure financial sustainability conditions throughout the contract duration, and this may be quite demanding. However, the cooperation of private investors with the public sector in the scope of a PPP also provides some benefits for them, which may include (United Nations, 2000):

- Assuming that the PPP framework is appropriately established, investors will be in a position to leverage their other projects;
- If the private provider performs well, it will be able to derive attractive returns on initial investments;
- Investors will benefit from being involved in the project for the whole length of the concession, thereby enhancing their experience in managing long term projects and boosting their profile in the market.

In view of the above, before embarking in a PPP consortium, private investors typically consider a number of conditions and factors, such as economic stability and transparency (Vallilo, 2008). Firstly, because they are aware that this kind of projects is attractive by their stability and transparency, by the business opportunities they create, by the amount of capital involved and because they assure appropriate return on capital invested and on risks assumed. Secondly, because the investors give special priority to projects that show a strong viability and encompass development potential (demand enough for generating revenues) and with strong commitment from the public sector.

### 3.3.1 ENSURING REVENUES

A requisite for involving financial entities in a project running on a PPP scheme is the financial viability of the project which includes assessing the whole life costs and the time needed for recovering the initial investment. Once the financial model of the project is developed, the implications of the alternative financial structures and the effects of the amendments in the values of other parameters in the cash flow may also be analysed. Obviously, it is important that there are no negative variances to the business model designed for the time horizon stipulated in the contract clauses (generally up to three decades, but may be more).

### 3.3.2 ENSURING RETURN

The relationship between project risks and return on investment is a key issue for investors and banks although it may change over the project phases. First of all, partnerships with low return on investment are not attractive for private investors
because the risks they take must be balanced against their expected return on the money invested. For projects conducted under a PPP scheme, investors consider the rate of return of long-term investments (generally 20 to 30 year-periods) with the government or another public entity as a partner (partnership with public entities is a risk that has to be carefully assessed, nowadays).

Because of the nature of cash flows generated by these projects, private entities can support relatively high levels of debt. The highest level of risk for investors occurs during the construction phase when possible construction delays and cost overruns may generate sensitive impacts on the cash flow of this type of operation which tends to be relatively stable and predictable. This may have serious consequences for the financial success of the project.

During the construction phase (which may be two or three years), investors will be called upon to provide portions of their committed capital (debt levels are expected to be high initially). It is during this phase that investors will require the highest return on their capital to compensate for the risk, thus the cost of capital is highest during this phase. When the construction is over and the cash flow from operation has begun, project risks drop substantially and it is possible for sponsors to refinance at lower cost (UNESCAP, 2008). Typically, the returns of equity for investors commence when the asset is constructed and considered operational (i.e. available for use), and extend through the operational phase of the facility (concession payments by the public promoter, distributions of operating profits, periodic returns of investment capital, etc.) depending on the range of risks shared between the public and the private partner. The revenues are typically inflation-linked and can be based either on “availability” (for use in accordance with contractually agreed service levels) or on “demand” (payments related to the usage of the project asset), depending on the nature of the project.

3.3.3 SOURCES OF PROJECT FINANCE

Project finance may come from a variety of sources but the type of funding sources may have important implications on the overall project cost, cash flow, ultimate liability and rights on the project incomes and assets. These sources include: equity, debt, and government grants.

Equity refers to capital invested by the project sponsors (such as the government or local authorities); capital provided by the private partner, third party private investors, and internally generated cash. Debt refers to borrowed capital from banks and other financial institution, and securities or bonds sold on capital markets as a product (Figure 3.5.). Loans provided by national and foreign
commercial banks and other financial institutions generally form the major part of the debt capital for infrastructure projects (UNESCAP, 2008).

Figure 3.5. The Project Finance model

Generally, the financial model selected for this kind of project is Project Finance because it has several advantages when compared to other financial approaches: high indebtedness capacity, better allocation of risks between the partners involved, tax benefits, etc. The Project Finance approach typically develops through a Special Purpose Vehicle (SPV) that is a legal entity of special character, the only purpose of which is to create cash-flow to the project and its shareholders (Sousa, 2009).

Generally, the contracting company is created with initial capital (equity) and money from bank debt (senior debt) with will be used for financing the tasks required to put the service contracted into operation (Observatorio Permanente da Justica Portuguesa, 2007).
Projects conducted under a PPP scheme represent an opportunity to all those involved in the construction industry since they offer a wide range of complex activities and important technical and financial challenges. Although long-term contracts like PPPs potentially generate higher risks, they allow for work continuity for contractors and generate a variety of diversification opportunities. Actually, these projects tend to be very large therefore requiring long construction periods and this is beneficial for construction companies. Additionally, the operational and maintenance activities of these projects encompass a variety of tasks in which contractors may possibly engage, thereby contributing to diversification of their current activities.

The PPP contractor is the entity responsible for the development and delivery of the project in accordance with the terms specified by the public authority. This may be achieved either by the PPP contractor directly or indirectly by third parties. The contractor may be an existing company or a SPV, particularly when the PPP is structured under a project finance scheme, as discussed above. A SPV is a consortium of companies acting as shareholders (such as constructors, banks, advisors, specialist contractors or service providers) specially tailored for developing the project. Therefore, in this case, the contractor must monitor construction management carefully in order to ensure that the particular interests of any individual shareholder do not prevail over the project as a whole (Conference Europeeene des Directeurs des Routes, 2009). Figure 3.6. depicts a typical SPV organisation for an infrastructure project.
### 3.4.1 MOTIVATION FOR PPP CONTRACTS

PPP contracting may be quite challenging for the private sector and offers a number of potential benefits as discussed below.

- **Enlarging the business market**

  The PPP scheme allows that private investments are performed in sectors that are traditionally operated by the public sector (Mu, 2008). Thus, for the contractors, PPPs are the best way to increase investments through business opportunities in current areas allowing the private constructors to build public infrastructures projects or to provide services which, in the traditional approach, would not be allowed. In this way the construction companies establish long solid relationships with the public sector which will become a privileged client.

- **Generating employment**

  PPPs are levers for the creation of jobs in the private sector. The PPP scheme is specially tailored for the provision and operation of large infrastructure projects involving the commitment of contractors for the medium or long run. This stimulates the creation of job positions to cope with project requirements and the maintenance of those jobs through the contract duration. This applies to the
construction stage but is especially relevant during the operation stage which may span several decades.

- **Cooperation (clients & contractors)**

The main competitive advantage of PPPs to the construction companies is the possibility of increasing interaction with clients. This may be achieved in the scope of the partnership between the public and the private partner granted by the PPP scheme and may be further developed through co-operation networks between them aimed at exploring the potential of know-how transfer (Reis, Fortuna, & Mariano, 2009). Accordingly, whenever the public sector decides on the areas lacking investment, it contributes with the know-how gained from past similar investments and seeks the skills, qualified labour and the innovation of the private sector to better solve its needs. Therefore, contractors have not only the ability to directly influence the execution of the project (for instance, finding the best possible constructive solutions, introducing innovative products and technologies) but also to explore new and potential areas of mutual interest.

- **Maximising investments**

An inherent concept to any PPP is the transfer of part of the risks to the private partner, which implies that the public partner refrains from defining the necessary requisite (of resources, of process, etc) to the development of the project, but only focuses on the definition of the expected results and on the quality level aimed. Essentially, this is an approach focusing on the outputs and not the inputs (Marques & Silva, 2008).

The contractor may greatly benefit from adequately planning the work to be performed (starting from the preliminary study, through the detailed design and the construction phase) and use technology that minimises the construction cost and increases the project quality because this reduces the amount of initial investment, increases income, improves operational results and benefits the financial engineering of the project, at the same time as it contributes to client satisfaction (Camargo, 2004). Alternatively, contractors may develop the project with low construction costs but with poor work quality (e.g. by using inappropriate construction materials). But this would later reveal a bad option because under a PPP scheme contractors will have to operate and maintain the built facility during the contract period and possibly incur substantial costs to perform this according to the standards defined by the public promoter. Therefore, companies that consider PPP only as a way of achieving new contracts with higher profit margins may face serious long-term problems.
It should be stressed that some amount of profit to contractors is almost always assured in most PPP models. For example, according to the Portuguese law (Decree-law no. 141/2006, article 6th, paragraph c), the adoption of a PPP scheme should secure advantages to the public partner (that must be confirmed by the Public Sector Comparator) and “present to the private partners the expectation of obtaining adequate compensation to the amounts invested and to the risk they face”. Moreover, in accordance with the Permanent Observatory of the Portuguese Justice the adoption of a PPP scheme may ensure revenues for a long time, as PPP contracts typically stand for a period of 30 years or more (especially in the case of concessions), and may create profit margins higher than six per cent, nine per cent or even 15 per cent, depending on the projects.

3.4.2 ACCEPTING AND MANAGING CONSTRUCTION RISKS

When contractors consider participating in a PPP, they face new risks and new opportunities. Whatever the type of PPP contract, it is important that the contractors assess both the typical construction risks and the atypical risk (such as long-term maintenance requirements) and work to reduce risks. Therefore, contractors should know the risks they have assumed and exactly for whom they are working.

As assets grow in scale and complexity, infrastructure owners increasingly want to work with a trusted partner who can deliver more complete solutions. As previously mentioned, PPPs give the public sector a solution to the achievement of its purposes, in what concerns the availability of infrastructures, having per background the private sector know-how and development capacities. The large construction and engineering companies possess the best staff, accumulated knowledge and experience which make them the ideal partner to accept and manage construction risks. Therefore, beyond having the ability to accept and manage construction risks, construction companies also have the ability to verify conceptual studies and conduct complementary studies to optimise deliverables on a whole life basis approach. But it is essential that contractors involve experienced insurers, bonding agents, counsels and bankers to assist in understanding the potential risk of some PPPs.

3.4.3 FOR OPERATORS

The PPP approach makes the contractor responsible for delivering the service. The operator may be the PPP contractor directly or third parties selected for that
purpose. If the project is developed by a SPV, then the operator may be a stakeholder of the contractor. In most cases, specific know-how (market or specialised technical knowledge) is required for operation, therefore an independent company from the PPP contractor is likely to be appointed (Conference Europeenne des Directeurs des Routes, 2009). A specific contract is set up between the public promoter and the private operator whereby the operator becomes responsible for the full delivery of services according to the aims of the infrastructure or service, including management, operation, maintenance, and rehabilitation. The public promoter is responsible for establishing performance standards and ensuring that the operator meets them.

