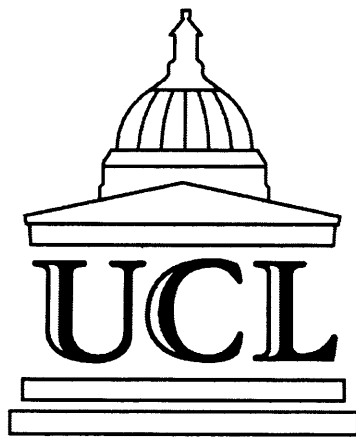


**Examine the incentive mechanism in the
operational phase of school PFI projects**

By Li Tang



*This thesis is submitted in partial fulfilment of the requirements for the degree of
Master of Science in Built Environment from the University of London.*

***Bartlett School of Graduate Studies
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Abstract

PFI was initiated in 1992 as a new procurement method to deliver public services by the private sector. In a standard PFI project the private sector designs, builds, finances and operates an asset and associated services for the public sector in return for an annual payment linked to its performance in delivering the service. The incentive for performance given by the PFI contract is that if the PFI Company cannot provide the services as specified in the output specification, payment deduction will result. However, in practice, some empirical problems have occurred in terms of this incentive mechanism in operational phase of projects.

The objective of this paper is to examine the incentive mechanism in the operational phase, in the context of school PFI projects, so as to provide an indication of the key areas to be considered when developing PFI schools, and suggest possible improvement in the incentive structure in operational phase.

This research consists of literature review on the PFI incentive structure and on operational school PFI projects and interviews over four individual local authorities in London area. It applies Transaction Cost Economics and Principal-agent Theory to the analysis. The data obtained is self-report interviews within London area and public sector issued reports. The application of economic theories in analyzing the practical problems provides a different way of thinking over the issue.

The research identified a number of key areas in the incentive mechanism within the operational school PFI projects in London area. The soft FM services are difficult to measure in a continuously sliding scale, while the hard FM services are easier. The payment deduction occurs mainly on performance but not availability.

The research shows that payment deduction is not working as well as expected and provides a weak incentive to PFI Company in rectifying the problems in services. Aspects related to monitoring have been identified as a problem to the effectiveness of incentives. While partnering, which is based on relationship management, provides another effective way over contract management in managing PFI projects. The research develops possible methods to deal with the problems identified in the analysis. Adoptions of these recommendations should help to better manage the school PFI projects, but acknowledging the limitation based on the scale of the research.

Key words: School, PFI, operational phase, incentive mechanism

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London, United Kingdom

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Li Tang

Part A- Introduction

1. Introduction

1.1 Background

1.1.1 The selection process of the topic

PFI was initiated in 1992 as a new procurement method to deliver public services by private sector. In a standard PFI project the private sector designs, builds, finances and operates an asset and associated services for the public sector in return for an annual payment linked to its performance in delivering the service. Typically, this is a long-term contract lasting 25 or 30 years (NAO, 2003).

PFI aims to deliver Value for Money to public sector through its incentive structure and risk sharing mechanism. One big difference from traditional procurement method of PFI is that PFI using an output specification to deliver the required public services, regardless of the input and process of procurement. Moreover, to incentivise the PFI Project Company (SPV¹), or service provider, to provide better services, the PFI contract adopts an incentive structure through its payment mechanism in alignment with the output specification; if the output service is not in compliance with the output specification, payment deduction and even termination of contract can be incurred.

However, in practice, some empirical problems have occurred in terms of the payment mechanism, and output specification, especially in delivering the soft FM services² in operational phase. These problems origin from the inherent nature of the service, and the effectiveness of incentives related to the cost/benefit effect.

PFI has been adopted in different sectors, for example, health, education and national defence. The nature of service differs based on the diversified nature in different sectors. In some sector, the output specification and payment mechanism can be very complex in the sense of complex services required, for example, health and defence. In some other ones, the services can be not so complicated but still problematic in practice, for example, PFI schools. So, in order to better analyze the question in a limited period of time, PFI schools are chosen as the subject to study in this thesis.

Nevertheless, it is impossible to do a research cover the whole life of PFI schools from procurement, construction to operation. So, this paper will concentrate on the operational phase, in which period the incentive structure will have an important effect on the project.

Moreover, even though there are some organizations that have done research over the operational Schools PFI, there is no research put the practical experience into the economic context. So, this report is trying to employ the most recent economic theory to analyze the reasons and ground of the practical problems involved, and is hoping to make contribution to solving the problems by providing an economic theory basis.

1.1.2 Research aim & objective

This paper will examine the effectiveness of the incentive structure during the operational phase in the context of PFI schools. Particularly, this paper is focusing on

¹ Special Purpose Vehicle

² Soft FM services relate to the ancillary building services such as cleaning and grounds maintenance, while hard FM services covers the maintenance of the buildings themselves

the output specification and payment mechanism, which are believed to be the keys to the incentive structure involved in PFI contract. Empirical reviewing on the PFI schools and academic analysis based on the economics theories have been adopted, so as to examining and better analyzing the elements that decide the effectiveness of the incentives.

The objective of this paper is to provide an indication of the key areas to be considered when developing PFI schools, thus inducing possible improvement in the incentive structure in operational phase. A group of four local authorities in London has been selected to participate in this review. Though the number is limited, the paper is hoping to compare the management styles and methods they've been adopted, and through which gain some practical experiences over the running of PFI school projects. Therefore, proposing possible suggestions to the management of PFI projects during the operational phase and before hand in the procurement phase.

1.2 Research scope and research question

In the context of the PFI schools during the operational phase, this research specifies and focuses on several areas that are influential to the incentive structure in the PFI schools. Specific research questions related to these areas have been identified as follows:

- 1 **Output specification:** Is the output specification complicated? How does the public sector measure the soft-FM services? Is it hard to measure the output in accordance with the output specification?
- 2 **Payment mechanism:** Is it complicated to execute? Has the payment deduction been employed frequently? Are there any difference in occurrence of payment deductions between the availability payment and the performance payment? Has the payment deduction provided enough incentive to the PFI Company?
- 3 **Relationship and the payment deduction:** Since the payment deduction may sour the relationship, is the public sector contract manager willing to enforce the payment induction in services?
- 4 **Output measurement and performance monitoring:** Is the output easy to measure? Are there enough resources (including human power) to measure the output and implement the contract accordingly? Is it costly to monitor performance? If yes, is the public sector willing to pay for the high cost in terms of the cost efficiency? Will the performance monitoring affect the incentive provided by the PFI contract?
- 5 **Bench marking and market testing:** Has the benchmarking and market testing provided enough and useful information to the public sector in negotiating the contract? Will they reduce the incentive in achieving whole-life cost efficiency?
- 6 **Re-allocation of bargaining power:** During the operational phase, has the incumbent service provider achieved monopoly status to some extent? Is the performance satisfying? If not, in an extreme case, is it hard to renegotiate a contract or find a successor to replace the original one?

1.3 Methodology

The methodology is based on the outcomes derived from four independent interviews over four different local authorities. Moreover, literature review and previous research outcomes in this field have also been incorporated into this research, in providing certain quantitative and qualitative proof to the analysis. Economics theories such as

Transaction Cost Economics and Principal-agent Theory have also been applied to the analysis over the issue.

1.4 Research outcomes

This research will contribute to existing knowledge in certain areas. It will:

- Strengthen the theoretical understanding of the incentive structure in the PFI projects, especially the output specification and the payment mechanism,
- Identify the forces in the operational phase that will strengthen or weaken the incentives,
- Develop a clear view over the contract management and relationship management during the operational phase of PFI projects,
- Develop potential solutions to the problematic issues identified in the operational phase of School PFI projects.

The research findings will have specific value in the provision of services in the School PFI projects for the public sector clients in local authorities. It will also contribute to the mutual understanding and relationships between the service provider and local education authority. Moreover, a number of findings can be applied to other sectors engaging with PFI projects.

1.5 Outline of the Thesis

This thesis is structured into four parts: (A) Introduction, (B) Literature Review, (C) Methodology Development, Previous Research and Interviews, (D) Discussion and Conclusion. Part B (Chapters 2 and 3) reviews the existing literature on the basic PFI concept and its working mechanism especially the incentive structure involved in the operational phase. Part C (Chapters 4 and 5) first develops a methodology which is going to be applied in the research. And then it provides secondary and primary data to the research, which are represented by the examination of the previous research and interview outcomes. Part D discusses the findings arising from the interviews and compares them with the previous research outcomes, along with the application of the economics theories. And then, it draws conclusion from the discussion and makes suggestions.

Part B – Literature Review

2. Brief introduction to PFI in UK

This chapter first briefly introduces the history of PFI in UK and the current status in school sector. And then it explains the working mechanism of PFI, particularly the working mechanism of the incentive structure.

2.1 A brief history of PFI

In the early 1990s, rapid decline of public infrastructure inspired the Government to change its policy in infrastructure procurement, especially the way to finance an efficient improvement in the infrastructure (Rintala, 2004).

In November 1992, the Government introduced the Private Finance Initiative (PFI) as a government policy to allow and regulate privately financed public projects in UK. There were two arguments provided by the Conservative Government for the introduction of PFI. First, PFI was to yield improved Value for Money (VFM) for the public sector through economic efficiency. Second, it was to reduce the amount of public sector borrowing and yet increase investment into public services (HM Treasury, 1993). There are three categories that projects initially qualified under PFI: financially freestanding projects, joint ventures and asset-based services provided to the public sector by the private sector (Private Finance Panel Executive, 1992).

In May 1997, the Labour Party took over the Government and redefined the PFI terminology. The three types of projects were renamed as Public Private Partnerships (PPPs), and PFI is redefined as one part of PPP, which is privately providing asset-based services.

PFI has been employed extensively in a number of different sectors, including prisons, schools, hospitals, roads, social housing, wastes and street lighting. Over 625 PFI projects have now been signed with a total capital value of £58.7 billion (HM Treasury, 2008).

2.2 PFI in Schools

Within the school sector alone, there is a £3.881 billion of PFI investment, which has been secured for single school, grouped and multi-school schemes, ICT schemes, and a catering facility. So as of 2006, there have been 80 operational schools PFI schemes, equating to approximately 600 PFI schools in operation (4ps, 2006).

The Private Finance Initiative has made a significant contribution to improving the quality of the school facilities. The DfES has stated that 'Public Private Partnerships (including the PFI) can provide the public sector with better value for money in procuring modern, high-quality services from the private sector' (Department for Education and Skills, 2008). According to the research conducted by Audit Commission (2003), the anticipated advantages of PFI schools are better value for money (VFM), buying services but not buildings, better risk management and, long-term legacy.

2.3 PFI working mechanism and major parties involved

The principle of the *Private Finance Initiative* in Britain is that a private company (a *Special Purpose Vehicle* or SPV, owned at least initially by a group of private sector firms with interests in the project) signs a contract which gives it responsibility for provision of a part of the public services, including the construction, maintenance and servicing of capital assets. In return it receives revenue either from charges or tolls paid by the public, or charges paid to it by the public sector for the availability of the assets (Coulson, 2008).

