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New delivery models for
public infrastructure projects

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A photograph of two construction workers on a steel structure against a clear blue sky. The workers are silhouetted against the bright sky. One worker in the foreground is wearing a red shirt, and another worker behind them is wearing a green safety vest and a white hard hat. They are both reaching up to work on a complex network of steel beams and cables that form a large, curved structure, possibly part of a bridge or a large industrial building. The overall scene is one of active construction and infrastructure development.

Contents

Foreword	1
Executive summary	2
Why new models are needed	3
New delivery models to meet today's challenges	7
Choosing the right delivery model	13
Conclusion	15
Appendix	16

Foreword

Infrastructure development remains at the heart of the modernisation of UK public services. From the upgrade of secondary schools to the development of new IT systems, the public sector has rarely been under such pressure to deliver effective and efficient improvements in its infrastructure.

The public sector has always worked with private sector partners to help deliver its infrastructure requirements – typically through so-called ‘conventional procurement’. Recent years have seen the private sector play a new role in the Private Finance Initiative (PFI), and the partnership models of Local Improvement Finance Trusts (LIFT) and Local Education Partnerships (LEP). However, these schemes continue to be subject to considerable discussion and debate.

This report focuses on assessing alternatives to conventional procurement. It attempts to evaluate the PFI and LEP/LIFT models and describe the conditions in which they are likely to work best. It proposes five new delivery models that Deloitte believes have the potential to offer improved outcomes in situations where neither PFI nor LEP/LIFT is suitable.

We believe that the PFI and LEP/LIFT models will go on being good options in many situations, but that they need to be supplemented by alternative approaches if the public sector is to achieve its infrastructure objectives. Our aim is to raise the awareness of the public sector to a broader range of delivery models than those commonly considered and to provide a rough and ready guide to their selection.



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Executive summary

Existing models such as the PFI and LEP/LIFT are not sufficient to meet the public sector's infrastructure needs. While both the PFI and LEP/LIFT models work well in many circumstances there is a range of situations for which they are unsuitable. The PFI works best for large projects in conditions of relative certainty. The LEP/LIFT model can be more flexible than the PFI, but concerns have been expressed regarding its value for money owing to a lack of competitive pressure. Importantly, there are significant risks from using either of these models where uncertainty is serious and cannot easily be reduced.

New policies and likely changes to accounting rules are putting increasing pressure on the use of these models. The introduction of market mechanisms is bringing new uncertainties into the provision of health and education services, while possible changes in the accounting treatment of PFI may mean that some off-balance sheet schemes come back on-balance sheet. In addition, the nature of the infrastructure challenge is evolving. In many sectors there is now a need to deliver upgrades (rather than new build), and infrastructure solutions that are subject to considerable future risks and uncertainties (e.g. in technology or waste). These are areas in which the PFI and LEP/LIFT are either untested or unsuitable.

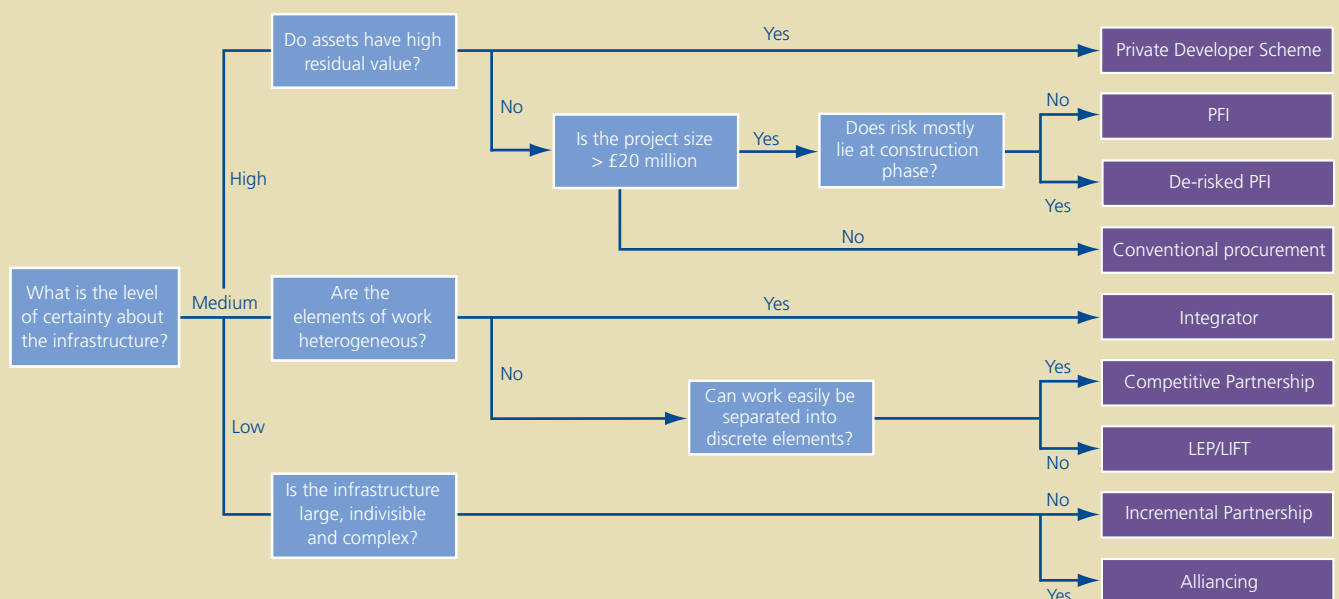
New models are emerging which can help to meet some of these challenges. In some circumstances the affordability of PFI schemes is being improved through a more selective transfer of risk to the private sector partner (see pp. 7-8). The LEP/LIFT model is being adapted through a stricter separation of the project development and delivery roles. It can also be modified by using a structure that puts private sector partners in competition with each