Private sector operators enter into an investment or contracting opportunity with the clear goal of maximising profits. For example, in the road sector, the attribution of asset operation to private companies (namely, contractors) allows them to obtain profits through the charge of the concession toll and it is an opportunity for private agents to amplify their market range, to invest and create profits. Generally, operation concession contracts are for 20 to 30 years which is often enough for the operator to recover the capital invested and get an appropriate return over the life cycle of the concession.

The PPP scheme assumes that operators will recognize that the public sector is their main business partner. Actually, public promoters expect that the private operators acting under a PPP scheme will contribute to the public concern of aggregating value and efficiency to the service or infrastructure provided, through the provision of equipment and modern technology that may conduct more competitive, efficient, attractive and profitable facilities, thereby fulfilling user needs and the mission of the state. Under a PPP scheme, the operator will not get paid if the tasks are not performed according to the quality contracted (figure 3.7.). The work of the operator is regulated and controlled by the public promoter or by its agents and the operation performance may be checked against the performance objectives of the PPP contract.
Figure 3.7. PPP payments during the operational phase (font: KPMG International Cooperative)

One of the main social benefits of a PPP contract is job creation, especially during the operation stage of the contract. PPPs already contribute to a considerable number of direct jobs in several countries because of their huge diffusion throughout the world. Consequently PPPs are recognised by many people for the career opportunities they generate. Looking at the partnership from a win-win perspective, PPPs are also opportunities for enforcing the operator social responsibility. Operators must make an effort to add value to the business and infrastructures they manage, and that will be passed to the public ownership by the end of the contract. This means working so that the value of the business becomes higher than the first investment; the more value they create, the more value they will pass to the next generations.
CHAPTER 4

RISK DISTRIBUTION
AND MANAGEMENT IN PPPs

4.1 PURPOSE

According to the European Commission, a risk is defined as any factor, event or influence that threatens the successful completion of a project in terms of time, cost and quality (Mu, 2008). All organisations conducting a project face the risk that actual outcomes will differ from those planned. Actually, it is impossible to eliminate all the risks of a project even in a small project (Santos, 2006). Risks result from uncertainty about the future, but also from inaccurate information about existing conditions and from the failure of systems designed to contain or control risk. Accordingly, all entities involved in the project should look at the risk as a variable that is always present in their daily activities, including their decisions, and find solutions for managing it correctly if it cannot be eliminated.

No other field has stronger influence on the success of planning and execution of a project conducted under a PPP scheme than risk identification, evaluation, allocation and controlling (Leidel & Alfen, 2009). Experiences in pilot projects performed through PPPs show that there are improvements when the recognition and evaluation of risk factors are early made, thereby allowing the project team to maximise value for money (Leidel & Alfen, 2009).

The main characteristic of the PPP model is the transference of responsibilities, including risks, between the entities involved in the partnership. It is important in this process to identify which partner is best prepared to deal the risks identified and to clearly establish which partner will eventually manage them. This frequently involves transferring most of the risks from the public partner to the private partner at reasonable costs.
In addition to the steps of the risk management process, this section also explores the risks in the project life cycle.

4.2 APPROACH TO RISK MANAGEMENT IN PPPS

Essentially, risk management is a process which accompanies the project from its early beginning through conception, execution, operation and closure. It is a set of processes that includes identification, assessment, allocation, mitigation and monitoring and control (Partnerships Victoria, 2001) (figure 4.1.) and aims at increasing the probability and impact of positive events, and decreasing the probability and impact of negative events throughout the project life (PMBOK Guide, 4th Edition). Guidance in available PPP documentation, particularly dealing with political and legal conditions, economic conditions, social conditions and relationships, emphasises the importance of early risk identification and management.
Figure 4.1. Risk management process for PPPs (Leidel & Alfen, 2009)

Identification and assessment of risks is one of the most significant stages in a PPP contract. This process includes careful analysis of all sources of risk from the perspectives of all parties involved in project. There are several tools suitable for risk identification, among which checklists prevail. However due to the uniqueness and complexity of projects usually conducted under a PPP scheme, fresh risks cannot be found in checklists, so some authors strongly recommend

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15 Information about the tools available for risk evaluation may be found in the Final Draft International Standard IEC/FDIS – Risk Management: Risk Assessment Techniques.
the detailed consideration of risks by experienced\textsuperscript{16} people and in the course of brainstorming sessions (Akintoye, Beck, & Hardcastle, 2003). It is thus not surprising that organisations involved in a PPP scheme look for contracting risk evaluation experts. Another currently used method for risk identification is developing a risk catalogue that allows for better understanding from SPV stakeholders.

Conceptual models for risk allocation and management relate to macro, medium and micro level risks whereby both qualitative and quantitative allocations may be utilised.

- Macro risks focus on the risks at a national or industry level status, and upon natural risks (e.g. ecological, political, economic, social, natural environmental, etc.);
- Medium risks represent the PPP implementation problem, involving issues at project level (e.g. selection, finance, design, construction, technical, operation);
- Micro risks, represent the risks found in the stakeholder relationships formed in the procurement process (e.g. public services vs. private profit).

Risk assessment involves hazard identification, determining the likelihood (or probability) of occurrence and estimating the impact of each hazard on the project (such as on schedule, cost, quality, or performance) and the chances of that hazard materialising. However, many hazards are difficult to quantify in terms of probability because there is not enough\textsuperscript{17} information or simply because it is not available (Akintoye, Beck, & Hardcastle, 2003). In practice, risks that are known are assessed initially, but those that are not known are not assessed until a negative event has occurred (that unfortunately may have catastrophic consequences). Due to the great variety of risks in projects conducted under a PPP scheme and to the typical tight schedule for negotiations only the major risks area catered for, i.e. those involving the most severe consequences or holding the highest probability of occurrence or a combination of these. Akintoye et al (2003) state that, for efficient time management, attention should be paid only to those risks with the highest probability and impact, not disregarding less influential risks, but this may be hard to achieve. Various procedures and techniques have

\textsuperscript{16} The experience gained with similar projects obviously allows for better risk identification and for finding the best solutions to manage them.

\textsuperscript{17} Akintoye \textit{et al.} (2003) justify through the UK example, where the majority of PFI contracts are not yet finished, that it is impossible to obtain suitable data for concise evaluation of future performance of PFI contracts.
been used to control and minimise the impact of risk on projects conducted under a PPP scheme, as summarised in Table 4.1:

**Table 4.1. Procedures and techniques to minimise risk impact**  
(Akintoye, Beck, & Hardcastle, 2003, p. 172)

<table>
<thead>
<tr>
<th>Procedures/Techniques</th>
<th>Description/Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standardisation guidance</td>
<td>Basic risk standards (applicable to a wide variety of market sectors) that may also be used for sound risk allocation to PPP contracts.</td>
</tr>
<tr>
<td>Sector guidance</td>
<td>Allow for evaluating if a specific project holds special characteristics and if risk standards should be adapted for coping with it.</td>
</tr>
<tr>
<td>Pilot projects</td>
<td>Similarly, a pilot project may be used to test whether a new sector is suitable for private finance and assess any special features</td>
</tr>
<tr>
<td>Market sounding</td>
<td>Market sounding can be used to test the private sector reaction to new or unusual risks.</td>
</tr>
<tr>
<td>Diligence</td>
<td>Assist an authority to identify any project-specific features, obstacles and risks (risk matrix).</td>
</tr>
<tr>
<td>Other techniques</td>
<td>Other techniques (e.g. flexible design, use of standard designs, flexible project duration) to control and minimise exposure to project risks.</td>
</tr>
</tbody>
</table>

It is unlikely that every risk will be entirely eliminated through a risk management process but risk exposure may be reduced to an acceptable level (Leidel & Alfen, 2009) by using tools for project risk mitigation and/or by adopting specific measures for risk distribution among the project stakeholders (in relation to the perception of risk and in accordance with the function and experience of each stakeholder in that particular type of project). In any case, contracting organisations must make an effort to mitigate risks (especially the most important ones) because if they materialise they may generate inconvenient (and even dramatic) consequences. Moreover, this would certainly result in a bad image for the organisations involved in the project, putting at risk their credit and possibly preventing the award of future projects (Akintoye, Beck, & Hardcastle, 2003).

Risk management is an ongoing process so it is necessary to regularly review whether anything has changed which may impact on the risk issues that were identified. It is the process of implementing risk response plans (risk mitigation
strategies), tracking identified risks, identifying new risks and evaluating risk process effectiveness throughout the project life time. This process takes place at every stage of risk management. All the procedures and strategies of risk management, involving the stages previously mentioned, should be documented in the project execution plan (PEP).18

18 The project execution plan (PEP) is a dynamic management document that records the project strategy, organisation, control procedures and responsibilities. It is updated regularly during the project’s life and used by all parties both as a means of communication and as a control and performance measurement tool.
CHAPTER 5

PPP SPECIFIC RISKS

5.1 RISKS AT DIFFERENT PPP STAGES

All projects in all sectors involve risks. It comes in many forms and often depends on the characteristics of a particular project. In projects conducted under a PPP scheme most of the specific risks incurred derive from the complexity of the PPP arrangement. This is especially due to the excessive documentation, to the method of finance, taxes, subcontracts, among other technical details (Grimsey & Lewis, 2000). This leads to increased risk exposure for all parties involved that have to deal with many risk issues right from the inception stage of the project because the presence of some of these risks could hinder the achievement of the project objectives (Akintoye, Beck, & Hardcastle, 2003).

A typical project conducted under a PPP scheme encompasses an extensive set of activities that take place in a number of phases. The whole process of project development is a complex, time consuming and expensive endeavour (Padiyar, Shankar, & Varma), so it is necessary to adopt an adequate risk management approach for dealing with it. All participants must look at the risks in the different phases of the project and reflect upon the risk management approach, possible strategies for risk mitigation, who will monitor and manage risks and so forth. This essentially means creating a risk management cycle covering all stages of project development within the PPP.

As previously mentioned, the main point of PPP is the provision of infrastructure and public services by the public sector. These are projects that are particularly subject to risks due to their magnitude and complexity, higher initial costs, higher irreversibility (unrecoverable costs), and the higher durability of assets created (Checherita & Gifford, 2007). The complexity of the projects are due to the involvement of numerous stakeholders with different objectives and restrictions, and they have to deal with many risk issues in terms of policies and regulations,
documentation, financing, taxation, technical details, sub agreements, interfaces etc., starting as early as possible in the inception stage of the project. It is important to analyse projects for a period of 25 to 30 years if risks are to be assessed and allocated adequately (Leidel & Alfen, 2009).