In a typical PFI project, there are a number of parties involved. The three major stakeholders in a PFI project are the public sector authority, the SPV (PFI Company) and the service user. The service users enjoy the services provided by the SPV; while the public sector authority defines what is required to meet public needs, act as the client in charge with procurement and dealing with SPV. In the context of School PFI projects, the relationships between the three parties can be illustrated in Figure 1 as below:

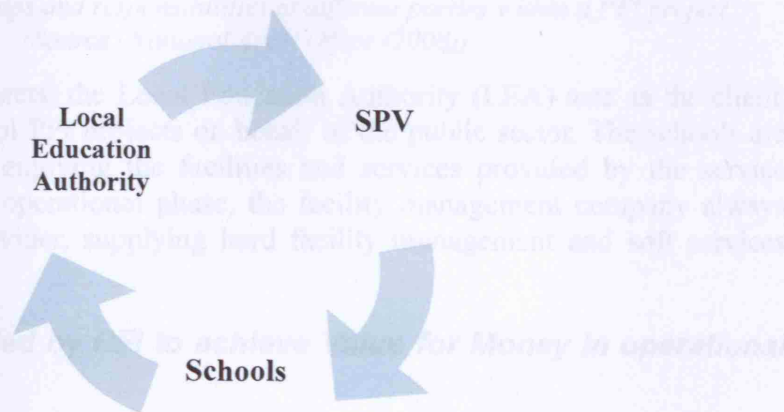


Figure 1: relationships between major parties in School PFI projects
(Source: author)

The relationships between the parties within the SPV are complicated. At least four major parties are involved. Figure 2 below has illustrated the interface and responsibility between each party.

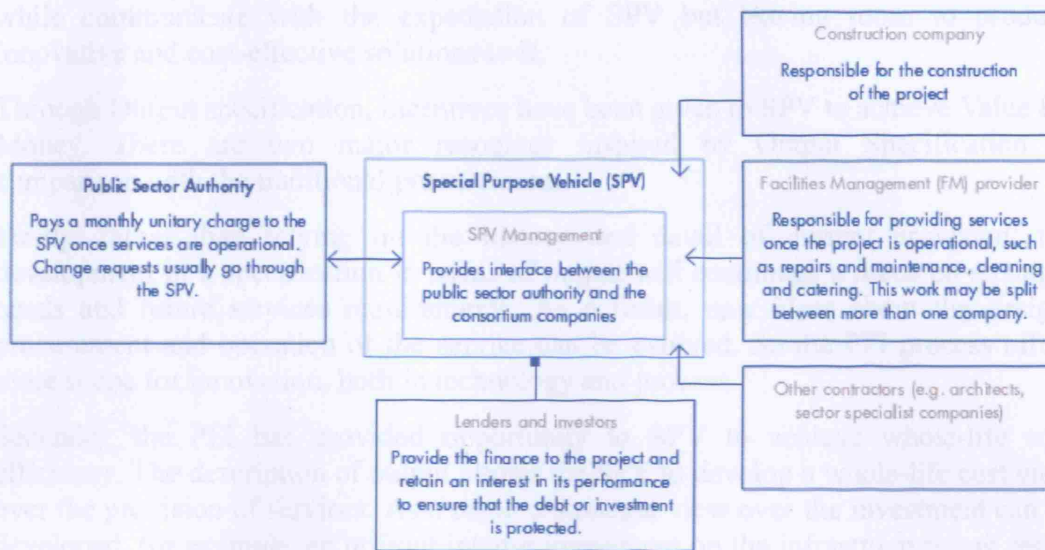


Figure 2: Relationships and responsibilities of different parties within a PFI project
(Source: National Audit Office (2008))

As in Schools PFI projects, the Local Education Authority (LEA) acts as the client, who procures the School PFI projects on behalf of the public sector. The schools are the end service users, enjoying the facilities and services provided by the service provider. While in the operational phase, the facility management company always acts as the service provider, supplying hard facility management and soft services provision.

2.4 Incentive provided by PFI to achieve Value for Money in operational phase

This section explains the incentive structure that provides the incentive to the PFI Company. Except for the output specification, payment mechanism and contract monitoring, attention has also been paid to the methods of coping with problems, namely partnerships and contract management.

2.4.1 Incentive contract

The PFI contract allocates some of the risks, responsibilities and rewards retained by the client in traditional procurement to the SPV. Thus, the client has created incentives for the SPV to deliver the services specified in advance. In the contract, the client employs two mechanisms to reinforce the incentive contract, the Output Specification and the Payment Mechanism.

2.4.1.1 Output Specification

The Output Specification is one of the most important documents involved in the PFI project procurement and operation. The local authority defines the services and outputs required by the service user through the Output Specification. The effectiveness of defining the end without specifying the means is the key to an Output Specification.

A well-drafted Output Specification is crucial to a robust PFI contract and the delivery of long-term services. It must clearly specify what is expected by the local authority,

while communicate with the expectation of SPV but leaving room to produce innovative and cost-effective solutions to it.

Through Output specification, incentives have been given to SPV to achieve Value for Money. There are two major resources inspired by Output Specification in comparison with the traditional procurement.

Firstly, rather than relying on the history and detail of current provision, the development of a specification in terms of output will encourage a focus on strategic needs and future services requirements. As a result, new ideas about the design, procurement and operation of the service can be evolved. So the PFI process offers more scope for innovation, both in technology and process.

Secondly, the PFI has provided opportunity to SPV to achieve whole-life cost efficiency. The description of output allows the SPV to develop a whole-life cost view over the provision of services. As a result a strategic view over the investment can be developed, for example, an upfront intense investment on the infrastructure can result in a dramatic decrease in the cost of operational phase; while in a 30 years' PFI contract, the investment is much less than the savings achieved through operation, resulting whole-life cost efficiency. As illustrated in Figure 3, the on top increase in capital cost before commissioning can be far more less than the dramatically reduction in the operation cost on top during the long-term operational phase.

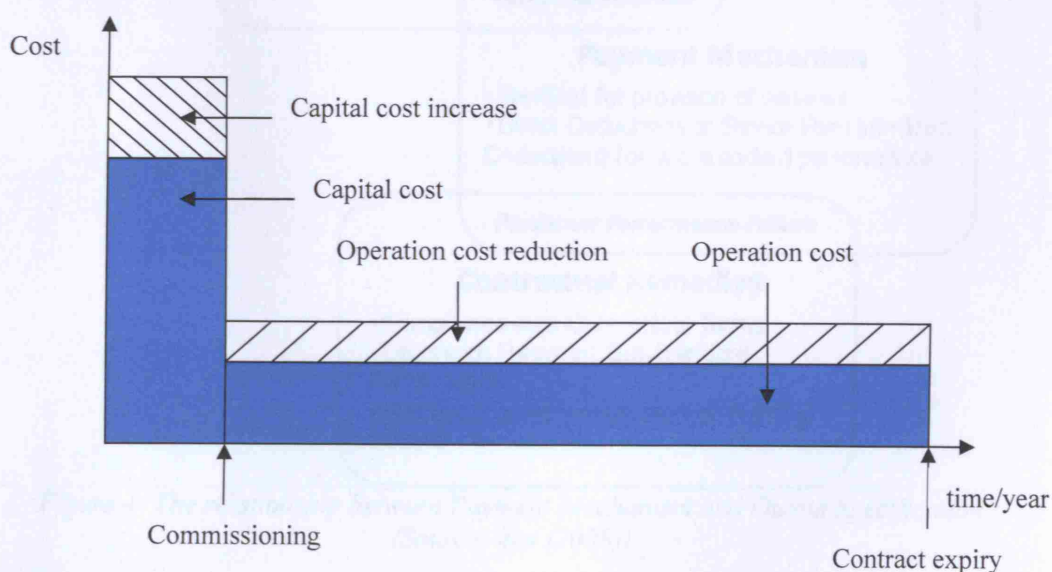


Figure 3: Reduction in operational expenditure through increased capital expenditure (Source: Rintala (2004)).

Moreover, project risks have been better taken care of. Because the approach encourages SPV to develop the methods in delivering the outputs within the context of a fixed, performance-related pricing mechanism (4ps, 2008). Through an efficient risk sharing, better value for money can be achieved.

2.4.1.2 Payment mechanism

Payment mechanism is fundamental to the PFI contract, since it has put into financial effect the allocation of risk and responsibility between the Local Authority and the service provider (4ps, 2008). It links the Unitary Charge to the service provision and

the Output Specification.

The Payment Mechanism defines the service performance indicators, and sets out how the payment and deduction will be made in linking with the Output Specification. If the service provision fails to meet the performance indicators, the SPV will suffer a deduction in Unitary Charge, but the SPV will not receive additional payment in providing services exceeding the performance indicators. The relationship between the Output Specification and Payment Mechanism has been demonstrated in Figure 4.

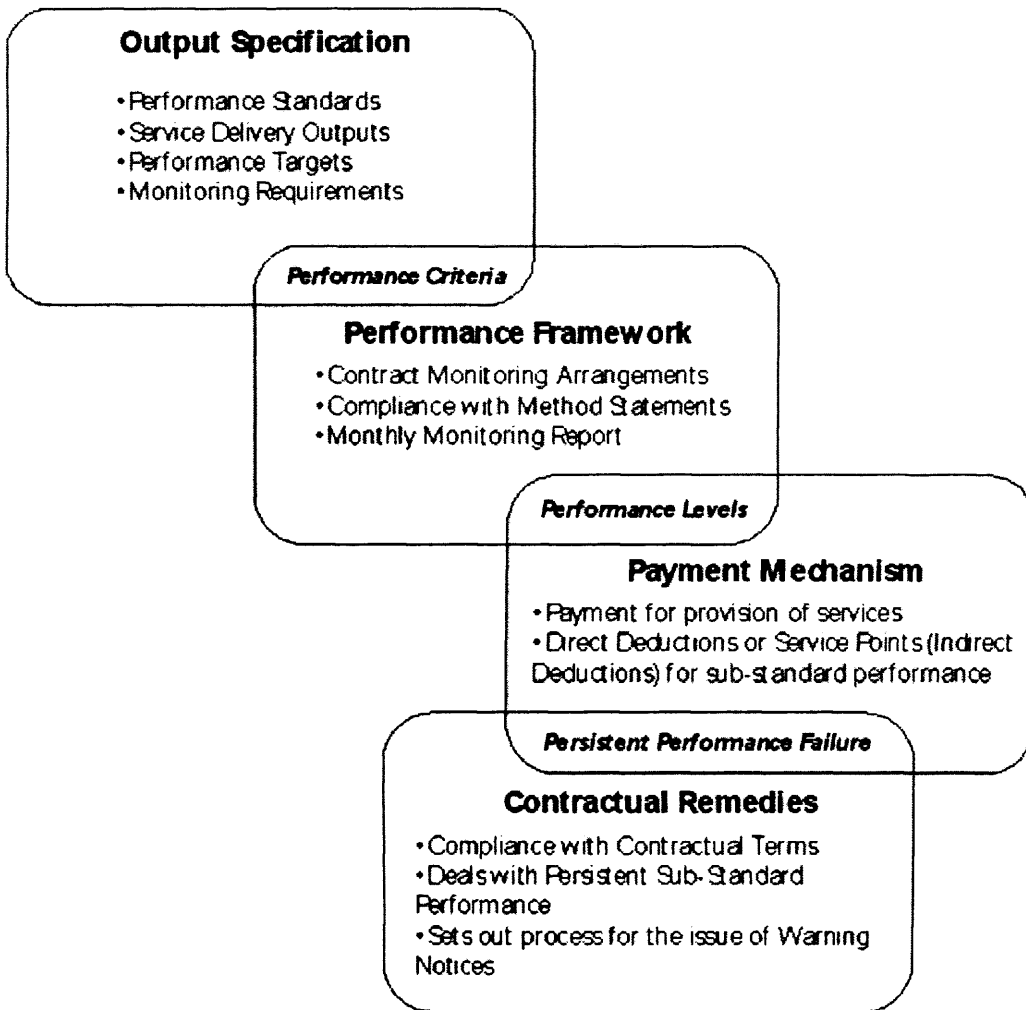


Figure 4: The relationship between Payment Mechanism and Output Specification
(Source: Aps (2008))

The Unitary Charge consists of availability and service components. The availability payment is related to the availability of the project facility, for example, the provision of a classroom within the specified tolerances for a primary school. The service payment is related to the service performance in the operational phase, for example, the cleaning job and ground maintenance.