other. These are referred to as the 'Integrator' or 'Competitive Partnership' models (see pp. 8-10). Where uncertainty over the future needs is serious and unavoidable the 'Alliancing' or 'Incremental Partnership' models are being used to enable projects to go forward (see pp. 10-12).

The level of certainty the public sector has about its infrastructure and service requirements should be a key determinant of the choice of model. A high level of certainty suggests that the main options are a Private Developer Scheme, PFI or conventional procurement. The Integrator, LEP/LIFT or Competitive Partnership models should be considered where there is more limited certainty. A low level of certainty suggests the use of Alliancing or Incremental Partnership. The decision tree in Figure 1 is intended as a tool for public sector organisations to provide indicative guidance as to the delivery model that is likely to be most appropriate. However, it does not present an exhaustive list of models, and any decision to choose one model over another should always be derived from a robust options appraisal, based on the specific circumstances in which the project is being developed.

By applying a broader range of models in the right circumstances, public sector organisations can improve the likelihood of achieving their infrastructure objectives. The PFI and LEP/LIFT models will continue to be good options in many situations. But if public sector organisations are to meet the challenges posed by ongoing uncertainties amid a changing policy environment, increasingly they will need to utilise a broader range of delivery models. If they do so, they will increase the likelihood of meeting their infrastructure objectives in the future.

Figure 1: Decision tree for the selection of an appropriate infrastructure delivery model



Note: For indicative guidance only – the choice should always be tailored to the individual circumstances.

Source: Deloitte Research, 2006.

Why new models are needed

Emerging problems, policy reforms, and uncertainties

The United Kingdom has been at the forefront in developing innovative models for the delivery of public infrastructure projects. Since its emergence in the early 1990s the PFI has evolved and adapted to meet changing needs and requirements. More recently, the LEP/LIFT model was developed to help meet challenges for which PFI was seen to be unsuitable. This section explains why the PFI and LEP/LIFT models will not be sufficient to meet the public sector's needs, and therefore why this innovation must continue. A description of the PFI and LEP/LIFT models together with a fuller description of their merits and demerits can be found in the Appendix.

Where PFI works

The PFI has many advantages. It enables public sector organisations to spread the cost of infrastructure investment over the lifetime of the asset, avoiding some of the uncertainties present in conventional procurement. In addition, because the payment mechanism is aligned with project objectives, PFI offers improved likelihood of projects being on time, to budget, and meeting the original specifications. It also encourages a focus on value for money over the lifetime of the asset. Finally, because of the high level of risk transfer typically involved, PFI projects can be off-balance sheet, which can be desirable from the perspective of departmental budgets and economic indicators.

However it also has some disadvantages that make it unsuitable in some situations. The PFI can be a high cost option owing to the costs of procurement, risk transfer, and private finance. The cost of procurement is high, because of the length of time taken to reach financial close – which is typically two years or more. The cost of risk transfer can be higher than the cost of retaining the risk in the public sector, particularly where uncertainties mean that the private sector partner expects a significant premium to compensate for the possibility of downside risk. Finally, the cost of private finance is typically higher than the cost of public borrowing. For PFI projects to be value for money these costs must be exceeded by the savings.