**Figure 5.1. Risk sources in PPP (Padiyar, Shankar, & Varma)**

The Standard Risk Matrix, developed by the Irish Department of Finance identifies risk under seven headings; planning, design, construction, operating, demand, financial and legislative Leidel & Alfen (2009) divide a project conducted under a PPP scheme into the following stages: preparation and conception, tendering and awarding, construction, operation and maintenance. The following sections go through these stages, analysing risks therein.
5.2 PREPARATION AND CONCEPTION

Initial tasks in the PPP process are to provide decision makers with all the relevant information (objectives and strategies for the project, appointing the project team, identifying stakeholders and authorities, checking external approvals and budgets) needed for carrying on the project. The aim of the initial stage is also to determine a list of pre-qualified bidders.

A number of generic risks interlinked with the planning process are identified early in the project life cycle. These include not only the planning permission itself (must be included in PEP), but also various issues related to the consequences of the planning decision, time and cost overruns, public consultation, land purchase, environmental impact assessment, licences and consents, and so on. At this phase the level of negotiations are intense and complex; the planning permission can be hard to obtain and design may not be finalised before work starts (Davies, 2006). The need to answer all these questions puts back the start date of the construction. For that reason, most of the time, the entering of the partnership is still discussed.

Planning permission must be obtained before the project can proceed in full. Risks associated with planning approval and related issues generally lie with the public sector. In some instances, particularly in the transportation sector, the public promoter may use statutory authorisation thereby avoiding the necessity for planning permission, thus preventing this risk occurring. In order to achieve this, the public promoter must identify at the feasibility phase any approvals that can be obtained before the detailed design for the project is finalised (e.g. any re-zoning and land-use consents).

As for licensing risks (including environmental licenses and local authority licences) they may substantially increase the overall project cost (Monteiro, 2007) if not addressed prior to the tender call. When the procuring authority is a local authority, there needs to be sufficient and reasonable separation between the functions of the local authority and the planning authority to pre-empt any future judicial review challenge on the grounds of conflict of interest.

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19 The planning process is not always tailored to PPP projects and can often be quite slow and have uncertain outcomes. It is therefore important for the public sector to factor this in within the risk matrix.
Social risks can have also an impact on the acquisition of planning permission. The public interest question is addressed rigorously during the pre-tender stage of the project. If a site needs to be acquired for conducting the project and the negotiation with the land owner proves to be unsuccessful, public authorities may be given the right to acquire the land compulsorily in certain circumstances. However, the process for this may take some time and have uncertain outcomes. Projects conducted under a PPP scheme should be checked for whether the public interest can be protected satisfactorily (Partnerships Victoria, 2001). If people have to be displaced and compensated, or way leaves are involved in a project, then securing planning permission may be delayed.

Whilst it is usually a public sector risk to provide the land for the project, in certain circumstances it is possible to transfer this risk to the private sector, for example, making it a tender requirement. When the private sector takes the risk of planning, the public agency must ensure value for money. In the context of overruns, private sector finance providers generally require approval prior to entering into a contract.

Risks associated with environmental impact assessment and land acquisition generally rest with the public sector, as do those arising from public consultation and stakeholders (Akintoye, Beck, & Hardcastle, 2003).

5.3 TENDERING AND AWARDING

The principal objective of this stage is to select a preferred bidder who offers best value and will deliver the required infrastructure or service to the standards set, and within the budget and contract terms agreed. An important issue to ascertain during the tendering stage is forecasting demand for the service or infrastructure being contracted during the contract life cycle, since this will be one of the basic data sources for estimating future revenues and compensations to the concessionary. Accordingly, the extent to which the demand risk can be shared between the public and the private sectors is part of the value for money equation.

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20 Protection of community rights (including legal rights through planning and appeals process); protection of public rights (of access to the facility, health and safety, and access to information); and protection of users rights (including privacy, access for disadvantage groups and consumer rights).
In early PFI schemes in the UK, this was a serious issue, but more recently the public sector tends to bear this risk, so the private sector is less concerned about the service usage level (for example, the traffic demand on a motorway). However, the responsibility for that risk may fall upon the private partner. For example, in PPP contracts with specialist private companies (e.g. a waste management contract), although the public client provides a preliminary estimation of demand, the final responsibility may fall upon the private contractor, because of the project specifics. Nevertheless, in road infrastructures projects the demand risk cannot be integrally transferred to the private sector because the determinant demand factors are beyond private control.

5.4 DESIGN AND CONSTRUCTION

Firstly, attention must be paid to the fact that issuing the project design (design stage or conception stage) in a PPP contract is on the side of the private partner, contrary to the traditional procurement approach, where the contractor must implement the project conception previously developed by the public entity. Design risks should obviously be assessed during the design stage but this may turn into a challenging task for the contractor, because specifications may not be thoroughly provided and innovative inputs are strongly encouraged by the client (Akintoye, Beck, & Hardcastle, 2003). In this context, design risks basically comprise delays, issuing incomplete documents and lack of fulfilment of the client’s requirements (which translate into increased investment costs for the contractor and more frequent maintenance during the operation stage). Even if there were no control by the public partner on the design delivery, the consequences of bad design (delays, design errors, faults or failure to meet the client’s requirements) usually fall upon the risks catered for the private partner (Franco, 2007). However, the risks of inadequate or incorrect initial specification or change in requirements after tender/award remain with the public sector. In some projects, it may not be possible for the public authority to specify exact requirements at the tender stage or at the award stage. In these circumstances, risk share tends to be negotiated between the parties involved.

Moreover, in the case of infrastructure using rapidly evolving technologies, there is the risk of obsolescence in the contract period or after completion, because PPP arrangements typically apply to long duration projects (25 to 30 years). Thus, the
project must regard the flexibility of future use, that is to say, a “future-proofing” project.

Construction risks cover notable events like late delivery, non-respect for specified standards, additional costs (e.g. additional raw materials and labour costs), technical deficiency, commissioning, external negative effects (interruptions to construction due to noise complaints, disputes with local residents, and so on), defective materials, power outages, labour disputes, design changes and disruption of work by the elements. Cost overruns are very common in the construction phase and there are several reasons why this could occur like, for example, project changes (due to design changes or client demands).

When cost overruns are incurred, the financial feasibility of the conception may be jeopardised. Construction risk is nearly always assigned to the private party, which in turn is likely to include strong incentives for on-time completion of works in its construction contract. However, should the initial specification be incorrect or inadequate, or should there be specification variations, any construction risks arisen thereof will have to be analysed and allocated in accordance with the terms of engagement.

As is the case in the construction industry, the construction related risks are usually transferred down the chain to the subcontractors. However, where liability is being passed by the project company, a further mechanism may be needed to apportion risk between subcontractors. This can be addressed in an interface agreement between the subcontractors.

In a PFI project, these are commonly “equivalent project relief” provisions in the subcontracts, which seek to match the claims of the subcontractors against the project company with equivalent claims of the project company against the public sector authority. However, in a recent case, the court held that under English legislation, a construction subcontractor could not be prevented from referring disputes immediately to adjudication and that certain of the particular “equivalent project relief” provisions in the construction subcontract in question were ineffective. Although the use of “equivalent project relief” provisions attempts to mitigate the potential for mismatch between decisions at the subcontract and project agreement levels, legislation contributes to the danger of inconsistent decisions as construction and maintenance subcontracts are required to allow disputes to be referred to adjudication whilst PPP/PFI project agreements are exempted from this requirement.
5.5 OPERATION AND MAINTENANCE

Under a PPP scheme, the contractor assumes the responsibility for damages caused either by poor execution or by deficient operation of the infrastructure. Therefore, facilities management is of great importance in PPP schemes so it must be carefully planned from the early stages of the project development and cost commitments must be duly assessed for the life cycle of the built facility.

Operating risks will very much depend on the nature, scope and context of the contract. For example the operating risks of a DBF contract will be different from those of an operate-only contract. Generally speaking, operational risks arise if the service provided does not fully match the requirements imposed in the contract by the public partner. Maintenance risks include the possibility that (i) the cost of keeping the facility in the conditions required by the contract may exceed the forecast costs (ii) the maintenance programme contracted in not actually followed (Johannes, 2003). Moreover, it is common that PPP contracts provide for penalties (e.g. income rebate) if the facility does not comply with the quality standards of service delivery.

Several operation and maintenance risks should be considered for the operation phase, for example, service operating and maintenance risks (e.g. additional costs resulting from increased usage), possible acts of vandalism, design deficiencies, and environmental performance. But the most significant risks for this stage may be classified under the following headings, as discussed below: demand risks, financial risks, legislative risks and residual risks.
• **Demand risks**

This is the risk that demand for the asset will be greater or less than predicted/expected. Where demand risk is significant, it will normally give the clearest evidence of who should record an asset on their balance sheet. For example, the demand for hospital beds by patients may be less or more than predicted.

The length of the contract may influence the significance of demand risk, since it is difficult to forecast for later periods. Once it is established that demand risk is significant, it is necessary to determine who will bear it.

The importance of demand risk is linked with the financial arrangements that are tied to the demand prediction. The demand for services or infrastructure below expectations and consequently the lack of receipts to face expenses (cash flow failure) is the most important risk during this operation stage, especially in terms of the debt return for project investors. Hence, risks associated with any changes to the scope of demand will usually rest with the public sector.

If the revenue generation is directly linked with the operation and part of the contractor payment mechanism, any shortfall in revenue generation due to change in demand will normally be an operator risk. On the other hand, the risk of fall in demand due to a change in government policy, political decision, social, economic or environmental change usually will remain with the public sector.

• **Financial risks**

Financial risks can be divided into two main types: internal disposal risks and external financing risks.

Disposal risk is the risk that the expected value of surplus departmental assets, detailed for disposal in a PPP contract to fund public services, is lower than expected. Departments can reduce their exposure to this risk by transferring assets, such as redundant hospital buildings and grounds, which have, or are to become, surplus to requirement to the private sector contractor as part of the PPP contract.

External financing risk is the risk that the private sector contractor fails to raise sufficient funding for a public services project on the market. As with any contract, the ability of the private sector contractor to secure the finance required
to complete a PPP project, must be determined by the sponsoring department before the deal is signed. External financing risks are also related to interest rate risk, which is the risk that the interest rate will change between the time a bid is tendered and the time a contract is signed. Adverse movements in the interest rate during this time mean that the private sector contractor has to pay more to service their debt, which may reduce the attractiveness of a PPP contract.