In case of sub-standard performance of SPV, the Local Authority can take corresponding action in terms of the Payment Mechanism to incentivise the SPV in delivering better services and thus Value for Money. No payment will be made to the SPV until the service is available, and payment should be made only to the extent that the service has satisfied the performance standard agreed in the contract. Moreover, a rectification period has been introduced before the final deduction in payment, which renders the SPV to improve its performance.

In this way, the Payment Mechanism has provided an incentive to the SPV to meet the performance standards in Output Specification, by directly employing deduction in Unitary Charge if the performance fails to meet the agreed standards, or indirectly employ a deduction in the penalty points that ultimately can lead to termination of the contract for continued poor performances; and incentivise the SPV to rectify problems by escalating penalties for worsening performances or failing to act against promptly.

2.4.1.3 Performance and contract monitoring

The effective and cost-saving monitoring mechanism over the performance and contract is fundamental to ensure the Value for Money and incentives brought by the Output Specification and Payment Mechanism. As it is through this process the payments and deductions are negotiated and made to the SPV.

In PFI projects, there is a contract management team in the local authorities in charge of monitoring the performance and the contract. A monthly performance monitoring and payment process is employed, which involves the self-monitoring and reporting the level of compliance for that month. Figure 5 has illustrated the process.

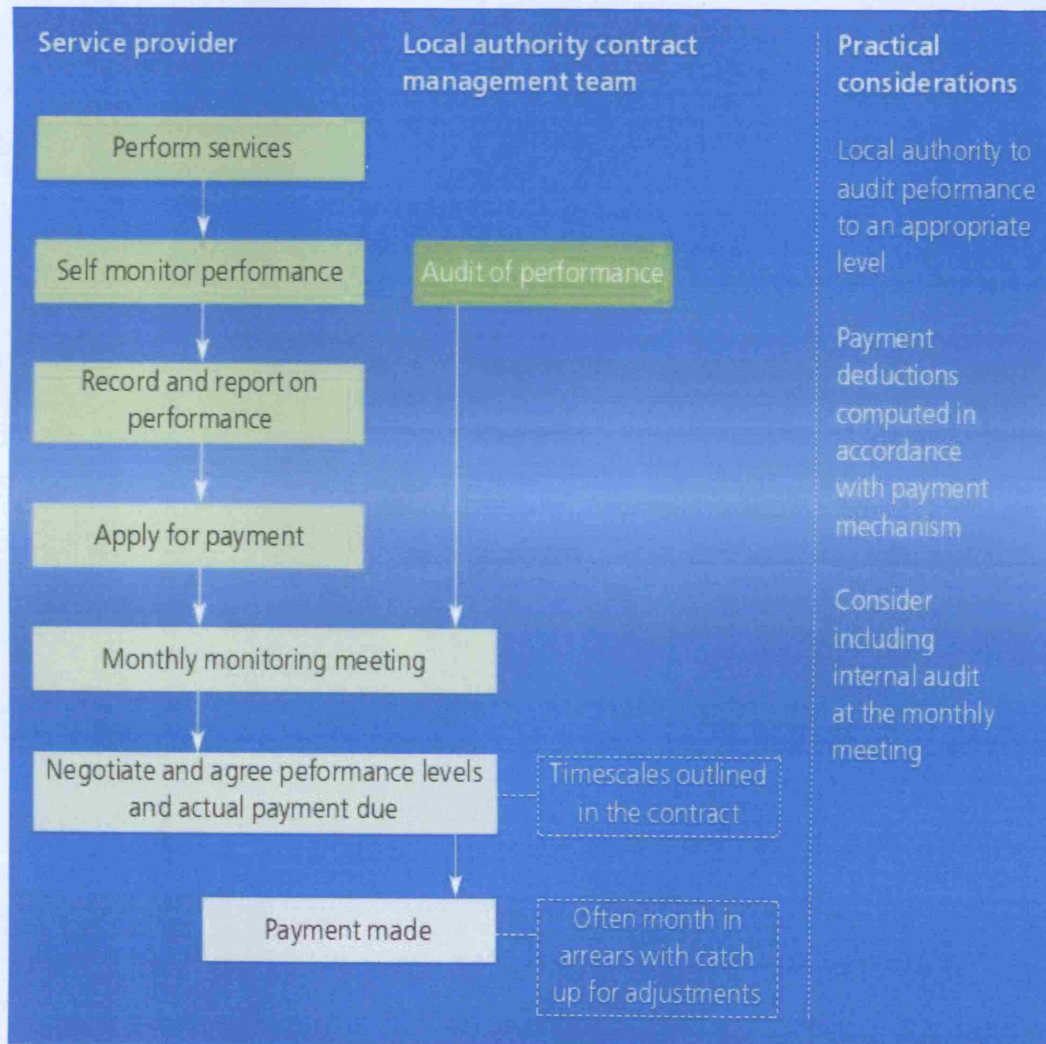


Figure 5: Monthly performance monitoring and management
(Source: 4ps (2007))

Another key tool for contract management and monitoring is the service provider's helpdesk. The service users can log on to the helpdesk and report the problems directly, thus settling the problem quickly and acting as the third party monitor.

2.4.2 Partnerships and contract management

2.4.2.1 Contract management

Contract management is the process of managing and administrating the PFI/PPP contract from the time it has been agreed at contract award, through to the end of the service period. In the operational phase, the contract management is the key to ensure the incentives given by the incentive contract.

There are four key components involved in the contract management, all of which are interrelated and are essential for the success of operational period (4ps, 2007). These components and the principal activities involved are illustrated in Figure 6 as below:

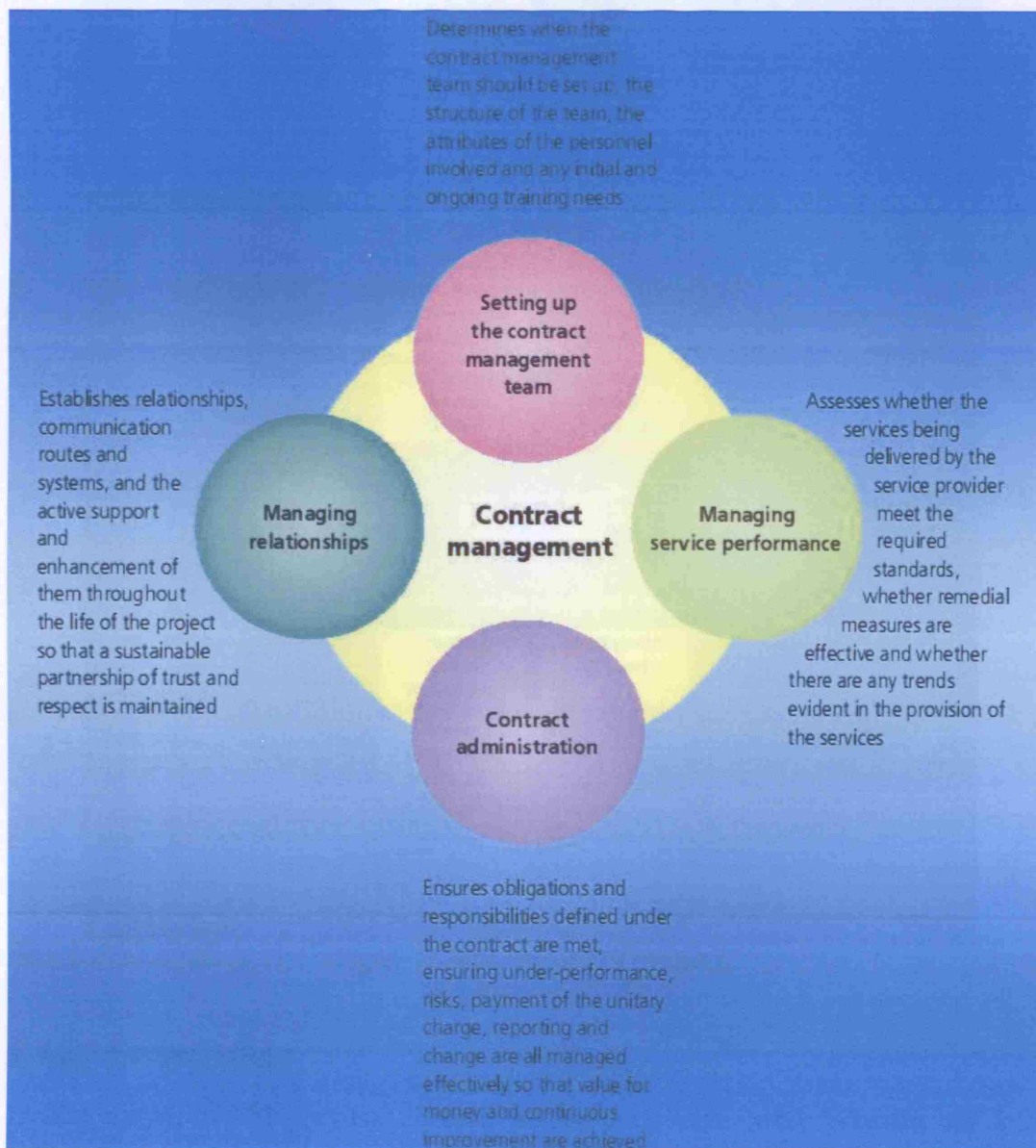


Figure 6: The four components of contract management
(Source: 4ps (2007))

A typical project structure of PFI contract consist of, an operational team, a Contract Management Board and a Partnership Board. Though it is generic, it can be tailored to suit specific local authority and project. The structure represents the lines of communication, the reporting procedures and the relationship between different parties; as illustrated in Figure 7:

