

DEVELOPING AN EFFECTIVE MODEL TO SUPPORT CONSTRUCTION COMPANIES ENTERING THE PUBLIC-PRIVATE PARTNERSHIP PROJECTS' MARKET

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The global economy is changing and national governments throughout the world are finding it increasingly difficult to fund projects catering for ever more diverging social needs. The idea that the private sector can play an important part in the financing, creation and operation of public services and built assets has thereby gained ground. Varying forms of partnership solution between the public and private sectors have emerged based on the assumption that both sectors have unique skills and characteristics providing each with advantages in undertaking certain tasks. These so called public private partnership projects (PPPs) are being realized in many areas within the public sector. In some respects the PPPs that generate construction work constitute a new challenge to the construction sector. Novel ways of conducting work are imposed on the actors in the form of risks and responsibilities that previously would have been taken by the public sector. This paper discusses research conducted within the research project 'developing an effective model to support construction companies entering the public private partnership projects market'. This research project aims at creating a body of knowledge to support the Swedish construction sector in its exploitation of the potential of PPP. Conclusions are drawn that emphasize the need of more thorough research of the design and construction phases of the projects, in particular how the team's efforts can be focused on innovation.

Keywords: public private partnerships, project management, project finance, technology innovation

INTRODUCTION

The industrialized world has seen considerable change take place in society during the last decades. Change towards a more global economy where individual countries' public administrations have become gradually more and more fragmented. National governments are experiencing difficulties in finding funds, within their own fiscal resources, to cater for ever more diverging social needs and demands. Alternative sources of finance are sought, as well as ways of making public sector services more cost effective. Partnership solutions between public and private sectors have emerged as a workable alternative and projects have been realized following the assumption that both sectors have unique skills and characteristics providing them with advantages in undertaking certain tasks. The term given to these kinds of arrangements, public private partnership (PPP), has become fashionable, both politically and socially. It is often used to cover a wide range of modern political and financial functions as well as the working arrangements within projects and organizations in multiple business areas and industrial sectors throughout the world.

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There is nothing new about the ideas behind the concept of PPP. The projects could, for example, be claimed to bear some resemblance to the concessions that were common in large parts of Europe during much of the nineteenth and early twentieth centuries. It is, however, more often argued that the PPP concept originated with the development of project finance techniques for the early North Sea oil projects, which coincided with the implementation of privatization as a crucial policy for improving industrial efficiency (Morris 1994; Walker and Smith 1996; UNIDO 1996). The 'Hong Kong Cross Harbour Tunnel' – one of the first BOT (build operate and transfer) projects – that was completed in 1972 is generally considered to be amongst the first PPP projects.

As of today, there are great many projects that have been initiated or are in the pipeline in Europe but also on other continents (FT 1999; Atkin and Leiringer 2000a). These represent large financial investments and, as far as the construction sector is concerned, constitute a considerable volume of construction work. France can be singled out as having committed itself to realizing large parts of their motorways through private investment. The UK has gone a step further through the establishment of the Private Finance Initiative (PFI) in 1992. As of August 2000, PFI projects to a value in excess of GBP 17 billion had been signed in the UK. Though not all of them are construction related, many are. Several countries throughout Europe and, indeed, the world have taken steps to imitate the UK approach to varying degrees (Atkin and Leiringer 2000a).

Various reports have been published in the past five years citing various cost savings and increases in quality in the end product through the adoption of PPP procurement methods. Total project cost savings of 10-20% are not uncommon. Additionally, the projects are being initiated earlier than would otherwise be possible (CIC 2000; SO 2000; HM Treasury Private Finance Taskforce 2000; Statskontoret 1998).

It could be argued that PPPs, regardless of form and size, have added impetus to a change in how construction actors go about their business. This paper focuses on PPPs as they apply to the construction context. Particular attention is given to the potential for innovative behaviour and better working solutions within the design and construction phases of projects and the influences that project set-up might have on them. The paper does not examine the socio-economic benefits that are claimed to accrue from the implementation of PPP. Neither does it discuss the rights or wrongs of including the private sector in domains that previously have been operated solely by the public sector. These issues are to a great extent dominated by social and political ideologies and prejudices, which lie outside the scope of the research. Attempting to proffer an objective description of the advantages and disadvantages of PPPs would be too simplistic an approach to take and would trivialize the more compelling arguments for and against.

BACKGROUND

The research project, 'Developing an effective model to support construction companies entering the public-private partnership projects market', was initiated in 1999. The main goal of the project is to clarify and strengthen the role of the construction industry in PPPs. Particular interest is given to the design and construction phases of projects. The aim is to examine the application of known best practice in PPP to the Swedish context, covering buildings and other non-transportation infrastructure. In so doing it will apply an understanding of the

successful implementation of PPP from other countries in order to derive a robust model (or other representation) adapted to Sweden. Although transportation infrastructure is excluded from the study, lessons that might also apply in the context of transportation infrastructure are also being considered.