As previously discussed, it is in the interest of the public sector to transfer the financial risk to the private sector in PPP arrangements; however, there are some exceptions where the financial risk lies with the public sector. These include insufficiency of the public funds or ability to pay over the contract duration (for example for a period of 25 years). Furthermore, if there is a requirement for the public sector for off-balance sheet treatment, that also has an impact on risk allocation.

Risks for other finance criteria, where private finance is utilised, usually stay with the private sector, including change in taxation (unless it is a discriminatory or specific legislation), insurance and finance arrangements such as equity and bond.

- **Financing of PPP projects**

PPP projects are mostly structured in a way that private finance can be used to fund initial capital expenditure, however, public sectors can also finance PPP projects.

Typical sources of private finance will include:

- **Equity** – share capital and sub-debt are usually injected by sponsors or specialist equity investors/funds, typically constituting around 10 per cent of the project cost. The intention to optimise the finance structuring can lead to the use of equity bridge facilities, to delay the date on which equity is injected;

- **Bank finance** – debt finance provided by way of a bank loan, often constituting around 90 per cent of the required funding and sometimes syndicated to a number of banks or financial institutions;

- **Bond finance** – debt finance provided by way of debt securities, as an alternative to bank debt. The debt securities are commonly marketed with the benefit of a monoline insurer guarantee. Bond proceeds are made available in one lump sum, rather than by drawdown as required. The project’s financial modelling needs to allow these proceeds to be invested in order to mitigate the consequential increased “carry” cost, whilst still allowing drawdown against scheduled project works;
• Finance leases – finance raised by the sale of capital equipment to a financial institution, which leases back the equipment in return for a rental payment. Typically used for specific types of capital equipment, such as rolling stock. The specific cash flow and taxation issues arising from finance lease structures must be accounted for in the financial modelling;

• Corporate finance – finance is raised from the sponsor's own internal resources as an alternative to project financing. This is a rare occurrence. The project structure and the terms of project documents may vary where this approach is adopted. For example, the use of a project company and the funder's security package (including direct agreements with the procuring authority and the subcontractors) may be deemed unnecessary where a corporate finance structure is used.

Where project finance is being used, funders will typically seek to mitigate the risks to the project cash flow by passing down the project risk to subcontractors with acceptable guarantors/bonding. Hedge arrangements are also utilised to hedge against variable elements in the cash flow such as interest rate or RPI. In addition, use of reserves or contingent finance are also made to address contingent risks to cash flows.

• Legislative risks

The allocation of legislative risks would normally depend upon whether it is a general change in law as opposed to a discriminatory or specific change in law.

Changes in law which are generally applicable are normally a risk for the private sector, with some notable exceptions. If there is a general change in law which comes into effect during the service period and involves capital expenditure, there is often a sharing of risk, with the exposure for the private sector contractor to such capital expenditure being on a sliding scale, with a capped value for the contractor’s total exposure. Similarly, risk of changes in VAT status of the contractor is also an exception which is normally protected against.

On the other hand, the public sector generally retains the risk of any changes in law which would expressly discriminate against the PPP project, the project contractor or the PPP sector. Similarly, changes in law which specifically refer to the construction and servicing of facilities for the sector in question is a public sector risk, providing such a change would not have been foreseeable at the time of the project agreement.
• **Residual risks**

Generally in the end of the PPP contract, the assets must be devolved to the government. Residual risk is the risk that the actual residual value of the asset at the end of the contract will be different from that expected. The risk is more significant the shorter the PPP contract is in relation to the useful economic life of the asset.

Where this risk is significant, who bears it will depend on the arrangements at the end of the contract. For example, the public sector will bear the residual value risk where:

- It will purchase the asset for a substantially fixed or nominal amount at the end of the contract;
- The property will be transferred to a new private sector partner, selected by the public sector, for a substantial fixed or nominal amount; or,
- Payments over the term of the PPP contract are sufficiently large for the private sector not to rely on an uncertain residual value for its return.

In order to minimise these risks the public promoter should impose conditions related to the maintenance and renewal of the assets and make periodical inspections (Partnerships Victoria, 2001). Johannes (2003) also refers as the mitigations measurements the realisation of audits towards the end of project term and security measurements for instance final condition bond, or deduction from unitary payment.

On the other hand, the private sector will bear residual value risk where:

- It will retain the asset at the end of the contract; or
- The asset will be transferred to the public sector or another private sector partner at the prevailing market price.

Specific strategies are adopted at each stage of the project life either to reduce the likelihood of adverse events or to allocate residual risks to the parties best positioned to manage them (Padiyar, Shankar, & Varma).
5.6 RISK ALLOCATION IN PPP PROJECTS

The common characteristic of all projects conducted under a PPP scheme is the substantial need for allocating risks to the parts involved. The general rule is to transfer risks to those who are best prepared to manage them and at the lowest possible cost. But who will actually assume risks of building and maintaining the infrastructure or delivering the service is often the central question in a PPP arrangement (European Commission, 2003). Risks vary with the development and delivery process – contractual mis-allocation of risks has been cited as one of the leading cause of disputes. Therefore, careful risk allocation is critical to unlocking the efficiency benefits of private sector involvement and is a key driver of value in a PPP.

According to the Portuguese legislation the share of risks between public and private entities must be clearly identified by contract and follows the following principles (article 7th from Decree-Law no. 144/2006):

- The different risks related to the partnership must be divided between the partners in accordance with their ability to manage those same risks;
- The partnership shall imply an important and effective transference of risk to the private sector;
- It should be avoided the risks which do not have the adequate justification of other existent risks;
- The risk of lack of financial sustainability of the partnership due to non-fulfilment or unilateral modification of the contract by the public partner or other important cause, must be, as much as possible, transferred to the private partner.

In accordance to the orientations of PFI in the UK, risks (particularly in the project area, construction/reconstruction and operation) should be shared or transferred to the partner which is in the best position to internalise them. In practice, this usually means transferring a considerable part of the risks to the contractor committed to performing a project for a certain value and responsible for obtaining financing as long as the project remains.

Different organisations and different individuals can have different tolerances for the risk. Each party involved in a project may have different perspectives regarding project risks due to differing knowledge and perceptions about the nature of risks and their sources (Leidel & Alfen, 2009, p. 1). Indeed, in some circumstances a party may prefer to walk away from the project rather than assume such a risk.
There are several approaches to risk allocation:

- Transferred risks (risks transferred to contracting party);
- Retained risks (risks retained by the public sector agency);
- Shared risks (risks shared between the contracting party and the public sector)

Shifting a particular risk to a party that is not able to manage it is more costly and may generate additional risks for the project. A process of negotiation for risk allocation is depicted in Figure 5.2.

**Figure 5.2. Risk allocation process in PPP/PFI contract procurement (adapted from Bing, Akintoye, P.J. Edwards, & C. Hardcastle, 2004)**

In practice, in order to achieve risk allocation, the public and the private partners agree on the risk factors applicable to the contract, register them in an appropriate document and define the most relevant risks each project stage (on the basis on probability and impact) and their financial consequences. Based on this information, the public partner decides on which risks it is prepared to assume or share and which risks should be transferred to the private partner, thereby establishing a preliminary risk allocation structure. The task of the private partner is either to accept the public partner’s proposition (setting up the inherent management costs and the paths for recovering possible losses arising from them) or to negotiate on the re-allocation of some risks or even to abort the process (Bing, Akintoye, P.J.Edwards, & C.Hardcastle, 2004). The negotiations would consider whether the public partner should accept the high risk cost, share the risk with the private partner, or retain the risk in the public sector. Quite often, negotiations on the share of risks between project participants (both public and
private) run for several months until risk property has been adequately analysed and risks allocated to each partner (Akintoye, Beck, & Hardcastle, 2003). Obviously, a balanced distribution of risk is a precondition to create a successful long-term partnership.

5.7 RISK REDUCTION

The emphasis on risk in the PPP/PFI gives suppliers the opportunity to think creatively about how the cost of risk can be reduced. For example, a purchaser may impose a requirement on a provider that a lift is guaranteed to be operating for the entire working day, every day of the week. This creates a high operating risk for contractors, the cost of which will be passed on through the unitary charge. Purchasers could explore other possibilities with the contractor to reduce the potential cost of that operating risk. The contractor may be able to make other space available, temporarily, in the case of a lift breakdown, effectively reducing the significance of the lift’s reliability in the risk model and on the cost of the project. But little evidence may be found, however, that purchasers are taking such creative approaches for achieving risk reduction.

Government guidance states that purchasers should not transfer risks to the operator to get a particular accounting result if this arrangement delivers poorer value for money. In practice, however, there is not always a linear relationship between the levels of risks accepted by the contractor and the price attached to these in the contract. The strength of the link is likely to be influenced by the state of the market and the profitability of the whole contract.

Moreover, large contractors, using their own equity, do not have to convince financiers that the risks involved are reasonable and justifiable. If contractors really want to get involved, they are likely to be prepared to accept a package of risks, and clients may be surprised at the apparently low price attached to some risks by contractors, compared with their own estimates. The result is that risk transfers from the purchaser to the contractor do not necessarily mean significant extra costs and reduced value for money.
Quantified risks and associated probabilities could be used more often to find out whether certain risks allocated to the contractor should be re-assumed during negotiation. If the contractor were to be asked how much the price would be reduced if a risk was reallocated to the public sector, value for money could be improved.

Incomplete use is currently made of risk models in exploring risks and their probabilities. Instead, risk models still tend to be used as ‘necessary’ number-crunching exercises to demonstrate whether the PPP/PFI scheme is better than the conventionally funded alternative.

While risk models can be used to assist skilled negotiators by showing general tendencies in the likely movement of price with risk, they cannot be relied on to generate a ‘correct’ answer. Given the nature of the market, and the approach adopted by individual companies, PPP negotiation around risk is rarely simple or predictable.

5.8 RISK TRANSFER

With PPPs, value for money is achieved through the transfer of risk to the private sector, which is perceived to have an advantage in handling risk. The risks that can be transferred to the private sector include, for instance, the financial risk. Actually, it is an essential condition of any PPP project that the financial risk is transferred to the private sector to secure value for money because privates have advantages over the public sector in handling these risks (generally they have risk analysts) thereby reducing the risks for the public sector (Allen, 2001).