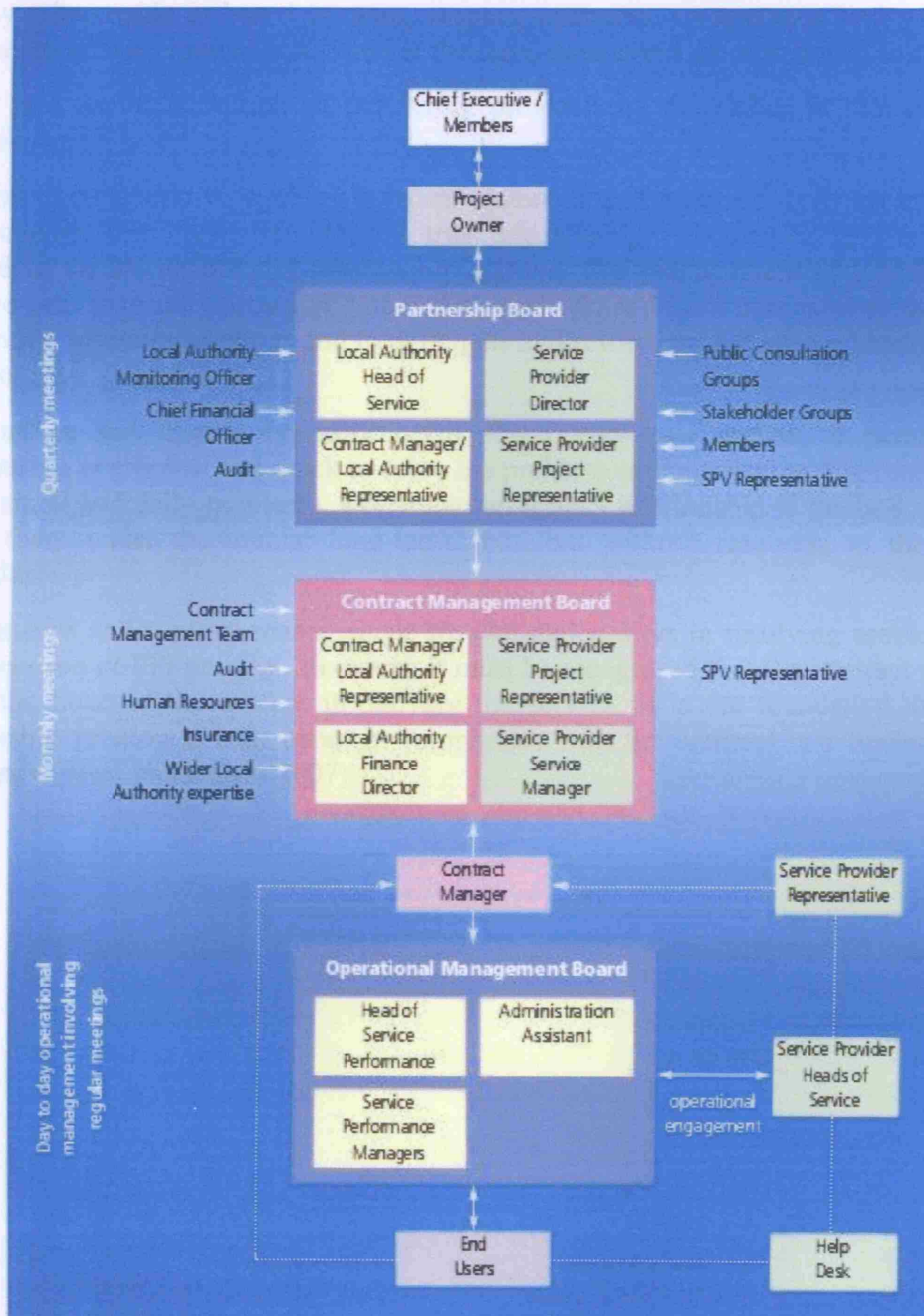


Figure 7: Structure of PFI contract
(Source: 4ps (2007))

2.4.2.2 Partnerships

By the nature of PFI projects, there is a long-term relationship between the local authority, service provider or SPV, and the end user. An effective and successful relationship between the parties can help to achieve long-term success. This can be

achieved through the establishment of a collaborative working relationship, together with systems and communications that actively support and enhance the relationship throughout the life of the project (4ps, 2007).

When ‘things go wrong’ in a PFI project, the contractual relationship will result in a reduction in efficiency which leads to a reduction in value for money. However, a healthy relationship is based on trust, respect, openness, co-operation and working together to achieve mutual goals; and at the same time avoid the adversarial conflict.

There is a useful definition of partnering provided by the Office of Government Commerce:

“A form of collaborative working between customers and suppliers. It is characterised by openness, communication, mutual trust and sharing information. Its success is dependent on the people and relationship aspects. The management of a partnering arrangement is usually proactive rather than reactive, and both parties work together to identify optimum solutions and to anticipate and resolve problems in a constructive, collaborative way.”

As conflict and dispute typically occur for a long-term project, a partnership relationship is efficient and quick to solve the problem without dispute. Especially, for those small and daily problems, a healthy partnership relationship is the best way to solve them under the mutual long-term goal, but without resorting to the legal procedure.

Partnerships and contract management are two major ways in resolving problems in the operation of PFI projects. However, it must be recognised that the contract should be at the heart of the process in delivering the service. It is the foundation that the partnership relation is built upon. In compliance with the contract is a fundamental measure of Best Value (4ps, 2007).

3. Transaction Cost Economics, Principal-agent Theory and their application to PFI incentive structure in operational phase

One major element for PFI project to achieve value for money is through the use of incentive contract. This is achieved by aligning the aims of SPV with that of the client, as the individual incentives are strengthened by held at least partially responsible for the results of their actions; and efficient contracts balance the costs of risk bearing against the incentive gains that result. The theoretical foundations for the incentive contract are laid down in the Principal-agent Theory, while on the other hand, confined by the Transaction Cost Economics.

3.1 Principal-agent Theory

Principal-agent problems are situations in which one party (the principal) relies on another (the agent) to do work or provide services on his or her behalf (Milgrom and Robert, 1992). However, in certain situations the agents perform opportunistically while their actions cannot be monitored and reports are easily varied. Thus the agents have great scope to pursue their own interests rather than that of the principals. So the outcome is completely under the control of agents, which would incur moral hazards³. In order to incentivise the agents to behave in the principals' interests, it is necessary to make them bear certain responsibility of outcomes thus risks upon their actions.

In designing an incentive contract, the monitoring on outcome is preferred to monitoring on actions and behaviours. It is easier to measure the outcomes, rather than the behaviour and effort put by the agents. Imposing responsibility on agents for their performance do expose them to risk, since perfect measures of behaviour are hardly ever available (Milgrom and Robert, 1992). Moreover, paying depends on performance would generate further risk-bearing costs for the principals, as there are random or subjective element involved in the performance evaluation. So the principal can simply pay for the output than monitor directly the effort made by the agents.

However, there are factors un-included in the Principal-agent Theory. Firstly, in certain cases, agents lack sufficient capital to pay penalties, thus undermining the effect of the incentives provided by the penalties. Moreover, some losses are non-financial losses; therefore they cannot be compensated by cash or other financial means, but result great losses to the principal. For example, the unavailability of classroom will result in loss in teaching hours and the education of children, affecting the reputation of the local education authority. Furthermore, agents may have private information, which will be of advantage to them when the principals design the incentive contract.

According to Milgrom and Roberts (1992), there are four principles that should be taken into consideration when design an optimal incentive contracts.

The informativeness principle states that the principals' cost of providing incentives increases with the variance of the estimator of the agent's performance. This is met by excluding any performance measures that increase the error and by including any measure that reduces the error with which the agent's effort is estimated from the compensation formula. In the context of school PFI projects in the operational phase, should the payment depend only on the absolute level of performance of the SPV or

³ The self-interested misbehaviour that violates the terms of contract.

should it depend on the relative level of that performance compared to that being achieved on other similar projects? The establishment of the performance indicators should take into account the elements in accordance with the project environment.

The intensity principle states that ‘the optimal intensity of the incentives depends on four factors: the incremental benefits created by additional effort; the precision with which the desired activities are assessed; the agent’s risk tolerance; and the agent’s responsiveness to incentives’ (Milgrom and Roberts, 1992). In terms of this principle, there are several questions regarding to the incentive structure of PFI schools. First, if SPV composes of agents who are highly risk averse, then the intense incentives may only be able to induce inefficient outcomes. Moreover, the performance measures can be imprecise or subjective, which can, in certain extreme case, inform with an adverse assessment outcome. For example, for the cleaning services, it is hard to describe to what extent is clean, which could be highly subjective crossing different people.

The monitoring principle states that more resources spent on monitoring would strengthen incentives, and the intensity of incentives and the level of monitoring should be determined together, so as to develop an optimal incentive structure. The principle indicates that the more accurate performance information leads to higher optimal incentives. However, monitoring is costly, which in certain circumstances would offset the cost-efficiency thus value for money of PFI projects. Where outputs are heterogeneous and intrinsically hard to measure, the measurement would be very costly. In this case, it may be best to set up weak incentives to these outputs. Moreover, in practice, if the monitoring sources are not enough to comply with the strong intensity of incentives, the effect of incentive contract will be undermined.

The equal compensation principle states that incentives should be assigned equally to a number of tasks taken by the agent, so as to motivating the agent to devote its effort equally to the tasks. From the other aspect, the principle indicates that, the higher marginal return to the agent on specific task would possibly cut back his or her efforts in other tasks, and some activity with the lower marginal return may receive no time. In the operational school PFI projects, there are too many individual services included in the performances measurement; it is hard to assure equal marginal returns are applied accordingly. Therefore, though the payment mechanism helps in some degree, a number of services would be undermined in terms of weak or even averse incentives under the equal compensation principle.

3.2 Transaction Cost Economics (TCE)

Transaction Cost Economics is a recent branch of economics which forms part of the “new institutional economics”. It recognises the possibility that transactions involve costs and uncertainties, most of which origins from three aspects: ‘*opportunism*’, ‘*bounded rationality*’ and ‘*information asymmetry*’ (Mumford, 1992).

‘*Opportunism*’ refers to that other parties acting to pursue their own self-interest with guile or deception. In relating to PFI projects, there can be opportunistic behaviour involved, especially for the SPV which is formed by a number of individual members of different objectives and interests. For example, the construction company’s objective differs from that of the facility management provider, as the construction company would like to reduce the construction cost which may incur higher facility management costs, while the facility management company would prefer a higher investment in construction phase which will probably reduce the costs in maintenance.

Thus, the two parties may act opportunistically towards their own interests.

'Bounded rationality' describes the limitation of humans in holding and processing large amount of information; moreover, it indicates the limited ability of people to construct what information is relevant to the problem and the costs of accessing the information. This is particular the problem while writing the PFI contract. First, since the PFI contract always lasts more than 25 years, it is impossible for people to anticipate all the contingencies with the existing information and experience, for example the shifting of demand, thus incurring further problems in future. Second, even if the contingency has been anticipated, it is hard to describe every possible aspects with words and sentences in contract, therefore leaving potential disputes to the parties in the understanding of contract; this is also the particular problem when writing the output specification, that the human rationality may not be able to describe the output exactly; for example, it is hard to describe the 'cleanness' to degree, as the perception of cleanness would vary from person to person.

'Information asymmetry' refers to the asymmetrical access for different parties to information about deals. There has always been the situation that one party has better knowledge over some aspects of the deal over the other one, for example, the service provider knows better the costs and profit margin of providing the maintenance service than the local authority. This can be applied to the PFI contract. In order to efficiently incentivise the service provider through the payment mechanism, the client have to impose a deduction which is higher than the cost of rectifying the error over the sub-standard service; otherwise, the service provider may choose to take the deduction rather than enhancing the performance. However, the service provider has better knowledge over the cost and possibly conceals the information for his own interest, thus reducing the efficiency of the payment mechanism over the incentives.

Part C – Methodology, Previous Research and Interviews

4. Research Methodology

This chapter develops a research methodology to examine the incentive mechanism in the operational phase of PFI projects. First, the chapter defines the research problem and its theoretical context. Second, it discusses the selection of the research methods. Third, the chapter develops a research strategy, and explains the choices and the selection process of study objects.

4.1 Research problem

The clients, namely the government and the local council, want to deliver value for money through PFI projects. This is achieved by the efficiency gained through the procurement and operation of PFI project, which relies on the mechanisms of risk transfer, task integration, long term contract and incentive contract involved in the PFI projects (Rintala, 2004). However, a typical PFI contract lasts for more than twenty years, and the most of the life span of a PFI project is within the operational phase other than procurement. So the operational phase of a PFI project would reflect the efficiency and the provision of value for money. Moreover, among the stated mechanisms that enhances value for money, the incentive mechanism functions as the core during the operational phase. Therefore, the question that needs to be asked is: is the incentive mechanism successfully working as expected in the operational phase and thus delivering value for money?