The specific objectives of this project are:

To identify from selected studies of overseas markets the potential for PPP projects in Sweden highlighting key differences that are likely to affect the successful working of such an arrangement.

To develop a model of the process of initiating, formulating, evaluating and implementing PPP projects so that the whole affair becomes more transparent and less ambiguous. Enabling construction companies to understand and then adopt a best practice approach to PPP projects.

Fulfilment of these objectives will create a body of knowledge to support the Swedish construction sector (including sponsors of PPP projects) in its exploitation of the potential for PPP. The results of the research will help to accelerate the application of best practice PPP arrangements, enabling them to be propagated throughout the sector.

RESEARCH METHODOLOGY

In order to fulfil the objectives the project draws on evidence in the form of documented outcomes of projects to formulate a theoretical model of the PPP process. This theory is then tested against an understanding of best practice PPP arrangements and validated against existing or completed projects outside Sweden.

The study adopts a multi-method approach using research methods appropriate to the task in hand. These cover: a) a wide literature review examining leading academic and technical journals, technical reports, conference proceedings, case studies, the financial/business press and government guidelines; b) the establishment of a reference group consisting of 14 members, all of whom are considered to be experts within their specific fields, to represent the major stakeholders in PPP projects – the group is used as a means for validating the findings as well as generating new insights and knowledge through seminars and workshops; c) semi-structured interviews with senior representatives of organizations involved in the PPP process; d) fieldwork with the researcher taking an observing role within the BOT unit of a large construction company; and e) multiple case studies examining PPPs and traditional projects.

PPP IN THE CONSTRUCTION CONTEXT

PPP are often seen in the context of a means for the alternative financing of projects. As has previously been mentioned, it is looked upon as a way of using private sector finance to initiate projects that the public sector, at a given time, cannot find the funds to initiate itself. There are also a couple of other means of alternative financing routes that the public sector could follow, the best known probably being the traditional loan financing route. PPP procurement deviates from these forms of financing in the sense that it is more than merely funds that are provided by the private sector.

Incorporated in the contracts is also a commitment to provide a service for a pre-determined period, often over decades.

In much the same way that partnerships can be defined to suit a particular situation at a given time, so too can PPPs be subject to definition in different ways. Broadly defined, a PPP is an arrangement that brings together public and private sectors in

long-term arrangements for mutual benefit. This rather generous qualification can apply to any kind of arrangement where the private sector participates in work undertaken by the public sector, regardless of the service provided. There are, however, certain broad types of partnerships that can be distinguished. These are very general and there are projects/arrangements that can overlap into several categories (Leiringer 2001). As the research conducted here is mainly concerned with looking at PPPs from the construction sector's perspective, only one of these will be further explored:

The following definition has been adopted:

A public private partnership is an arrangement between public sector and private sector investors and businesses ("the Private Sector") whereby the Private Sector on a non or limited recourse financial basis provides a service under a concession for a defined period of time which would otherwise be provided by the State. The provision of such service may involve the Private Sector in the tasks of planning, designing and constructing facilities in order to be in a position to provide the required service.

Logically, a definition such as this leaves room for numerous variations of projects under the umbrella of PPP. Providing for multiple ways of setting up the projects and countless constellations of involved actors. A simplified model is given in figure 1.

Traditionally construction projects have been procured through fixed specifications and profit levels. It is common that the client takes considerable part of the risk in the project. In contrast, PPP projects are procured by the use of service level agreements (SLAs) and output specifications, often in combination with minimum technical requirements. The exact nature of these documents is dependent on what the client is empowered to do and the nature of the product and duration of the project. By making the private sector responsible for operations for a specified period, part of the risk previously taken by the public sector is now passed to the concessionaire¹ for further distribution. The rationale is that the risk should be taken by the party best able to do so. The concessionaire could, under circumstances, be a single company that undertakes the project on its 'balance-sheet', but it is far more common that a Special Purpose Vehicle (SPV) is created to contract with the public sector. The SPV could take the form of a consortium, joint venture or be a subsidiary to an existing single company. The exact configuration of shareholders varies according to the specifics of the project in hand.

PRELIMINARY FINDINGS AND OUTPUTS OF RESEARCH

PPP projects are becoming ever more common and a clear trend can be seen, one where governments are showing an increasing willingness to experiment with these kinds of solutions. Projects are being realized all across the world and can be found in most European countries. A position report, based on a literature review, 'Public Private Partnerships in Swedish Construction' (Atkin and Leiringer 2000a), has been produced covering the current position of PPP in Europe in general and Sweden in particular.