The main benefit of transferring financial risk to the private sector is that they are perceived to have an advantage over the public sector in handling financial risks. Most successful private sector firms have risk analysts especially in the financial sector.

A further effect of transferring a project’s financing risk to the private sector is that it reduces the general risks of public service projects that have been retained by the public sector. However, risk and reward go hand in hand: the higher the
perceived risk that is being transferred to the private sector, the greater the risk premium that will be required by the contractor from the public sector to compensate them for their exposure. Given that some risks are difficult to quantify it is difficult to determine whether a private sector contractor, for accepting a particular risk, is charging a suitable risk premium for either party.

5.9 OPTIMAL ALLOCATION OF RISK

Once the risks associated with a particular PPP project have been identified, the next task is to share the risks between the public and private partners. In keeping with the well accepted principle that “risk should be allocated to whoever is best able to manage it”, the public sector must not transfer risk for its own sake. Demand and other risks should be a matter of negotiation with the value for money impact being tested out, where appropriate, through bids on alternative risk transfer bases against minimum and conforming requirements. To allocate the major part of the risk to the private sector secures to the public sector the quality of the infrastructure, but the more risks are allocated to the private sector, the greater the cost of risk transference, since the premium of risk demanded by the partner is usually higher. The transference risk system is, therefore, one of the main characteristics of a PPP model, stressing the necessity of optimisation and not of maximisation of the risk transference (Monteiro, 2007). The lower the share of the risks transferred to the private sector, the more the investment resembles a public investment. When all the risk is assumed by the public sector, the investment, even if it was privately financed, should be taken into account as a public investment, as an “inputted loan” of the private partner.

• Principal risks retained by the public sector include (various sources previously referred):
  o Risk of the long-term need for the service (as these contracts often run for 25 years or may be even longer, the risk that a particular service may no longer be needed should remain with

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21 Akintoye, Beck, & Hardcastle (2003); Franco (2007); Padiyar, Shankar, & Varma; Bing, Akintoye, P.J.Edwards, & C.Hardcastle (2004); Almeida; Ribeiro & Dantas; Pohle & Girmscheid, (2007); and Schmachtenberg & Schenk (2007).

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the public sector; even if the service may no longer be required, the contractor will be entitled to its payments for the duration of the contract;  
- Force majeure situations (additional rectifying costs may arise from this type of situations, and such costs should be carefully evaluated);  
- Fiscal risk (taxes due on profits arising from the project);  
- Long-term affordability of the project for the public authorities;  
- Planning permission (environment impact assessment prior to the tender phase; preliminary evaluating of the alteration costs for environmental reasons; licensing; conflict management between authorities; etc.).

- Principal risks retained by the private sector include:  
  - Project design (costs of modification and re-designing);  
  - Project development (alterations imposed by the public partner);  
  - Construction (additional labour and materials required or additional costs incurred);  
  - Industrial relations risks (a direct consequence of this risk may be increased labour costs, loss of revenues or additional expenditures, delay in construction or service provision, and so on);  
  - Financing risks, including variation of the interest rate (direct consequences of this risk are additional funding costs and/or unexpected refinancing costs);  
  - Demand risk (direct consequences are the reduction of revenues because of lower throughput);  
  - Availability risks (penalties for non-compliance that may absorb the revenues of the contractor shareholders);  
  - Risks related to service quality (penalties for lack of compliance of specified service provision standards);  
  - Operation and maintenance risks (penalties proportional to the extent of incompliance and to any flaws detected in the infrastructure by the end of the contract).

The risks of a public service provision should only be transferred to the private sector if, and to the extent that, the private sector is capable of managing such risk. In situations where the private sector is judged best able to deal with risk, such as construction risk, then the public sector should try and transfer this responsibility completely. Where the private sector is deemed less able to manage project risk, responsibility for these risks should remain within the public sector.
How does the private sector manage risks allocated?

There are different possibilities for the private sector to manage the risks, including, in particular (Schmachtenberg & Schenk, 2007):

- Detailed assessment in advance;
- Insurance;
- Indexation of financial claims;
- Limiting exposure by way of caps; and,
- Passing down the risk to subcontractors or limiting it by using a project company.

Figure 5.3. Generic Risk Transfer Model in projects running under a PPP scheme
• **Risk matrix**
Risk allocation cannot be standardised on a permanent basis as individual circumstances determine what the best is. However, a template may be settled which will inform the project risks allocation.

A good example of a template is the risk matrix. A risk matrix (or check-list, or risk sharing table) is a practical method for systematic risk assessment (Heimonen, Immonen, Kauppinen, Nyman, & Junnonen). When prepared and used correctly, it can be a useful tool, both to the public and the private sector, because it helps list the most important project risks and allocate them to the project participants. During PPP negotiations, the risk matrix can be used as a verification tool for assuring that all risks are approached. After the contract is set up it can also be used as a brief of the risk allocation scenario. However, this does not prevent the need for detailed description of the risks and the way these are allocated to the public or the private partner, or how they are shared between them (Partnerships Victoria, 2001, p. 23).
CHAPTER 6

PPP PROJECT PROCEDURES

There are various types of PPPs, established for different reasons, across a wide range of market segments, reflecting the different needs of governments for infrastructure services. Although the types vary, two broad categories of PPPs can be identified: the institutionalised kind that refers to all forms of joint ventures between public and private stakeholders; and contractual PPPs.

**Concession Model PPPs**

Concessions, which have the longest history of public-private financing, are most associated with PPPs. By bringing private sector management, private funding and private sector know how into the public sector, concessions have become the most established form of this kind of financing. They are contractual arrangements whereby a facility is given by the public to the private sector, which then operates the PPP for a certain period of time. Often at times, this also means building and designing the facility as well. The normal terminology for these contracts describes more or less the functions they cover. Contracts that concern the largest number of functions are "Concession" and "Design, Build, Finance and Operate" contracts, since they cover all the above-mentioned elements: namely finance, design, construction, management and maintenance. They are often financed by user fees (e.g. for drinking water, gas and electricity, public transport etc. but not for “social PPPs” e.g. health, prisons, courts, education, and urban roads, as well as defence).

**Private Finance Initiative (PFI) model PPPs**

Another model is based on the UK Private Finance Initiative (PFI) which was developed in the UK in 1992. This has now been adopted by parts of Canada, France, the Netherlands, Portugal, Ireland, Norway, Finland, Australia, Japan, Malaysia, the United States and Singapore (amongst others) as part of a wider reform programme for the delivery of public services. In contrast to the concession model, financing schemes are structured differently.
Under PFI schemes, privately financed contracts for public facilities and public works cover the same elements but in general are paid, for practical reasons, by a public authority and not by private users (public lighting, hospitals, schools, roads with shadow tolls, i.e. payments based on traffic volume, paid by the government in lieu of tolls).

The capital element of the funding enabling the local authority to pay the private sector for these projects is given by central government in the form of what are known as PFI "credits".

PFI is not just a different way of borrowing money; the loans are paid back over the period of the PFI scheme by the service provider who is at risk if the service is not delivered to standard throughout. The local authority then procures a partner to carry out the scheme and transfers detailed control, and in theory the risk, of the project to the partner. The cost of this borrowing as a result is higher than normal government borrowing (but cheaper when better management of risks and efficiency of service delivery are taken into account). Currently, it does not always appear as borrowing in public accounts; although how it appears in public accounts may be changing as well.

**Contract and risk transfer based PPP models**

There are a range of PPP models that allocate responsibilities and risks between the public and private partners in different ways. The following terms are commonly used to describe typical partnership agreements:

- **Buy-Build-Operate (BBO):** Transfer of a public asset to a private or quasi-public entity usually under contract that the assets are to be upgraded and operated for a specified period of time. Public control is exercised through the contract at the time of transfer;
- **Build-Own-Operate (BOO):** The private sector finances, builds, owns and operates a facility or service in perpetuity. The public constraints are stated in the original agreement and through on-going regulatory authority;
- **Build-Own-Operate-Transfer (BOOT):** A private entity receives a franchise to finance, design, build and operate a facility (and to charge user fees) for a specified period, after which ownership is transferred back to the public sector;
- **Build-Operate-Transfer (BOT):** The private sector designs, finances and constructs a new facility under a long-term Concession contract, and operates the facility during the term of the Concession after which ownership is transferred back to the public sector if not already
transferred upon completion of the facility. In fact, such a form covers BOOT and BLOT with the sole difference being the ownership of the facility;

- **Build-Lease-Operate-Transfer (BLOT):** A private entity receives a franchise to finance, design, build and operate a leased facility (and to charge user fees) for the lease period, against payment of a rent;
- **Design-Build-Finance-Operate (DBFO):** The private sector designs, finances and constructs a new facility under a long-term lease, and operates the facility during the term of the lease. The private partner transfers the new facility to the public sector at the end of the lease term;
- **Finance Only:** A private entity, usually a financial services company, funds a project directly or uses various mechanisms such as a long-term lease or bond issue;
- **Operation & Maintenance Contract (O&M):** A private operator, under contract, operates a publicly owned asset for a specified term. Ownership of the asset remains with the public entity. (Many do not consider O&Ms to be within the spectrum of PPPs and consider such contracts as service contracts.);
- **Design-Build (DB):** The private sector designs and builds infrastructure to meet public sector performance specifications, often for a fixed price, turnkey basis, so the risk of cost overruns is transferred to the private sector. (Many do not consider DBs to be within the spectrum of PPPs and consider such contracts as public works contracts.);
- **Operation License:** A private operator receives a license or rights to operate a public service, usually for a specified term. This is often used in IT projects.

The options available for delivery of public services range from direct provision by a ministry or government department to outright privatisation, where the government transfers all responsibilities, risks and rewards for service delivery to the private sector. Within this spectrum, public-private partnerships can be categorised based on the extent of public and private sector involvement and the degree of risk allocation.

In the UK public sector there is no legal requirement to adopt a uniform PPP project implementation procedure. All the different sectors engaged in PPP forms of procurement, for example, the defence sector, education sector, housing sector, the ICT sector and so on, have created their own terms of engagement in terms of PPP projects, with input and support from regulatory, legislative and executive authorities. Although the first standard PFI contract was published in 1999, the
different sectors have developed their own forms of contractual arrangements to suit their particular requirements.  

In many sectors, there is non-statutory guidance which provides model documentation and advice in relation to the PPP processes.