The identified question exists due to the short history of the PFI procurement method. Even though there have been a number of PFI projects getting into the operational phase, they've just went through a relatively short period compared with the project whole life cycle. A limited number of researches have been carried out into the practical operational PFI projects, while the PFI projects are continuously improving themselves built on the limited experience and research outcomes. Consequently, there are lots of problems involved in the operational phase, since PFI is not a mature and perfect procurement. *Therefore, the aim of this research is trying to identify the defects involved in the PFI procurement method theoretically and practically, particularly the incentive structure in the operational phase, thus providing useful suggestions and improving the future operational PFI projects.*

The research aim can be broken down into three research objectives, which are:

- 1) to explain how PFI works and how the incentive structure functions in the operational phase,
- 2) to identify the forces and key areas that would influence the efficiency of PFI projects, both theoretically and practically, and
- 3) to provide suggestions over the development of the forth-coming PFI projects

4.2 Research method

Generally, there have two research methods in social science research: the quantitative and qualitative research methods. According to Wing et al (1998), the choice between the two methods in construction management should be a pragmatic one, which is likely to generate practical solutions.

Quantitative research is characterised by developing and testing the hypotheses. Data

concerning the research domain is gathered, through questionnaires or interviews. Then statistical analysis is applied to produce research findings. While qualitative research always builds on a subject with limited amount of knowledge. The objective is to explore new knowledge through gathering and analyzing relative information. The objects of qualitative research are typically people and their perceptions, therefore, the results tend to be not so rigorous. Thus, qualitative research is sometimes referred to as hypothesis generating research (Fellows and Liu, 1997; Amaratunga and Baldry, 2001).

However, in this research, there are not so many preceding researches over the topic, and it is almost impossible to gather data through a large number of questionnaires and interviews in four months. Moreover, the objective of the research is trying to identify the defects involved in the PFI incentive structure through theoretical analysis and practical proof, and then propose possible suggestions to enhance the forth-coming PFI projects. Therefore, in concerning the character, objective and the limits of this research, the qualitative research method has been adopted.

4.3 Research strategy

The research is structured following the general procedure. First, the incentive structure working mechanism of PFI is examined. And then apply the Principal-agent Theory and Transaction Cost Economics theory to PFI so as to generate research questions. Then previous research outcomes have been gathered and summarized as a support to the analysis. Moreover, interviews are taken with public sector project directors and contract managers from Local Education Authorities, and the interview results are used as a practical test to the research questions. After the comparison and discussion over the theoretical and practical analysis, the research will generate conclusions and propose possible suggestions.

However, PFI has been implemented in many different sectors, and the service of each sector has its own attribution. It is un-realistic to research over all the sectors. Moreover, since the time period for this research is limited, only one sector should be chosen. Thus School PFI has been selected as the research area, the service character of which is not too complicated to study, while at the same time is problematic in practice.

The local councils are selected from London area, not only because it has the most School PFI projects, but also because projects within the same district will not differ too much in terms of the market condition, for example, the general costs of SPV and competitiveness of market. Each interview is semi-structured, and a 'Statement of Problem' and a list of sample questions have been sent to the interviewees before the interview⁴, so as to letting them better understand and be familiar with the subject before hand thus being more efficient during the interview.

⁴ These documents have been attached in the appendix.

5. Practical examination of operational school PFI projects

A wide range of local authority PFI contracts have now been operational for a number of years. The first local authority PFI deals were closed in the late 1990s. Evaluations of these operational PFI projects through means of questionnaires and in-depth interviews have been carried out by 4ps, HM Treasury, PartnershipsUK, National Audit Office and other organisations. Particularly, a couple of researches have focused on the Schools PFI, and these researches have revealed the problems involved within the procurement and operational phases.

5.1 Previous research

There are three major studies focusing on the operational Schools PFI, and they are of particular value relating to the current study. The scope of studies and key findings are presented as below.

5.1.1 Audit Commission: PFI in Schools

5.1.1.1 Scope of the study:

This study was published in January 2003. It aims to examine the quality and cost of the buildings and services provided by the early schools PFI projects, and the satisfaction level of service users (Audit Commission, 2003). Comparison with traditional procurement method within the same local authority has been taken. The study has covered a number of primary and secondary schools across England and Wales, and has visited nine LEAs. Moreover, schools and private consortia members have been contacted to gather information as well.

5.1.1.2 Key findings related to this research

- General satisfaction with new buildings as delivered
- Concern about shortcomings of output specifications, especially in respect of acoustic standards
- Lack of up-front investment to ensure a lower long-term maintenance costs
- A partnership approach between contractor, school(s) and authority works best
- Low level of payment deductions, due in part to inadequate helpdesk reporting
- Need for FM provider to be more involved during the bidding stage

5.1.2 PartnershipsUK: Schools PFI – Post-Signature Review, Phase 2 Report

5.1.2.1 Scope of the study:

This study was undertaken under the invitation of DfES (PartnershipsUK, 2005). The research comprised two phases, the phase 1 report was submitted in March 2004, and the following phase 2 study was accepted in May 2004. The scope of phase 2 study comprised three principal areas:

- 1) In depth review of particular projects with LEA officials and schools representatives to probe particular reasons for dissatisfaction.
- 2) Further analysis of survey results received in Phase 1 together with findings from projects interviewed during Phase 2
- 3) Review of other studies, summarising the findings and commenting

5.1.2.2 Key findings related to this research

Differences in impressions of LEA personnel and head teachers on satisfaction with services and buildings

- High degree of consistency of responses between LEA officers and schools representatives in respect of buildings as delivered
- A greater level of discrepancy in respect of satisfaction with services as delivered with 55% of schools rating services worse than that of the LEAs and only 18% (2 schools) giving a higher rating than the LEA.

Resources required to monitor the contract

- The level of resources required in respect of the contract at both LEA and school level has been greatly in excess than anticipated

Payment Mechanism

- A polarisation of opinion on the usability of payment mechanisms with 47% of respondents reporting that the payment mechanism on their projects was “straightforward” or “very straightforward” to use and 35% reporting “difficult” or “overly complex”. Only 18% reported “acceptable”
- More of the projects who reported satisfaction with services reported ease of use than those who reported dissatisfaction with services
- Those respondents who reported negatively on the ease of use of the payment mechanism reported difficulties both with making the calculations and with definition and measurement of performance
- Criticism of insufficiently detailed or objectively measurable performance indicators in output specifications leading to difficulties with imposing payment deductions
- Although some deductions are being made, many of the projects do not wish to penalise the contractor to an extent that the SPV would go out of business and this has caused some difficulties

Specifications

- There is widespread dissatisfaction with output specifications, especially where the quality or performance level or standard is not objectively measurable.

Variations

- There was widespread concern that authority variations and additional small works requirements were not being priced and delivered properly and in many cases authorities and schools believed that they are being overcharged.
- There is need to make sure that providers are incentivised to carry out works which were outside the original scope of the contract and within a timeframe. If this is not done, a controlled ability for the local authority to have recourse to “self help” measures without jeopardising the contract

5.1.3 4ps PFI/PPP operational project review 2006, school sector

5.1.3.1 Scope of the study:

The study is undertaken and published in 2006, following the research of operational PFI/PPP projects across all sectors in 2005. It aims at providing an indication of the key areas to be considered when developing a schools PFI programme (4ps, 2006). The research reviewed a small sample group of six local authorities, and interviewed

relevant parties involved.

5.1.3.2 Key findings related to this research:

Performance management

- Impressive buildings and facilities
- Improvement of out-of-hours and community use of school estate
- Good value for money
- Deductions had not been enough to incentivise the provider to perform satisfactorily

Contract management

- Few changes made to key documents post contract close
- Future variations to Output Specifications are anticipated
- 'Help desk' facilities are employed by most authorities, but resolution of problems is completed to varying degrees of satisfaction

Performance information and monitoring

- Almost all schemes had used a Helpdesk feature and most disputes had been resolved satisfactorily.
- Select issues continued to remain unresolved and processes had not been implemented to acceptable standards during the earlier stages of the operational phase.

Variations

- Very few changes had been made.
- Variations were mainly to accommodate additional school buildings or school amalgamations.
- Changes had gone smoothly due to effective and flexible partnerships.

5.1.4 Summary to the three studies

The three studies have revealed that the service users and local authorities are generally satisfied with the services provided in PFI schools. However, special attention has been paid to the effectiveness of the payment mechanism, output specification, contract management, and performance information and monitoring. Effectiveness of incentives to PFI Company has been reduced by the clarity and level of enforcement in practice. This also relates to the performance information and monitoring. Moreover, except for contract management, the relationship between the parties has risen as an important way to assure the effective operation of PFI schools.

5.2 Structured interviews and derived outcome

5.2.1 Selection of school PFI projects for interview

There are now 107 operational schools PFI projects in England (KPMG, 2008), more than thirty schemes are in the greater London areas. So, in terms of the limitation on time and transport, along with the consideration of the influence on costs and profit margin in different areas, all the PFI schools are selected from the London area. But London could be different that it isn't necessarily representative.

Interviewees are defined to be contract managers and project directors in local education authorities, since they are the people in charge of the daily running and

operation of the PFI schools, thus they are the best fitted people relating to the research. However, since they are all busy with their work especially for the time period that the research is carried out, it is hard to arrange interviews with them. First, invitation emails have been sent out to all the suitable people with the right title in the London area, who are listed in the database of the 4ps website. Nevertheless, only single digit of people has replied, with rejection included. Later on, phone calling have been made directly to different local councils, trying to find the right person and arrange interviews. Luckily, there are four interviewees who have accepted the invitation, with another late reply which cannot be carried out due to the upcoming deadline for dissertation. So, finally, there are four interviews with local authorities partial-randomly selected out, with about twenty operational PFI schools involved. Details of the local council and general conditions of schools PFI programmes involved are listed in the appendix. The documents sent to interviewees prior to interviews have also been attached to this report.

Special thanks should be given to those interviewees who have kindly accepted the invitation and spent their time with patience and intelligence.

5.2.2 Interview outcome and comments

According to the interviews over four individual local councils in London, the experiences and contentment over the PFI school projects differ. The perception of satisfaction level and successfulness over the four councils can be divided into two polarised categories: two local councils hold a positive view while the other two hold a relatively negative attitude in respect to the previous experience over the operational School PFI projects.

Many problems have been revealed during interviews, which are universal in all the council crossing the twenty PFI schools. These problems concentrate on several aspects: soft FM services (measurement in output specification, and the payment deduction on service), demand shifting, contract variation, benchmarking and market testing, continuity of the ownership and staff within the SPV, and relationships (between local authority and SPV, and within the SPV). A note that has summarized the four interviews has been attached in the appendix⁵, and the outcomes and comments have been reorganized in terms of different aspects of School PFI projects as below:

Soft FM services

It is generally agreed that, while hard FM services are going well, soft FM services are usually hard to measure and hard to describe in certain specific areas, especially in a continuous scale, typically including cleaning, ground maintenance, care taking and securities. Take cleaning for example, in an output aspect, the classroom should be clean, but it is hard to describe 'clean', to what extent is 'clean'; this is relatively subjective. However, in traditional method, this measurement is always going on with an input specification, often in description over the input of work force and working hours.

The problem on payment deduction over the soft FM services is also significant, which is not working in incentivising the service provider. Essentially, the unitary

⁵ Due to the confidential reasons, no name concerned the specific project or council has been mentioned in individual problem, but all the information has been summarized as a whole.

payment consists of the availability payment and the service payment. However, the service payment is a relatively small amount compared with the availability payment, and the profit margin for service is low. So the SPV tends to put relatively small attention over the service; some are even willing to take a constant payment deduction which won't cost them too much.

Demand Shifting

School PFI contracts last for 25 to 35 years, which is such a long period that most of the demand will shift both in quantity and quality from the original estimation. For example, a planned primary school accommodating 300 children may not be able to recruit sufficient students in five years which results in a surplus of the service and facilities; while in another extreme case, the facility and service may be not enough to support the escalating number of students and rising service standards. It is hard to estimate the future demands due to the bounded rationality of the human beings and constant change of the world.