The ongoing public debate is impeded by confusion within the ranks of the public sector and the media, as well as within the private sector. There is no real consensus as

¹ The organization that contracts to provide the service resulting from a PPP.

to the term Public Private Partnership and various acronyms such as PFI, BOT, BOOT, BTO and DBFO are used seemingly at random. The parties appear not to be discussing the same issues and it seems that the public sector is highly influenced by prejudices and political sympathies, whilst opportunity seekers of all professions abound in the private sector.

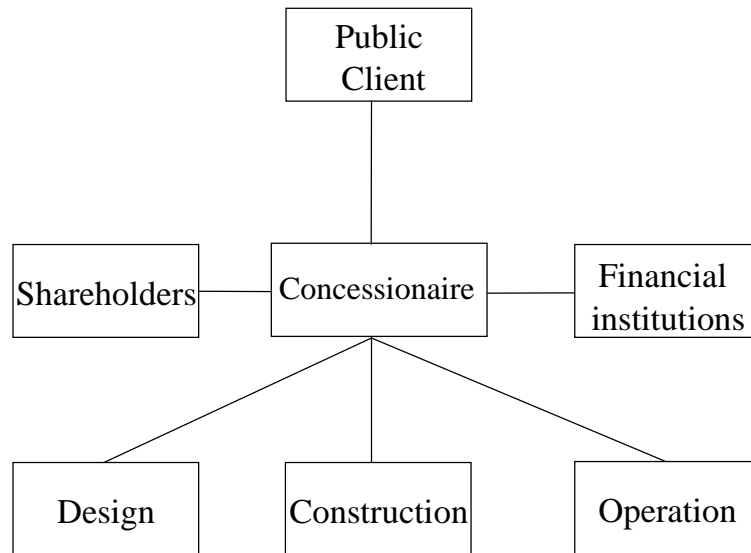


Figure 1: A simplified PPP project set-up

There is a multitude of reports issued on and about the performance of PPP projects, mainly emanating from the UK: see for example NAO (1998). Public sector agents or consultancy firms acting on the behalf of the sponsors publish most of these reports. Often, it is stated that total costs have been decreased and that overall service has been improved. But it is unusual to see proof of that the actual product is of a higher quality at an acceptable price and that innovations have arisen in the construction phase. There are also, by contrast, several reports that show increased costs, lower quality products and an overall decrease in service quality. These reports mainly have their origins amongst public interest organizations and labour unions: see for example, Unison (1999) and CUPE (1998).

Caution has to be applied when comparing the findings in the reports, as it is not always a matter of comparing like with like. The reason for this is two-fold. First of all, projects are not always set-up in the same way and cannot at all times be treated as similar. Take for example the construction and operation of a toll bridge as compared with the construction and operation of a new high-security prison. Secondly, and perhaps more importantly, the projects are examined in terms of basic parameters. The number of parameters chosen and how they are weighted in comparison to each other will, in conjunction with assumptions, strongly influence the result of the examination. For example, the slightest change in the chosen discount rate will dramatically alter the outcome of any net present value or total life cost calculation.

The projects naturally differ depending on the end product and the given geographical and juridical restrictions of the country in which they are realized, but there are also several other key aspects that separate the projects. These differences are too big to be trivialized or overlooked. Some of them, at first sight, seem quite obvious but still need to be taken into consideration. In order to be able to compare like with like, the

foundation of a typology for PPP projects has been created based on published reports, guides and manuals (Atkin and Leiringer 2000b; Leiringer 2001). This work has resulted in the presentation of a number of key areas that have to be taken into consideration, including:

type of project – financially free-standing, services sold to the public sector or joint venture;

- nature of the contracted service;
- type of concessionaire;
- means of financing;
- payment structure;
- ownership; and
- transfer of asset.

Inhibitors to the successful implementation of innovative procedures have been identified during the course of the research, through the means of literature reviews, structured interviews, observational fieldwork within a large contracting organization's specialist BOT unit and group seminars using variations of the nominal group technique. Known inhibitors take the form of logic contradictions between what needs to be in place to enhance innovative behaviour and the way that most PPP projects are set-up and managed. Most are deserving of further consideration. However, this cannot be done in such a limited format as this paper. Just three aspects will be discussed here.

It is common that actors in the SPC are also represented in the construction and operation of the resultant asset. It is essential, therefore, that the inter-organizational relationships between the contracting and client arms of the construction company in the SPV are properly managed. Finding the ideal arms-length relationship between different parts within the companies is generally difficult.

Some SPV clients prefer fixed price, lump sum construction contracts with certainty of completion. The contracts are regulated by the use of penalties. This system is believed to have a deterring effect on the actors' willingness to take risks through the use of new technology or working procedures.

Banks tend to be risk adverse when it comes to project financing. They are known to be particularly cautious when new techniques and procedures are proposed. The technical competence of those representing the banks is questionable. There is a concern that their limited ability to evaluate proposed solutions impedes the amount of new thinking that can be exploited by practitioners.