However, as a general overview, the PPP project procedures follow three key phases:

1. Pre-delivery phase leading up to contract award;
2. Delivery phase leading up to operational delivery of the project; and,
3. Operational phase.

It may be noted that there are procedural differences between life-cycle based PPP projects and service based PPP projects.

Life-cycle based PPP projects relate to complete projects including design, finance, construction and operation, whereas service based PPP projects relate only to the operating phase performing services and providing products for the duration of the contract.

1. Pre-delivery phase

At this initial phase, the primary objectives of the process are:

1.1. Opportunity or need identification leading to outline planning;
1.2. Opportunity or need assessment leading to approval of outline business case;
1.3. Bidding process leading to contract award.

1.1 Opportunity or need identification leading to outline planning

The objective at this stage is to identify opportunities or indeed the need areas where the public sector can achieve benefits through appropriate use of co-operation with the private sector. It is important to recognise that this is often a politico-technical decision.

Once an area has been identified, an outline business case for such co-operation has to be prepared which must give due consideration to key financial, technical

22 There is however a requirement to comply with the guidance available in a HM Treasury publication – Standardisation of PFI Contracts (SoPC – currently at version 4 published in 2007) for PFI contracts
and legal elements. The outline business case should also assess the necessity to prioritise the opportunity or need.

An outline business case may contain the following elements:
- Objective;
- Scope;
- Key milestones;
- Indicative budget;
- Indicative programme;
- Key risks.

1.2 Opportunity or need assessment leading to approval of outline business case

At this stage, the objective of the process is to identify whether the PPP model is suitable and appropriate for the realisation of the opportunity or the need, in relation to other alternative solutions that may be available.

The process to achieve this objective will involve:
- Identification of alternative approaches;
- Assessing the options on the merits of feasibility (technical, legal, operational & logistical), economics (cost benefit analysis) and risk;
- Selecting the best option based on the assessment outcome;
- Developing the PPP outline business case if indeed PPP is the best option; and finally,
- Gaining approval of the outline business case from the appropriate authority.

At the end of this process, the approved PPP outline business case becomes the “bible” of the project, containing a fairly detailed description of the preferred solution, key risks and risk mitigation tools and the success or the performance criteria for the project.

1.3 Bidding process leading to contract award

The PPP procurement or bidding process, leading to contract award, is underpinned by EU Public Contracts Regulations 2005 (L/N177/2005) enacted from 3 June 2005. The fundamental principles of this regulation are:
- No discrimination between economic operators (tenderers);
- Transparency;
- Confidentiality of information provided by economic operators; and,
- All public procurement to be undertaken by public contract.
1.3.1 Preparing for the bidding process

The procuring authority will have to undertake a number of key steps in preparation for the bidding process. These include:

- Appointment of project procurement team;
- Appointment of advisors (where appropriate);
- Determine whether to adopt a two-stage or a three-stage selection process;
- Determining a detailed timeline;
- Preparation of a deliverable specification and value for money benchmark (the comparator);
- Issue of contract notice, information memorandum and pre-qualification questionnaire (PQQ).

1.3.2 Pre-qualification

The pre-qualification process broadly consists of the following steps:

- Evaluation of the expressions of interest against the pre-qualification criteria. The pre-qualification criteria usually includes tests of probity (good standing), technical competence and financial capability. These criteria are of general nature and independent of each other;
- On completion of the evaluation process, the tenderers are notified the outcome of their expressions of interest;
- Where the number of successful tenderers exceeds five, a further round of selection will have to be undertaken.

1.3.3 Short-listing and preparation of ITT

At this stage of the procurement process, the key elements are:

- The short-listed bidders are required to focus on a specific project and make a further submission to prove their specific resolve, commitment and approach to the project. This usually will not call for a fully costed submission, although high-level costings are normally requested;
- The responses from the tenderers are evaluated on their particular merits taking account of this submission. The number of successful bidders, at the end of this evaluation is usually restricted to three to which the ITT is issued;
- The procuring authority often takes this opportunity to update the original benchmark costings before issuing the ITT.
1.3.4 The tenders

This stage comprises the following key elements:

- After issuing the ITT, the tenderers are often allowed 12 to 18 weeks to submit their responses;
- Mid-tender meetings may be held with the tenderers if necessary, particularly if there are grey areas in the ITT which require clarification;
- Competitive dialogue will be held separately with the tenderers upon receipt of their submissions;
- Once the dialogue phase is complete the bidders will be given an opportunity to revise and resubmit their tenders as “Best and Final Offers” (BAFOs).

Competitive dialogue process

For large and complex projects, a competitive dialogue process is often used. The procuring authority will appoint an “ad hoc” committee to undertake the competitive dialogue on behalf of the appointing authority.

The essence of competitive dialogue procedure is:

- It is a process of discussion and review leading to a refinement of the tendered solution and the requirement;
- This is carried out between the individual tenderer and the authorised representatives of the contracting authority;
- Information gathered from tenderers is confidential and cannot be divulged to other tenderers;
- The process covers the broad package and is not solely price-based but price is a key indicator and comparator to the contracting authority’s own benchmark;
- When the competitive dialogue procedure ends, tenderers re-submit their final proposal taking account of re-defined solutions emerging from the dialogue.

1.3.5 Evaluation of BAFOs

The evaluation process for the BAFOs follow the key fundamental principles of public procurement and the following are the key elements at this step:

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23 The procuring authority will often use the competitive dialogue process as part of the bidding procedure especially for large and complex projects.
1. BAFOs are ranked according to the most economically advantageous offer;
2. The ranking is undertaken on the basis of affordability and value for money tests;
3. If the preferred BAFO passes the requisite tests, the bidder submitting the BAFO is appointed as the “preferred bidder”; 
4. Tenderers whose BAFOs are rejected are notified accordingly and reasons are given why they were not chosen.

1.3.6 The preferred bidder

At this stage, the competitive process ends and both parties work to proceed towards contract signature by settling any minor outstanding contractual details. This stage should not take longer than 12 to 18 weeks and contract signature (i.e. contract award) should lead directly to the commencement of works (the delivery phase). No further discussions of commercial substance are anticipated at this stage

1.4 Contract award leading to delivery phase

After signing the contract, the key elements that are required to be dealt with prior to the commencement of the delivery phase include:

- Confirmation of the business case with the private sector partner;
- Completion of negotiation of finance agreements, insurance, dispute avoidance/resolution processes, guarantees, payment mechanisms etc.;
- Establishing and implementing monitoring and performance regimes;
- Preparation and agreement of a detailed project delivery plan.

After signing the contract and establishment of the project delivery plan, the project delivery phase commences.

2. Delivery phase

The delivery phase of PPP projects will be similar to construction projects in the sense that it has to go through the design and construction stages with the added element of financing where private financing options are utilised.

At this phase, the PPP project will have to be implemented in accordance with the approved and agreed business case. Key elements at this phase will include:

- Implementation of project delivery plan;
- Ensuring public sector monitoring and supervision;
• Establishment of risk-based contingency plans;
• Depending on the type of the PPP project (see Figure 6.4.) design, construction and delivery of the project.

The key outputs and objectives for this stage will focus on timely provision of a fully commissioned and operational facility and services, ensuring the necessary fit between the service requirements, the payment mechanisms and the contractual monitoring regime.

For service contract PPP projects this phase will not apply.

3. Operational phase

At this stage, for both services based PPP and life cycle based PPP projects, the focus is on providing the service outcomes as expected in the approved business case for the PPP project.

The monitoring and payment mechanism for the private operator will depend on the type of PPP project (see Figure 6.4.).
PPP Life Cycle

![ PPP Life Cycle Diagram ]

**Figure 6.1. Life-cycle based and service based PPP projects**

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Pre-Delivery Phase

Outline planning (12~18 weeks)

Approval of outline business case

OJEU publication and pre-qualification of bidders

Shortlisting bidders (4~6 weeks)

Issue ITN and receipt of initial bids

Evaluation of bids and best & final offers

Approval of final business case and preferred bidder

Final negotiations to contract award (12~18 weeks)

Figure 6.2. Indicative time table for PPP process: up to contract award
Figure 6.3. The PPP procurement process
Figure 6.4. Different types of PPP projects

Information distilled from “Guidelines for successful public private partnerships”, EC, 2003
CHAPTER 7

CASE STUDIES

7.1 INTRODUCTION

The decay of buildings, unemployment, social degradation and exclusion are serious problems affecting the social and economic well-being of residents of many Portuguese historic city centres (HCCs). This has particularly hit the largest cities that ought to be seen as engines for innovation and economic development. In the last few years urban degradation has been registered in areas of high population density following the lack of maintenance and subsequent abandonment of residential buildings. According to data from the European Construction Industry Federation (FIEC), Portugal is one of the countries with the lowest investment in residential building refurbishment. Therefore, it is not surprising that the number of residents in the largest Portuguese cities has decreased over the last years particularly affecting their HCCs. This is a serious problem for the social and economic sustainability of cities.

In view of the above, promoting rehabilitation and refurbishment projects of the public and private real estate stock of the Portuguese HCCs is broadly supported by the main social and political actors and by society as a whole. Beyond the reasons mentioned above, it is clearly recognised that such projects correspond to strategic investments that are essential for re-launching the economy because they can improve the attractiveness of cities for residents and visitors. This is crucial for recovering the status of HCCs as centres of culture, knowledge and innovation. Additionally, urban rehabilitation is an essential strategic component of city planning and housing policy. Rehabilitation is also a business opportunity for construction and other economic activities thereby creating job opportunities and business prospects, all this being advantageous for the cities and the country.

Urban Rehabilitation Societies (Sociedades de Reabilitacao Urbana – SRUs, in Portuguese) are the most recent rehabilitation strategy for the Portuguese HCCs
and have quickly assumed a determinant role in the national scene by spreading across various national cities. The aim of SRUs is to refurbish urban areas classified as Historic Centres and to promote small businesses complementary to the housing function on those areas, thereby fostering the attraction of new residents and of more private investment. SRUs have been created by the Decree-law nº 104/2004.

Because of the present negative situation of the national economy and the decrease of the construction activity over the last decade\textsuperscript{26}, the joint collaboration of public and private entities has become essential for conducting projects directed to the rehabilitation of degraded buildings. In this context, PPPs are viewed as excellent tools for urban rehabilitation because they can accommodate a diversity of funding sources and allow for various management models.