Contract variation

The contract variation is typically led by the shift of demand. Since the demand is shifting all the time, contract variations may also need to be employed over certain period of time. However, it is costly and time consuming to employ contract variations. Another problem is that some service provider may have obtained certain monopoly status or bargaining power over a period of time in operation. And it could be expensive for local council to replace the service provider, since it is hard to specify and provide sufficient evidence to support the action. The negotiation and contracting cost is also a problem. For example, in one council, there are a pile of accumulated minor variations for a period of time, and then they renegotiate over variations all at once so as to reduce the costs of contracting. But this will result in a time lag of resolving problems.

Benchmarking and market testing

Benchmarking and market testing are being employed at present over the soft FM services, and can provide reference to local council in pricing. However, all the projects are identical, and the results of benchmarking and market testing cannot be generally applied to the FM provider, due to the existing contract and the variation process. In some case, the result of applying the market testing price to service may lead to higher costs, for example, one project case of this study is linking the price to RPI, which is increasing over years, while taking the service in-house will definitely reduce the costs. Another argument here is that, if a reduction over the service price is employed, the incentive provided by the so-called 'long term contract' and 'whole life cycle costs efficiency' will be reduced, since the unitary over-charge on the service results from the increase of investment over the facilities from the SPV level. If this compensation of the facilities is reduced, the service provider would have to cover the expense either by providing a substandard service or acting passively.

Continuity of ownership and the staff within the SPV

In some case, the share of the SPV has been sold out, which means a possible change in service provider after a period of time, with the same contract and liability in the SPV level. This will result in a discontinuity of service provision, and affect the relationship between the local council and the service provider. While the inconsistency of the management staff will also have an effect on the quality of

services, which depends on the experience and personal attributions.

Relationships (between the local authority and the SPV, and within the SPV)

The relationships between the local authority and the SPV and within the SPV have a significant influence on the service provision especially in the operation phase of PFI projects. If the relationship between the local authority and the SPV, or the service provider is hostile, the whole project can be a disaster; while on the other hand, if the relationship has been maintained well between the two parties, many problems can be solved in a daily basis. For example, the cleaning work and repairing work can be managed through negotiation and mutual understanding.

While the relationship between the SPV as a whole and the service provider can also affect the quality of service. The contract is signed between the Local council and the SPV, thus the routine engagement and influence of the local authority usually goes to the SPV, but not directly to the service provider. If the relationship is bad, the handover from local council to the SPV then to the service provider will not be efficient, therefore, resulting poor quality of services.

Two attitudes and methods towards the management of school PFI projects

Among the four local councils, there appear two different attitudes and methods that dominate the management of operational school PFI projects. One mainly employs the payment deduction to incentivise the SPV to improve the poor quality, while the other mainly employs a relationship management approach and seldom execute a payment deduction.

The two management styles have also lead to different results in terms of the quality of the service provision. The payment deduction generally hasn't given the SPV enough incentive to improve, and the poor performance continues to be a problem. For example, in local council C, they have been employing the payment deduction right after the first month of the operational phase, but the situation has not been improved. While the daily engagement and the maintaining of a good relationship has been experiencing a satisfied level of services and low level of reduction in payment. For example, in local council A, less than £5000 deduction has occurred for a project in consecutively three years, but services are satisfying.

Part D – Discussion and Conclusion

6. Discussion

Incentives discrepancy in payment mechanism

The economic theory of incentive contracts distinguishes between strong and weak incentives to meet a performance target, which are based on the impact on revenue if target has been met. In PFI contract, the incentives provided by the payment mechanism are corresponded to two categories of payments, namely the availability payment and the performance (service) payment. The availability payment has created a strong incentive while the performance payment has only provided a weak incentive. There are a number of reasons that explains the discrepancy of incentive provided by the two payments.

First of all, in a typical structure of payment in a PFI project, the amount of availability payment is much bigger than the service payment. Thus, the SPV would focus on satisfying the requirement of the dominating component of availability payment. Second, the availability relates to a minimum functional requirement, and therefore is discrete and binary; while the performance is usually measured by a continuous scale, taking a 'sliding scale' penalty score. So the severity of failing to meet the target is different, as the availability is 'either fail or not' while the performance can be 'partially fulfilled'. Moreover, the penalties for non-availability are usually 'exponential' in consideration of duration of non-availability, while the performance deductions are always 'one off' for a certain period. Therefore, the penalties of non-availability create a much stronger incentive than the performance deduction.

Under discrepant incentives provided by the payment mechanism, the SPVs take different strategies in dealing with risks over these two kinds of payment deductions under limited resources. They are trying to avoid the heavy non-availability penalties, while in certain circumstances, planning in the risk management strategy to absorb the minor performance penalties.

For the Local Education Authority, it is hard and economic inefficient in trying to get a hundred percent fulfilled performance. So, the LEA can raise the mean level of service in advance, to compromise the substandard performance. Moreover, in terms of the importance of the service, the LEA can put a heavy penalty on such unacceptable sub-standard performance, or on those events of low impact but high probability. At the same time, the LEA can employ the penalty points on a sliding performance scale for the less important services.

Incentives in economic context:

In the economic context, the incentives provided by the client are based on three factors: the marginal revenue and marginal cost to the service provider, and the marginal benefit to the service users.

To appropriately incentivise the service provider, the marginal revenue cost must be less than the marginal revenue received from the payment. Otherwise, the service provider will not be willing to implement avoidance measures, but take the payment deduction. However, in practice, it is hard for the client to measure the actual costs of the service provider, because of the asymmetry access to information which is discussed in chapter three. In this situation, market testing and bench marking have

been applied to the PFI projects as means of reference in negotiating a contract. These measures are built on the data base of continuously collected information of PFI projects and market.

However, these measures have aroused another problem in terms of the incentive to the SPV in achieving whole-life cost efficiency. Because the SPV as an intact consortium will manage the whole-life cycle of a PFI project; therefore, there are chances for them to apply innovation and invest more on the construction process thus reducing costs in the operational phase. To the SPV, the up-coming heavy investment in construction phase must be reimbursed by the future revenue of unitary charge in the operational phase, so as to achieve break-even and earn profits. Consequently, the unitary charge may possibly be higher than the average cost provided by the survey under the bench marking and market testing. So, the payment deduction based on this information on service provider may not be able to accurately reflect costs to the SPV as a whole, thus providing a futile incentive. Moreover, the threat of variation of the unitary charge may act as an adverse incentive to the SPV in the procurement process in achieving whole-life cycle efficiency, thus value for money.

Another problem is concerned with the level of demand criteria to the client. The incentive provided by the client may be inappropriately high, in which situation, the marginal revenue is higher than the marginal cost to the SPV, and at the same time the marginal cost to the SPV is higher than the marginal benefit to the service user. As a result, the spending on the service would be undesirable but not unacceptable, thus reducing value for money to the client. This problem is also subjected to the asymmetry access to information.

Monitoring costs and monitoring intensity

The incentive principle and the monitoring principle in the Principle-agent Theory have informed that, the resources put on monitoring should comply with the intensity of incentives. The more accurate the information of performance, the stronger the incentive is to the SPV in providing the required services. If the monitoring result cannot reflect the real performance of services, the SPV or service provider would act opportunistically towards their own benefits. However, since the monitoring is costly, the dilemma is that if too much resource is being put into the monitoring process, value for money effect will definitely be reduced.

This problem is also concerned with output specification. If output specification is detailed and complicated, it would be costly in monitoring and measuring the performance, thus affect value for money; on the other hand, if the output is ambiguous, it will give the PFI Company more chance to act opportunistically. However, due to the bounded rationality of human beings, it is hard for people to take into account every situation and write a perfect output specification. Consequently, this will reduce the incentive provided by the output specification and payment mechanism.

Contract management and partnering

Contract management and partnering act in two different ways in managing an operational School PFI project. Contract management relies on the clauses involved in the contract, and provides incentives in terms of the penalty proposed by the payment mechanism. While partnering puts more attention on the communication and mutual benefit in long term (HM Treasury, 2006). Another major discrepancy between the

two methods is that the incentive provided by contract management mainly sourced from 'penalty' while partnering focuses more on incentivising through 'long term benefit'.

The design of PFI contract mainly employs the contract management method in governing the operation of the project, which provides incentives through the cooperation of the payment mechanism and output specification. The economic assumption for this is the PFI Company or the SPV is risk averse, thus they can be motivated by bearing part of the risk. However, in practice, this could be not the case, as some of them may even take certain degree of the deduction into allowance in advance, thus there is no incentive for them to improve the performance. Moreover, constant deductions in payment may incur resentment from the PFI Company, particularly in case that the performance standard is too high as specified in the procurement phase or some other disadvantageous conditions due to the unexpected changes.

Another shortage of over relying on contract management will affect the time efficiency. First, even if the incentive provided by payment deduction is working, it is still not efficient in solving the problem since there is a time lag between the deduction and effect on up-coming improvement. Moreover, since not everything can be anticipated in the procurement phase, variation to contract happens all the time. However, it is costly to make variation to contract, thus impeding the process of reacting to the change promptly and reducing the efficiency.

Partnering is another mechanism involved in managing PFI projects. It builds on the mutual long term benefit between parties, thus taking a perspective that not relying too much on contract. It always counts on relationship management, which maintains a constant communication and avoidance of enforcing payment deduction. The benefit of this method is that it can solve minor problems and variations quickly by informal communication and negotiation, but not on resorting to clauses in contract. Moreover, since it counts on awarding to incentivise the PFI Company, it helps to bring about a positive relationship between parties thus a better environment for problem solving. However, there is one obstacle for relationship management. If the relationship goes extremely bad, the contract is the only way to protect the local authority from hazards.

7. Conclusion and Recommendations

7.1 Conclusion

Based on the previous studies by other organisations, interviews with local education authorities taken in London and analysis upon them both theoretically and practically, several conclusions can be drawn out as follows:

- 1) *Output specification*: The output specification in School PFI is generally not complicated; however, particular problem occurs in specifying the soft FM services, which are hard to be measured in a continuously sliding scale.
- 2) *Payment mechanism*: The payment mechanism is not relatively complicated in Schools PFI. But in terms of frequency of employing the payment deduction, there is inconsistency among different projects and local councils, some of them execute deduction quite often while some seldom take one. However, there is one thing in common, that most deductions are on performance payment but not on availability payment, but the amount of the payment deduction of availability is much bigger than that of the performance. In terms of the two components of the unitary charge, it is generally agreed that the payment mechanism has provides an efficient incentive to PFI Company in terms of availability but not performance.
- 3) *Output measurement and performance monitoring*: The availability of facility is easy to measure, while the soft services are harder to measure in a sliding scale. For example, almost all interviewees have reported the difficulties in measuring the cleaning and ground maintenance services in a sliding scale. In terms of the related outcomes of interviews, the local council has put resources into measuring and monitoring the performance and services provided by the PFI Company, there is always professionals, for example contract manager, in place in monitoring. However, it is generally agreed that monitoring performances is costly.
- 4) *Partnering and contract management*: There are two major ways in managing the operational School PFI projects by the local education council, namely partnering or relationship management and contract management. The mainly employed method has an effect on the volume of payment deductions. However, in taking the relationship management method, the local education council seldom employs the deduction, while the other method makes deductions frequently. One phenomenon drawn from the interviews is that the employment of relationship management has a better result in operating the projects than that of contract management.
- 5) *Bench marking and market testing*: Two mechanisms have been employed by the local council interviewed in this study. They do provide useful information to help to negotiate the contract. However, they have their own limits in terms of the differentiated situation of individual companies and incentive of achieving whole-life cost efficiency.
- 6) *Variation*: Variations occur in all the local councils of this study, particularly minor variations occur frequently. In the school PFI, it is hard for the PFI Company to gain the monopoly status as an incumbent, since services provided are not so complicated. And it is not hard for local council to outsource the soft FM services or take it in-house.