NEXT STEPS IN THE RESEARCH

There are, as has previously been mentioned, numerous published reports on PPP, whose conclusions mainly point towards potential cost gains for the public sector. Risk transferred from the public to the private sector is a commonly cited reason for such savings and tends to be the automatic response to questions associated with public accountability. Justification is usually linked to the estimated value accruing from the private sector taking risks that previously have been taken by the public sector. It is also a common conclusion that the adopted form of procurement enables a more efficient and better service and that the construction is of higher quality, i.e. more value for money is generated. It is believed that, since PPP generally involves

replacing cheaper public finance with more expensive private finance, project participants will look for compensatory savings in other cost areas – essentially those of construction and operation. This argument seems to be based on an assumption that engineering a certain kind of collaboration between operators, designers and contractors will lead to innovative solutions to the client's service requirements. This is in addition to incentives and longer-term thinking adopted.

This line of argument is fairly logical given that several drivers for project success seem to be in place. These include an informed client who understands what is needed and who has sufficient expertise to communicate those needs, and taking into account the operation of the product from the outset: the latter also forces a longer-term view to be taken.

It is the author's belief that if all these assumptions were correct then indeed the construction process would be able to develop significantly and innovations would be possible both within technology and working procedures. However, the preliminary research findings point toward several inhibitors. As part of the findings from a questionnaire study on 67 PFI projects, CIC (2000) shows that there are cost savings of 5-10% from the construction phase and that the kind of innovation achieved varies depending upon the characteristics of construction. Apart from this, little research has been undertaken to measure and compare innovative procedures within the design and construction phases.

The next phase of the research will address the essential question: 'do PPP projects support the implementation of new practices and novel technological solutions in construction?' The analysis will attempt to:

determine if and where PPP projects are enabling innovation to achieve enhanced practices and products;

pinpoint practices and techniques that work well in practice; and

compare these with actions that are being taken on traditional projects.

This phase of the research will draw heavily on published literature about innovation. It is essential for the study that the variables affecting the adoption of innovation are clearly established and understood. A framework, based on the existing body of knowledge, will be created. This framework will then act as the structure against which the examination of projects could be executed. As a reference to where in the process innovations are capable of being implemented and also as a means for categorization, five technology clusters identified by Gray (1996) will be used. These are:

- substructure;
- structure;
- cores and risers;
- envelope; and
- internal finishes beyond the core.

The research method chosen is that of multiple case studies (Yin 1994). A typology will be used to categorize PPP projects. Suitable projects (probably 5 or 6) will be chosen by the means of how well they fit into the categories and according to project achievements (albeit that some reliance has to be placed on the interpretation of others as to project success). In addition to this an equal number of traditional construction projects of reasonable size will be examined to enable comparisons to be made. Data

will be collected using multiple sources of evidence, i.e. documentation, interviews and questionnaires (Yin 1994).

Projects are multi-organizational so the approach taken has to be one that is wider than that of a single firm. There is a clear need to take into consideration collaboration and co-ordination between the actors, since single firm improvements might have a limited impact on the project at hand (Howell 1999, Atkin and Leiringer 2000c, Gann and Salter 2000) and indeed for other projects.

Conclusions will be drawn from the results outlining successful practices, the responsibilities of those involved and potential benefits that can be gained. Likewise, attention will be given to failures and the reasons behind them.

It is expected that these actions will reveal valuable information as to which criteria have to be fulfilled in order for innovative approaches to be implemented within PPP arrangements. This information will subsequently be instrumental in the preparation of guidelines for construction sector actors venturing into public private partnerships.

Outside the scope of this phase of the research – but not to be forgotten – is the possibility of disseminating the findings to a wider audience. It would be useful to know whether or not the results could be reproduced elsewhere and if the construction sector as a whole could benefit from the results.

CONCLUSIONS

The construction volume related to PPP projects is becoming too large to be overlooked. With the global economy developing in the manner that it is these kind of projects are likely to become even more common in the future and the construction sector is going to have to adapt to this new kind of project environment. Much has been said regarding the potential of this procurement route and several benefits are claimed to accrue from its implementation. There are, however, several different routes available under the umbrella of PPP. All exhibit different characteristics and their level of success is highly dependent upon the prevailing contractual conditions. Not all projects are suited to the PPP procurement route and not all PPP projects are ideal venture for construction companies. Factors such as the source of finance and risk transfer are important and play an instrumental role in the assessment of projects. However, there is also a need to focus on the actual design and construction phases of the projects. If not, it seems highly likely that the notion of creating value for money will stop at smart accounting on the part of the actors involved, through undertaking risk transfer, instead of the production of better, faster and whole life appraised construction.

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