### 7.2 THE URBAN REHABILITATION SOCIETY OF PORTO – PORTO VIVO, SRU

The municipality of Porto has long assumed the responsibility for urban renovation mainly through various rehabilitation projects conducted in the HCC. Essentially, the municipality tried to oppose degradation and loss of residents by refurbishing the public space (streets, squares and green areas) and buildings of cultural and architectural value. This mission is now held by Porto Vivo SRU\textsuperscript{27}, the Urban Rehabilitation Society of Porto, that is a public company shared by the Portuguese State, through the Institute for Housing and Urban Rehabilitation (Instituto da Habitacao e da Reabilitacao Urbana – IHRU, in Portuguese) and the Municipality of Porto. The intervention area of Porto Vivo covers the so called Critical Area for Urban Recovering and Rehabilitation (Area Critica de Recuperacao e Reconversao Urbanistica – ACRRU, in Portuguese) of Porto. However, for operational reasons, a smaller intervention area has been assigned

\textsuperscript{26} Portuguese construction activity reached a historic maximum in 2001 but has been decreasing since then at an annual rate of as much as 4 per cent.

\textsuperscript{27} “Porto Vivo” means Porto Alive in Portuguese
to Porto Vivo, the so called Area of Priority Intervention (Zona de Intervenção Prioritária - ZIP, in Portuguese) where the rehabilitation effort will concentrate.

Basically, the role of Porto Vivo is to set up the strategy for the intervention in the area and to act as a mediator between building owners and tenants or to directly conduct the rehabilitation operations, if mediation efforts fail, making use of the legal empowerment conferred by the regulations mentioned above. More specifically, the competences of Porto Vivo SRU (as well as the other SRUs) are as follows:

1. To select investors according to a set of previously defined criteria (financial capacity, suitability, project quality, technical capacity, project duration, etc.);
2. To decide on contracts with the entities selected;
3. To monitor project execution including quality and duration;
4. To develop a sound communication policy;
5. To implement procedures for reducing time and costs of compulsory legal transactions that investors must go through;
6. To suggest special fiscal regimes.

Porto Vivo currently manages various incentives for building rehabilitation, namely, fiscal benefits (through the reduction or exemption of several municipal taxes), financial support (through the IHRU rehabilitation support programmes) and bank protocols (supporting funding access for building rehabilitation projects).

7.3 REHABILITATION PROGRAMME OF MORRO DA SE

7.3.1 PORTO AND URBAN REHABILITATION

Porto is the second Portuguese city geographically situated in the north west area of the Iberian peninsula and in the northern area of Portugal. The city extends for 42 km² and has a population slightly over 200,000 inhabitants but the surrounding area of Greater Porto is substantially larger and has roughly 2,000,000 inhabitants (according to the 2008 census). Porto is internationally recognised for the
Mediterranean weather, the wine, the splendorous Douro River and its bridges, and for the HCC and the value of its cultural heritage, classified as a National Monument and awarded World Heritage site status by UNESCO. In 2001 the city was the European Capital of Culture. Because of all these attributes, Porto hosts more than one million tourists per year (Figure 7.1.).

Figure 7.1. Images from Porto

However, Porto is a city with considerable rehabilitation needs. The degradation of the built environment in the last decades is especially felt in the HCC and
resulted from the lack of intervention in the public space, poor asset management and scarce building maintenance. Rehabilitation of the public space took too much time to start and so far has had little impact on local socio-economic conditions. Building refurbishment has been incidental because of the lack of financial conditions of owners and tenants for supporting costs and because of the lack of attractiveness of the area. This has pushed former residents out and prevented the installation of new ones. In view of the above situation and considering the extension and complexity of the Porto HCC it was realised that the rehabilitation process could not rely solely on private initiative but should be adequately planned and promoted by the municipality. The rehabilitation plan should consider the specifics of the area in terms of the socio-economic conditions of asset owners and residents, the nature of the built environment (background, urban process, building conservation), and the refurbishment priorities and so on. Accordingly, a set of rehabilitation master plans was developed.

7.3.2 THE REHABILITATION PLAN OF MORRO DA SE

Morro da Se (meaning the Cathedral Hill) is a small area in the Porto HCC in the neighbourhood of the Cathedral, very close to the city centre and to the left bank of the Douro river.
Morro da Se is a residential neighbourhood of narrow and steep alleys running between several degraded buildings, located within the UNESCO classified area (figure 7.3.). Despite its high historic value, the area has suffered a significant socio-economic decaying process in the last decades, mostly due to population loss, the reduction of income and the decrease of economic activities. This simultaneously attracted businesses that were unpleasant for residents and visitors and definitely not appealing to real estate promoters.

However, against the weaknesses presented, there are several strengths of Morro da Se that can be clearly highlighted. Morro da Se holds a strategic position in relation to several commercial, leisure and cultural places of indubitable attractiveness in the city, and is well served by transport services, which positively contributes to the sustainable mobilisation of young students and
tourists. Therefore, the rehabilitation of Morro da Se should take these features in consideration.

Moreover, despite the high density of residential buildings, Morro da Se offers sufficient free space in vacant degraded buildings. This enables the development of new projects that may contribute to refurbishing existing buildings of cultural value, attracting new residents and businesses, and increasing the urban and cultural value of the area.

7.3.3 THE STUDENT RESIDENCE PROJECT

According to the strategy for the rehabilitation of Morro da Se, the aim of the student residence project is to promote the installation of higher education students as a way of introducing new living experiences and new social dynamics, and a lever for supporting new economic and tourist activities in the area. The underlying concept is to introduce a number of new young inhabitants in a traditional urban area, thereby promoting new interests to the residents and new dynamics in local businesses. The privileged characteristics of Morro da Se will help promote awareness of environment issues including the reutilisation of old buildings and materials reclaimed in the new facilities, respect for the environment and the use of public transport and non-pollutant vehicles.

The advantages of the project are installing a modern student accommodation facility in the city centre, in the surroundings of all relevant amenities and holding a distinctive character, closely attached to local history and traditions. It is expected that the accommodation will be attractive to students and to small proximity businesses and a reference for the local population. In view of its location and closeness to the city centre, the accommodation may also attract other people, like young visitors and artists.

The space available for the installation of the accommodation is a set of 22 adjacent old buildings and backyards (Figure 7.4.). All buildings are in very bad shape, urgently needing deep refurbishment intervention. It was estimated that the space available would allow for the accommodation of roughly 150 people. According to the project aims, the accommodation should be designed mainly for students, researchers, visiting teachers, young professionals and others that may have a connection with the academy of Porto and may need shelter for some time in the city.

The area for the student residence holds some special conditions for design restrictions that were set up in the project preliminary guiding programme.
developed by Porto VivoSRU, and was one of the documents of the tender procedure.

![Image of Morro da Sé](image.png)

Figure 7.4. Location of the student residence of Morro da Se

### 7.4 CONTRACTING MODEL

#### 7.4.1 TENDERING AND CONTRACTING

In view of the conditions described above, Porto Vivo SRU decided to embark on a public private partnership for developing the student residence project of Morro da Se.

Because the area in its present conditions is of little interest for private investors, Porto Vivo SRU decided to submit the project to the Portuguese Framework Programme (Quadro de Referencia Estrategico Nacional – QREN, in Portuguese) by the contractor, in the scope of the Urban Rehabilitation Programme (Programa para a Reabilitacao Urbana - PRU, in Portuguese) for funding. In the case of success, sunken funds obtained from the support of QREN would then be
conducted to the private partner and this would have to compensate the public partner by half of that amount raised.

Additionally, because the project is located in the ZIP, the private partner may use a set of incentives applicable to urban rehabilitation this area, namely:

- Permanent exemption from real estate taxes and from taxes over real estate transactions (these are municipal taxes in Portugal, therefore within the authority of the municipality that was liable to decide on this; these taxes are called the Imposto Municipal sobre Imoveis - IMI, and the Imposto Municipal de Transaccoes, IMT, in Portuguese, respectively), because the area is in the World Heritage Area;
- Reduction of the VAT applicable to construction work to five per cent;
- Reduction in municipal taxes;
- Quicker and easier municipal building authorisation;
- Access to the incentives applicable to rehabilitation projects taking place in the central area of Porto (SIM – Porto28). This system enables the municipality to allocate exceptional construction rights in other areas of the city to the promoters investing in ACRRU.

Following the Portuguese Code of Public Contracting, the first step was launching an open tender to select the private partner for setting a PPP contract for designing, building and operating (a DBO contract) the facility. The tender was awarded to a joint venture of NOVOPCA, Construtores Associados, SA (building company), SPRU (Sociedade Promotora de Residencias Universitarias), SA (operator) and NOVOPCA II – Investimentos Imobiliarios, SA (financing company and investor), as depicted in Figure 7.5.

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28 SIM – Porto is an acronym of “Sistema de Informação Multicritério da Cidade do Porto” and means Multicriteria Information System for the City of Porto.
7.4.2 ECONOMIC MODEL

According to the contract terms, the contractor holds the responsibility for designing, building and operating the facility under the concession of the public partner Porto Vivo SRU for a period of 50 years. For compensation, the private consortium will pay 12.5 per cent of the operational results before taxes. This amount may be altered if the submission to the funds of QREN reveals successful, in the terms mentioned above. The initial investment agreed is about 4.7 million Euros and the maintenance costs were estimated at 315 000 Euros for every ten years.

7.4.3 DUTIES OF THE PUBLIC PARTNER

The duties of Porto Vivo SRU are freeing the buildings and conceding the spaces to the private partner for implementing the project and operating the built facility. Part of the buildings were already owned by Porto Vivo, SRU (totalling 2 561m²), but others (totalling 2.559m²) were still private and were specifically expropriated (taken for public domain) for developing the project. Porto Vivo SRU is also responsible for managing and accepting the project design, conducting the process for approval and construction authorisation from the authorities, monitoring construction and following the first year of operation. Finally, Porto Vivo SRU is responsible for settling all problems emerging from the effects of the construction activities in the public space and in neighbouring properties (provisional use of public space, effects on access rights of third parties, traffic disruptions and diversions, and so on).

29 This is a right conferred to the SRUs by the Portuguese regulations mentioned above (Decree-law no 104/2004), and aims at allowing these public societies to implement the rehabilitation strategy approved by the public authorities for a specified deprived area.
7.4.4 DUTIES OF THE PRIVATE PARTNER

Beyond designing, building and operating the student residence, the consortium also has the duty of obtaining the corresponding permissions required by law. The consortium has to develop the project according to the schedule agreed in the terms of the contract with the public partner, otherwise it may incur penalties and possibly contract cancellation. The construction period was stipulated at 18 months after obtaining all the necessary building permissions and within 36 months after signing the contract with Porto Vivo SRU. Prior to opening the student residence, the contractor must have installed all the equipment and furniture needed and contract and train all the staff required for assuring the operation and maintenance of the facility in adequate conditions.