7.2 Recommendations

The recommendations made in this section relate specifically to the operational School PFI projects. However, it should be noticed that, these recommendations are based on a relatively short time study and sample schools are within the London area but not nation-wide, so caution needs to be applied in implementing these recommendations. Further research may be conducted with a wide range of samples crossing UK to generate more general conclusions and recommendations.

1) Output specification

Output specification should be more efficient especially on the soft FM service; however, if it is hard to measure for some complex projects, the soft service part may be taken out of the PFI contract and delivered through out-sourcing contract or taken in-house. Moreover, a five year period may be employed for service review and renegotiation of the contract.

2) Payment mechanism

Sharpening the “teeth” of payment deduction in service providing, which means increase the amount of payment deduction, to really hurt the service provider if they haven’t fulfilled their default in contract. Thus evoking efficient reaction of service provider to improve their performances rather than taking the deduction.

In terms of services, the local authority can put a heavy penalty on unacceptable sub-standard performance, or on those events of low impact but high probability. At the same time, the LEA can employ the penalty points on a sliding performance scale for those less important services.

3) Monitoring team

The local council should not underestimate the amount of management time and resources to monitor the contract, and not only rely on the contract itself (say payment mechanism and output specification) to adjust the performance. Senior management officers and experienced management team should be involved in the process, and maintain a frequent contact with the contractor and subcontractor, for example, on a daily informal base.

4) Relationships

In some case, it is not the payment deduction that sours the relationship between the public sector and private sector, it is the failure of providing the required services that souring the relationship.

The local council should maintain a good relationship with the service provider and service users, namely schools. To achieve this goal, there must be senior management team to manage the project, and senior council officers to maintain the relationship with higher levels of service providers and head teachers. But contract management should never been abandoned, as it is the only way to protect the client if the relationship goes worse.

5) Contracting

When contracting, the alignment of the objectives between service provider and local council should be taken into consideration. Because, the desire of improving the quality of life for local children is the most important factor for public sector, rather than the financial achievement that is prioritized by the SPV.

When selecting bidders, public sector should take into consideration of their actual costs and profitability, moreover, the ability to fulfil the default requirement. But not

just selecting the bidder with lower price, with just financial achievement. And the authorities should not pay attention to the contractual interfaces between parties even if the shareholder, construction subcontractor and FM subcontractor involved a consortium are part of the same group of companies.

Involvement of operational phase personnel in the procurement phase may be required for the service provider, to deliver the services continuously in both procurement and operational phases.

6) Benchmarking and market testing

When consulting the results of benchmarking and market testing, authorities should not only take the market price, but also take into account of the costs and profitability of the incumbent service provider. This is relating to the concern of the incentive in providing whole-life cost efficiency from increasing the investment prior to operational phase in reducing operation costs.

7) Incentives

Incentives should not only come from punishment of payment deduction, but also be generated from awarding. For example, some extra work may be given to the subcontractor as a reward from local council, to incentivise them to improve the quality of services.

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Glossary of Terms:

Bench Marking The process of comparing the method, time or cost of an operation, service or product against those of other organisations, preferably thought to be the best in the field.

Contract management means the activities carried out by a local authority to take a PPP/PFI project from financial close through to the end of the service period.

Facilities management (FM) The generic term 'facilities management' is used in a PFI sense to cover all the day-to-day aspects of managing buildings, their systems, equipment and furniture:

– **Hard FM** covers the costs and responsibilities of maintaining the buildings themselves.

– **Soft FM** relates to the costs of ancillary building services such as cleaning and grounds maintenance.

Output specification The specification of the Department's requirements in terms of the desired outputs rather than inputs.

Payment mechanism means the method of calculation of the unitary charge as defined in the contract.

Performance payment The unitary charge (payment) is based on performance as well as availability criteria. Service standards as defined in the output specification are translated into performance measures that are linked to performance points and financial deductions if they are not achieved.

Private Finance Initiative (PFI) A policy introduced by the Government in 1992 to harness private sector management and expertise in the delivery of public services, while reducing the impact of public borrowing.

Service means the requirements of the contract which the service provider has to deliver

Service provider means the local authority's partner in the PPP/PFI contract and includes all of the sub-contractors, facilities managers and other parties who are responsible for the delivery of the services.

Risk transfer The passing of risk under the contract from the public sector to the private finance provider.

Special Purpose Vehicle (SPV) A company specially established to carry out the contract. Shareholders will nearly always comprise (SPV) several companies often including a construction company and facilities management provider.

Unitary charge/Unitary payment means the payment made to the service provider for the services delivered under the contract

Value For Money (VfM) The optimum combination of whole life cost and quality to meet a customer's requirements.

Whole Life Approach Taking a view of the construction, operation and maintenance of the asset over the whole life of the project.

Appendices

- I. Statement of problem (sent to interviewees prior to interview)*
- II. Questions to be asked (sent to interviewees prior to interview)*
- III. Local councils and projects details*
- IV. Interview notes*

Statement of problem
(sent to interviewees prior to interview)

PFI delivers Value for Money to public sector through its incentive structure and risk sharing mechanism. One big difference from traditional procurement method of PFI is, PFI using an output specification to deliver the required public services, regardless of the input and process of procurement. Moreover, to incentivise the Project Company, or service provider, to provide better services, the PFI contract adopts an incentive structure through its payment mechanism in alignment with the output specification; if the output service is not in compliance with the output specification, payment deduction and even termination of contract will be incurred.

However, in practice, some empirical problems have occurred in terms of the payment mechanism, and output specification, especially in delivering the soft service in operational phase. These problems origin from the inherent nature of the service, and the effectiveness of incentives related to the cost/benefit effect.

1. **Output** service is hard to measure: service grading is hard to measure in quantitative measure, particularly in a “continual scale” in some soft service output
2. Problem in **cost index/ market testing**: If there is a possibility of price reduction in future, the incentive for SPV in reducing whole-life cost will be reduced; this is because, the increasing investment in procurement and construction phases by SPV may be compensated by the unitary payment in the operational phase (could be reflected in the soft FM payment)
3. **Incentive** depends on rate of cost/revenue (‘marginal revenue outstrips marginal cost’ induces incentive), if public client doesn’t “know” the marginal costs of providing an extra unit of service quality, how can they pre-set and induce a cost-effective desired level of service?
4. **Unitary payment** consists of soft service payment (FM soft services) and availability payment (construction cost and financial cost); the deduction in soft service payment can be a relatively small part in unitary payment, which gives little incentive to Project Company to deliver better services
5. **Payment mechanism** and **output specification** can be over complicated, so public sector contract manager may not be willing to execute the payment deduction.
6. **Complex nature of services** in some sector (health, defence) may lead to complex service specification and payment mechanism; also, the **Monitoring cost** on output could be large, which will affect cost-efficiency of PFI contract. Therefore, in some case, there may be not enough resource for monitoring the output services, and not efficient impact on the incentive proposed by payment mechanism.
7. **Relationship**: payment deduction may sour the relationship, so the public sector contract manager may not be willing to incur payment induction in soft service
8. **Re-allocation of bargaining power**: after entering operational phase, incumbent service provider may achieve monopoly status, so they may increase the price for service, and public sector may reduces the standard of required service
9. Service provider may raise the price and decrease the quality, as public sector

lacks experience and information in price and quality assurance.

10. **Contract management problem:** Are there enough sources (including human power) to supervise the output and implement the contract accordingly?

Questions to be asked
(sent to interviewees prior to interview)

1. Service Delivery

- Is the performance of the provider as specified in the contract?
- Please provide more information on availability performance
- Is the quality of services being delivered as specified in the contract?
- Is there a service which is performing well/badly and why?
- Are hard fm and soft fm services being delivered to your satisfaction?
- Is the life cycle and general maintenance working? – is it better than if you had procured the asset conventionally?
- Is the asset as per your expectations (if applicable)?
- Has this project released resources away from managing and maintaining the asset and into frontline service delivery?

2. User Satisfaction

- Are the arrangements for service delivery continuing to be satisfactory for both customer and service provider?
- How do you collect information on user satisfaction: do you use methods other than customer satisfaction surveys?
- Do you think that current arrangements are adequate?
- Do you think that the contract delivers to the expectation of your users?

3. Monitoring Teams

- Has the levels of resource required for contract monitoring been in line with original expectations (i.e. at financial close)?
- If the level of contract monitoring has been greater/less than anticipated please explain
- Do you feel that the performance indicators used to carry out performance monitoring are satisfactory? How could they be improved?
- Has contract monitoring / management shown that the risks of the project have been allocated to the party best placed to manage them? If not, where?
- What on-going risk assessment is carried out during the operational life of the PFI projects?

4. The PFI Contract

- Does the contract help?
- Does it cover all the areas adequately?
 - The payment mechanism
 - Market testing
 - Benchmarking
- How often do you review the contract?
- Is it easy / hard to understand and enforce?

5. Benchmarking and Market Testing

- Are the benchmarking provisions working; are the market testing provisions working?

Appendix II

- If too early to carry these out, what provisions have you made to do this?
 - Is there any particular period for benchmarking or market testing for re-pricing of the soft fm services? If yes, how long is the period?
 - Is there enough information for benchmarking and market testing?
 - If there is re-pricing of the soft fm services, do you think it will reduce the incentive for service provider in delivering services? And, do you think it will have any impact on SPV in achieving whole life cost efficiency?
6. *Output specification*
- Is the output specification complicated?
 - Is the output specification easy to measure the soft fm services?
 - Is there any measurement to grading soft fm services, in a quantitative continually scale? If yes, what are the services? If not, is there any particular reason to any particular services?
7. *The Payment Mechanism*
- Does the payment mechanism incentivise the contractor?
 - Is it workable in practice?
 - Is the payment mechanism easy to carry out?
 - How many payment deduction have you carried out in project? And how much is the payment deduction? Which part incurs more frequent deduction, availability payment or soft service payment?
 - Do you think the payment deduction in soft FM service provision in giving enough incentive to service provider to improve the quality of service?
 - Is there any influence on relationship brought by the payment deduction? If yes, is it big?
8. *Change*
- Is the change mechanism working and is it adequate?
 - Impact of any change in shareholding?
 - Is it workable in practice?
 - Is it hard to find a successor for better value for money service providing if terminating the soft FM services contract?
9. *Relationship with Public/Private Sector*
- Are both parties responsive and co-operative under the contract?
10. *Concluding Remarks*
- Is the deal working?
 - Is there anything that you would do differently if you were to do it again?
 - What advice would you give to authorities/ public sector bodies starting the operational phase of a PFI contract?

Local Councils

Local Council	Projects	Operational from
London Borough of Barking & Dagenham	1. Two Schools Project: Joint Service Centre at Jo Richardson School	01 September 2005
London Borough of Newham	2. Newham Schools PFI Project	29 August 2002
London Borough of Haringey	3. Newham - Joint Schools Project: Specialist Sports College (with LB Enfield)	01 September 2005
London Borough of Ealing	4. Grouped Secondary Schools Projects	20 October 2000
	5. Ealing Group Schools Project 1	01 September 2004
	6. Ealing Group Schools Project 2	01 September 2006

Projects information:

1. Two Schools Project: Joint Service Centre at Jo Richardson School

Sector(s): Primary & Secondary

Capital Value £39,760,000

This project provided one new additional secondary school (Jo Richardson Community School) and refurbished and expanded the existing Eastbury Secondary School. Both schools have an extensive range of community facilities and Jo Richardson School also has a Joint Service Centre funded by £4.76 million in PFI Credits from the DCLG. The contract was signed on 30 March 2004 with Bouygues UK Ltd and full services commenced in September 2005.