7.5 PFI CASE STUDY: SEVERN RIVER CROSSING, UK

<table>
<thead>
<tr>
<th>Project name</th>
<th>SEVERN RIVER CROSSING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total capital value</td>
<td>£331m</td>
</tr>
<tr>
<td>Operational period of contract</td>
<td>30 Years</td>
</tr>
<tr>
<td>Actual date of financial close</td>
<td>1 October 1990</td>
</tr>
<tr>
<td>Government department</td>
<td>Department for Transport</td>
</tr>
<tr>
<td>Commissioning body</td>
<td>Highways Agency</td>
</tr>
<tr>
<td>Region</td>
<td>South West</td>
</tr>
<tr>
<td>Project operational?</td>
<td>Yes</td>
</tr>
<tr>
<td>On/off balance sheet</td>
<td>Off</td>
</tr>
</tbody>
</table>
The Severn River is a wide natural divide between England and Wales in the south west area of the United Kingdom. It presents a barrier to the infrastructure links between the important cities of Bath and Bristol in England and Newport and Cardiff in south Wales.

The first bridge, to two lane motorway standard, was opened in 1966 to replace the ferry connection. It was built in conjunction with the main M4 motorway linking London and Cardiff. However, by the early 1980s it was reaching its capacity for traffic volumes, especially at peak times, and an alternative had to be found to reduce the resulting traffic congestion.

In 1984, the government started to study the problems and in 1986 announced its intention to build a second crossing at English Stones, some 5km downstream of the existing bridge.

Following the tender process, the Secretary of State for Transport announced the selection of the bid led by John Laing Ltd (now Laing O’Rourke) with GTM-Entrepose to design, build and finance the second crossing. This consortium was also to take-over the maintenance and operation of the...
existing Severn Bridge for the same 30 year concession period. The agreement was formally signed between the government and Severn River Crossing plc - a company formed by Laing O’Rourke and GTM with Bank of America and Barclays de Zoete Wedd in October 1990.

However, before work could start, the government sought powers from parliament to enable the building of the new crossing and approach roads by means of the Severn Bridges Bill which was introduced in parliament in November 1990. Royal Assent was given in 1992 to the Severn Bridges Act 1992 enabling the concession and construction of the new crossing to start in April 1992.

The new crossing was opened on 5 June 1996 by His Royal Highness, The Prince of Wales.

The Severn Bridges Act 1992 allows the income raised by Severn River Crossing plc from the crossing toll charges to be used to cover the ongoing operation and maintenance during the concession period and to cover the financing of the debt and equity.

### Project technical details

**Figure 7.7. Technical details - bridge**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall length of crossing structure</td>
<td>5,128m</td>
</tr>
<tr>
<td>Length of main span</td>
<td>456m</td>
</tr>
<tr>
<td>Navigation clearance</td>
<td>37m</td>
</tr>
<tr>
<td>Length of Welsh approach viaduct</td>
<td>2,077m</td>
</tr>
<tr>
<td>Length of English approach viaduct</td>
<td>2,103m</td>
</tr>
<tr>
<td>Height of main span pylon towers</td>
<td>137m</td>
</tr>
<tr>
<td>Number of approach spans - Welsh side</td>
<td>24</td>
</tr>
<tr>
<td>Number of approach spans - English side</td>
<td>25</td>
</tr>
<tr>
<td>Maximum height of approach piers</td>
<td>48m</td>
</tr>
</tbody>
</table>
7.6 PFI CASE STUDY: FORTH VALLEY HOSPITAL, UK

<table>
<thead>
<tr>
<th>Project name</th>
<th>FORTH VALLEY ACUTE HOSPITAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total capital value</td>
<td>£293m</td>
</tr>
<tr>
<td>Operational period of contract</td>
<td>30 Years</td>
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<tr>
<td>Actual date of financial close</td>
<td>1 May 2007</td>
</tr>
<tr>
<td>Government department</td>
<td>Scottish Government</td>
</tr>
<tr>
<td>Commissioning body</td>
<td>NHS Forth Valley</td>
</tr>
<tr>
<td>Region</td>
<td>Scotland</td>
</tr>
<tr>
<td>Project operational?</td>
<td>Yes</td>
</tr>
<tr>
<td>On/off balance sheet</td>
<td>Off</td>
</tr>
</tbody>
</table>

Brief

The Forth Valley Royal Hospital project was funded via the private finance initiative procurement process, to deliver a new 850 bed acute services hospital of approximately 95,000m² gross internal floor area, to take the place of five local hospitals in Stirlingshire, Scotland. The new hospital also includes 16 operating theatres, 4,000 rooms and 25 wards.
Forth Health Limited (a company formed between John Laing plc and Commonwealth Bank of Australia) was awarded the contract in 2007.

The Forth Valley Royal Hospital team was a true collaborative partnership between NHS Forth Valley, Forth Health Ltd, Serco, Laing O’Rourke and their Keppie-led design team and ensured that the three completion phases were handed over on the due dates, namely phase 1 by 10 May 2010, phase 2 on 16 August 2010 and phase 3 for 18 April 2011.

The new hospital comprises a number of blocks of varying heights arranged on either side of a diagonal central street, which separates core clinical treatment facilities from in-patient wards, facilities management (FM) facilities and administration offices. The core facilities are in two to three storey rectangular courtyard blocks to the south of the central street. The wards, offices and FM facilities are arranged in a series of three to four storey L-shape blocks to the north of the street, with the FM and support facilities at a partial lower-ground floor level.

However, the hospital is more renowned for the innovative building design which separates the services from patient and visitors. Thirteen robots (automatic guided vehicles) use segregated tunnels and FM hubs for the collection of waste and delivery of linen, meals and vital medical supplies to the wards and departments (see picture below).

The annual unitary charge payment commencing in financial year 2010/11 provides revenue Forth Health Ltd’s on-going operation and maintenance responsibilities for the hospital until the year 2041/42 and is subject to full ‘availability’ for use of the hospital’s facilities.
7.7 PFICASE STUDY UK: M6 TOLL ROAD

<table>
<thead>
<tr>
<th>Project name</th>
<th>M6 TOLL ROAD (formerly Birmingham Northern Relief Road ‘BNRR’)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total capital value</td>
<td>£485m</td>
</tr>
<tr>
<td>Operational period of contract</td>
<td>53 Years</td>
</tr>
<tr>
<td>Actual date of financial close</td>
<td>1 February 1992</td>
</tr>
<tr>
<td>Government department</td>
<td>Department of Transport</td>
</tr>
<tr>
<td>Commissioning body</td>
<td>Highways Agency</td>
</tr>
</tbody>
</table>
The M6 Toll motorway is the first toll motorway in the UK. The motorway is a privately financed three lane motorway 43 kilometres (27 miles) in length and provides a new strategic route to the north east of the West Midlands conurbation (see map above).

1992, the UK government signed a concession agreement with Midlands Expressway Limited (MEL) to first obtain planning approval and then design, build, finance and operate the M6 Toll. Macquarie Infrastructure Group (MIG) owns 100 per cent of the equity in MEL. The 53-year concession agreement commenced on 26 January 2001 under which the concession company has the exclusive right to set tolls for the entire concession period.

These procedural processes for the motorway had however started back in 1980 with the preferred route being announced in 1986. Once in contract,
MEL made changes to this route and then progressed their scheme through the subsequent public inquiry and planning processes, including the preparation of an environmental impact statement to allow go ahead from the Government in 1997. However, legal challenges against the scheme were lodged by the Alliance against BNRR which meant the scheme was not finally cleared until 1999.

Subsequently, MEL arranged finance and tendering and negotiated the construction contract for the project. Financial close was reached on 29 September 2000.

A joint venture between Carillion, Alfred McAlpine, Balfour Beatty and AMEC (CAMBBA) commenced the 40 month construction contract in 2000 allowing the M6 Toll to open on time on 9 December 2003.

Since opening, the five millionth motorist was logged on 29 April 2004 and the 10 millionth on 12 August 2004. The motorway now copes with 145,000 vehicles per day.

MEL now employs over 140 people to maintain the road and to keep it running safely. MEL is a member of ASECAP. ASECAP is the European professional association of tolled motorway companies and represents some 121 organisations that manage 23,000 kilometres of toll roads through 16 European countries.

**Figure 7.10. M6 Toll motorway**
<table>
<thead>
<tr>
<th>Objective</th>
<th>Success</th>
</tr>
</thead>
<tbody>
<tr>
<td>To provide through traffic with an alternative to the M6</td>
<td>Five years on, the M6 Toll continues to provide an alternative route for motorists to the M6 offering faster journey times and greater reliability.</td>
</tr>
<tr>
<td>To relieve the M6</td>
<td>Journey times have reduced compared to before the M6 Toll opened. Although they have increased slightly since 2005, they have remained quicker than before the M6 Toll opened.</td>
</tr>
<tr>
<td>To improve journey time reliability</td>
<td>More consistent journey times have continued to be exhibited on the M6 since the M6 Toll opened.</td>
</tr>
<tr>
<td>To reduce traffic levels on less appropriate local routes</td>
<td>Traffic on the A38, A5 and A50 has reduced compared to pre-M6 Toll opening levels; however flows have started to increase on these routes again.</td>
</tr>
<tr>
<td>To improve transport links with towns to the north and east of the West Midlands</td>
<td>Local transport links have undoubtedly improved due to the reduced journey times and increased reliability of journeys.</td>
</tr>
<tr>
<td>To become an integral part of a continual motorway corridor along the backbone of the country</td>
<td>The M6 Toll continues to provide an alternative route for motorists to the M6 along the northern part of the Birmingham Box which is included in the Trans-European Road Network. Freight between the Celtic nations and continental Europe, as well as from the West Midlands and other English regions, passes through it.</td>
</tr>
<tr>
<td>To provide a safe motorway</td>
<td>Analysis of accident records for the M6 Toll has shown that the road has a good safety record. In particular: In the first five years, there was an average of 18 accidents per year on the main tolled part of the M6 Toll; and the accident rate per million vehicle kilometres is less than half the national average for a motorway which is the rate seen on the parallel M6.</td>
</tr>
</tbody>
</table>
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