2. Newham Schools PFI Project

Sector(s): Primary & Secondary

Capital Value £30,000,000

This project provided two new primary schools and a new secondary school to meet the demand for new places in the area. A 1500-place secondary school and two 480-place primary schools. Kingsford Secondary School and new primary schools on Cumberland Road and Eastern Road. Kingsford Community School is a fully inclusive secondary school, providing teaching

accommodation for 1,500 pupils and occupying a 49,681 sqm site. Accommodation is on two and three storeys. The design allows for maximum community usage through shared sports and changing rooms (accessible without entry to the schools), adult education outside core educational hours, arts and craft activities, community clubs etc. Northern Road and Cumberland Road are fully inclusive primary schools providing accommodation for 420 pupils each plus a nursery. These schools occupy sites of 9,900 and 20,255 sq m respectively and are built to a maximum of two storeys. The contract was signed in March 2001 with Norwich Union PPP. The first new primary school and the new secondary school opened in September 2002; the second primary school opened in September 2003.

3. Newham - Joint Schools Project: Specialist Sports College (with LB Enfield)

Sector(s): Primary & Secondary

Capital Value £29,050,000

A 1500-place secondary school on the Woodside Site. Cumberland Specialist Sports College School is a fully inclusive school, providing teaching accommodation for 1,500 pupils and occupying a 13,901 sqm site. Accommodation is on two and three storeys. The design allows for maximum community usage through shared sports and changing rooms (accessible without entry to the schools), adult education outside core educational hours; arts and craft activities, community clubs etc. This was an innovative scheme in that it was procured jointly with the London Borough of Enfield. The contract was signed in September 2003 with Equion plc and the scheme was fully operational by September 2005.

4. Haringey Grouped Secondary Schools Projects

Sector(s): Secondary

Capital Value £62,500,000

This project provided one new secondary school and refurbished seven existing secondary schools. The contract was signed with Jarvis Plc in October 2000. All schools were operational by September 2003 with final construction work finished on the Sports Hall at one site in May 2004.

This project provided one new secondary school and refurbished seven existing secondary schools. The contract was signed with Jarvis Plc in October 2000. All schools were operational by September 2003 with final construction work finished on the Sports Hall at one site in May 2004.

5. Ealing Group Schools Project 1

Sector(s): Primary

Capital Value £33,100,000

This project will provide two new build 2 form entry primary schools, including nursery places (replacing Downe Manor and Ravenor Primary Schools), a new 3 form entry primary school with nursery and a hearing impaired unit (replacing Gifford Primary School) and a new 7 form entry high school (replacing Brentside High School). The contract was signed with Kajima on 18 December 2002 and all schools should be fully operational by September 2004.

6. Ealing Group Schools Project 2

Sector(s): Primary & Secondary

Capital Value £54,150,000

This project will involve the rebuild of two secondary schools on their existing sites and one primary school on an adjacent site. Acton and Greenford High Schools will be rebuilt and a new school with a nursery unit attached will replace Featherstone Primary School and Glebe Nursery. Works and ancillary services which are likely to include the following: Design, Build, Financing and Operation of 3 replacement schools including classrooms and education spaces (including nursery facilities), ancillary spaces, community facilities, playgrounds and sports provision for primary and secondary pupils. Two of the schools have sports facilities which are currently also used by the community. Facilities Management and related services will also be provided. It is anticipated that will work start on site by the early spring 2005. The new Featherstone Primary and Glebe Nursery School is scheduled to open in the summer term 2006 and the two high schools the following autumn. Once the schools are open the existing buildings will be demolished and the grounds landscaped.

Interview notes

The interview notes taken respectively in four different local authorities in London have been reorganized in terms of several key aspects in the operational phase of school PFI projects. Due to the confidential reason, no specific name of council has been mentioned in relation to comments.

1) Output specification

“Output is hard to measure, soft service output specification is rubbish, we don’t bother with that, just ask private sector to put in bids. Price for soft services is too high, would be cheaper in house. But in terms of assets and hard FM facility, it is ok.

In two to three years in future, clients don’t know the change. It is burden for clients to specify the needs.” *Council A.*

“Output specification is too generic. It is quite difficult to tie the supply down to output specification, and hard to apply the payment mechanism.

The issue that sours the relationship is the contractor failed to fulfill their default in the contract. The specification is too high, and the SPV cannot make a profit to deliver the required service.” *Council C*

“It is hard to specify the requirement in the output specification.” *Council B*

2) Payment mechanism

“68k – 70k deduction has been applied in the first year, most of them on availability, some in performance but little. A possible reason for a low deduction on performance is, there is a rectification period for SPV to enhance their services.” *Council D*

“In practice, we recognize the regulation, and tell the contractors we don’t want to impose the deduction. Just a few deductions have been employed, over the last 3 years with only about £5000.

PFI contract protects clients only in extreme case. For operation contract, we don’t want to hate people, but collaboration. Therefore, we don’t conduct payment deduction.” *Council A*

“Overall, the construction is working well, but should focus on measures on output especially soft FM, and the payment mechanism should have more teeth.

The pricing mechanism is too weak, in terms of the penalty is not severe enough to make any significant difference to the subcontractors’ performance. The council has strictly enforced the deduction, but it is cheaper for subcontractors to take deduction rather than investing on service. When contracting, the contractor price cheaply, the price is not profitable for contractors, but the council just contract with the subcontractor of lower price between several bidders.

The payment deduction employed is high in volume, but low in price. An average of 15,000 to 20,000 a month has been conducted over a 4.5 million payment each year, for 8 PFI schools. The deduction has been deducted since the first month, and there is always a deduction, so it doesn’t sour the relationship, because it is always there.” *Council C.*

“ When PFI company does not perform as required, they are not directly imposed by payment deduction. There is a minimum money deduction for penalty in terms of

service. The unavailability is different, it is written down and much easier to apply. Most part of the payment of unitary charge is for the capital elements, quite a small elements is for the services. A lot of unsatisfactory services haven't hit the thresholds. The payment to service is not high, so the incentive provided by the payment mechanism is that high in operation. Over the five years, it is less than 15,000 pounds of payment deduction for the PFI schools." *Council B*

3) *Monitoring team*

"We have a contact with service users on a daily basis, and long time problems will be solved on weekly meetings or monthly meetings." *Council A*

"There are two professionals monitoring and managing contracts." *Council D*

"The council has PFI monitoring officer to track every report and calculate every deduction, focusing on getting services the council need.

The council should not underestimate the amount of management time and resources to monitor the contract." *Council C*

4) *Relationships*

"In the SPV level, they need to realize they are dealing with a long-term relationship, not a short time contract. The council has invested on long-term relationship.

The thing is that FM manager is the key who manages all the things and relationship on site. If you got rubbish manager, it is a nightmare.

The relationship is totally different from other businesses. SPV is like a shell, and the core is formed from all other parts. For example, the builder has gone after the completion of his work, even if there is something going wrong, but the SPV is still there, taking the responsibility. People are engaging a long-term relationship.

There is a reputation issue for the company. They want to be a big player, they want to win other business, so they have to maintain reputation. The client can possibly play on that part.

None of the SPV has sold out their shares they engaged. If they sold out, you got different provider in, with the same contract and liability. The relationships may change, and the services cannot be guaranteed. Still, client has influences on SPV; they can put some pressure on it to change the personnel, for example, a poor service providing manager. But when the relationship between the SPV and FM provider is poor, this is going to cause problems. And if the SPV cannot manage the FM provider, it would be a nightmare." *Council D*

"We depend on hands over relationship. We also do well in flexibility, and we told all the bidders we want VfM from the buildings.

We invest on relationships. Moreover, they meet contractors in a frequent basis, say everyday, more than once a month on top of the contract.

We want to avoid deductions in PFI project. Even if personnel change, the relationship still keeps on." *Council A*

"The whole objective is not to macro-manage the contract. The contact with SPV has been taken back to subcontractors, which causes problem. The ownership of SPV has changed for 3 times, however, the commitment by SPV should be transferred through procurement process.

Appendix IV

The objectives of the two parties deviate, since the SPV is trying to make profit, while the local council is trying to develop partnership and improve the quality of life for children. SPV is just financial engaged, but council wants them to be emotional involved as well.

Need to have senior management team to manage it, and senior council officer to maintain the relationship with higher level of service providers and head teachers. The senior management involvement is vital for all the parties, and maintains the relationship and partnership in an informal base. Should align the objective for the two parties.” *Council C*

5) Benchmarking and market testing

“Market testing helps, but increases prices a lot (linking to RPI). School gets trouble, since the enrollment of students may drop, while the costs is fixed for PFI schools (otherwise, schools will squeeze the size and save money). So schools may lose flexibility.” *Council D*

“The council has been taking bench marking test after first 5 years, which results in significant rise in costs. The bench marking is in cleaning and ground maintenance costs, and the SPV has underestimated the costs.

The estimation of maintenance service is hard to measure, until the construction work is finished. Thus, we suspend the FM services under the PFI agreement, and review the FM service contract price every four years, so the unitary payment is based on the construction costs, and FM service price is based on the periodic market test.

While benchmarking may suggest a price, but schools may not be willing to pay more because they’ve been suffering bad services.” *Council C*

“We have been conducting bench marking for 5 years, and we are thinking about taking catering and cleaning out of the contract. It is hard to conduct bench marking, because every project is different. And it can’t be applied to put into the market price. A lot of factors will affect the price and market.” *Council B*

6) Incentives

“The deduction scheme is not working at all. Theoretical reasoning of HM has a fundamentally flaw in deduction scheme. Since people’s incentive comes from benefits but not from penalties.

PFI has strength in life cycle. Transfer of risks and flexibility don’t have value for money at all, especially in soft services (care taking, cleaning etc.)

The profit margin for contractors is much more than the market price. We give more extra work to contractors to motivate them. Incentive doesn’t really come from PFI.

If given a chance to re-do the PFI, we will design a contract with incentive involved in it; which reminds contractors to do a better job, and give extra work to them as a client gift, because they do more work, they can earn more.” *Council A*

“PFI contract does have provided incentives, but in certain area, payment mechanism is not working well. For FM Company, because of the small profit margin, the council doesn’t want to employ deduction to force them hard, and the FM Company will desire to deliver the service.” *Council D*

“The payment mechanism is not strong enough, the output specification is too generic

Appendix IV

in many areas, and has very little leverage over the SPV and subcontractor to improve the service.” *Council C*

“Payment mechanism is not working. No incentive provided to the PFI company by the authority.” *Council B*

7) *Variation*

“We have a large backlog of construction variation in PFI. While negotiating with SPV, the life cycle costs are high, because they want to recover the costs and improve the profitability of the contract through the variation.

The variation is always expensive, since both main contractor and subcontractor will all markup on the prices one another. The service may be inconsistent because the chain is too long (main contractor to subcontractor to sub-subcontractor and so on).”
Council C

“Change and variation in contract is costly, but education changes all the time. Though authority wants to be flexible, changes still happen, and cost a lot of money and time. We’ve got 100 variations per project, and introduced “third party lets” in solving the demand shifting. It is hard to negotiate the contract in variation.” *Council B*