PFI can also be inflexible due to the length of contracts and difficulty of changing requirements. Although it is possible to build in opportunities to change service requirements during the contract term, this will be cost effective only where the scope of such change is reasonably predictable. This is because, once appointed, the PFI contractor is in a strong position in any future negotiations over contractual changes. Furthermore, in practice the public sector is often reluctant to appoint a new provider because of the consequent complexity and potential for conflict that could be generated.

Due to the cost of procurement, PFI is rarely considered for small projects (less than £20 million in value)¹. It works best where the public sector can have a relatively high degree of certainty about future service requirements. Then, the services can be properly specified, and the public sector can achieve the benefits of whole-life costing and strong performance incentives. The public sector can also avoid the costs of risk transfer in conditions of uncertainty and future contractual change. On the other hand, where certainty is lower – perhaps because of a lack of knowledge of the condition of the assets, or of future service requirements – the PFI's disadvantages begin to outweigh its advantages. (See Figure 2).

Figure 2: Advantages and disadvantages of the PFI

Advantages	Disadvantages
Ability to spread cost over lifetime of asset	High cost
Greater predictability over cost and time	Length of procurement
Focus on value for money over lifetime of asset	Inflexibility
Strong performance incentives	
Potential to be off-balance sheet	

Source: Deloitte Research, 2006.

Where LEP/LIFT works

The LEP and LIFT models were developed partly to facilitate infrastructure development in some of the situations where a conventional PFI scheme might be less suitable. In particular, the aim was to enable a combination of new build and upgrade work to be carried out in successive phases without the need for several lengthy procurements. In addition, there was a need for a model that could allow work to begin where there was continuing uncertainty about the exact timing and scale of the work to be carried out over the lifetime of the project.

It is early days in the experience with the LEP/LIFT model; however it is possible to identify its principal advantages and disadvantages.

It has the advantages of lower procurement costs over the project life (because only one EU procurement is typically required), greater flexibility over programme delivery (because work can be commissioned in separate phases) and an ability for the public sector to continue to influence the direction of investment (because of the joint venture structure). The retention of a single strategic partner throughout the project has the potential to enable continuous improvement through successive phases of work. In addition, there are potentially significant advantages from the commercial input of a private sector partner early in the planning phase.

However, it also has some disadvantages. In the case of both LIFT and LEP there is a potential conflict of interest for the private sector partner. This is because the partner has both the role of seeking to ensure maximum value for the public sector but also of frequently carrying out most of the work.

The effectiveness of the LEP/LIFT model depends on the use of benchmarking² as a means of ensuring the value for money of subsequent phases of work. To this end, Partnerships for Schools is investing in the development of a comprehensive benchmarking database that it hopes will provide robust data to ensure the value for money of LEP proposals.³ The intention is that the public sector can use this data to establish helpful parameters of cost and quality for their schemes.

While benchmarking of this kind can be a useful tool, in some circumstances it does not offer sufficient assurance that value for money will be achieved. The first phase of work may not provide a sufficiently clear benchmark for further work if subsequent phases are significantly different from the first. Site specific costs and the existing condition of the infrastructure cannot be benchmarked. Furthermore, there are always numerous possible explanations for why a proposal might depart from the established benchmark.⁴ This means that in practice it may be difficult for the public sector to know whether or not proposals constitute value for money.

Furthermore, although the public sector retains the right to use alternative providers if it is unconvinced of the value for money of the LEP/LIFTco proposals, in practice it is unlikely to do this. This is because if it did so it would immediately lose the primary benefit of the model – the presence of a single strategic partner to manage the programme of work and provide continuous improvement.

In any event, benchmarking is unlikely to offer the same kind of savings that direct competition provides. Data from the Building Cost Information Survey (BCIS) shows that procurements that are carried out without direct competition are on average 11-13 percent more expensive.⁵

Accordingly, the LEP/LIFT model will work best for projects where benchmarking is an effective tool for ensuring value for money. These are projects whose elements are relatively homogeneous in nature – i.e. of the same kind and subject to the same expectations on cost and quality. Where projects are composed of many different elements, and vary considerably from one place to another, benchmarking will be less effective.

Because the model offers greater flexibility and lower overall procurement cost, it is also suitable for projects in which the infrastructure needs and objectives are relatively clear, but where there is a degree of uncertainty about the timing and scale of the work that will be carried out.

Figure 3: Advantages and disadvantages of LEP/LIFT

Advantages	Disadvantages
Lower procurement costs over project life	Conflict of interest for strategic partner
Flexibility over programme delivery	Reliance on benchmarking to ensure value for money
Ability for public sector to retain influence over strategic direction of investment	Strong disincentives to utilise alternative providers
Potential for continuous improvement throughout successive phases of work	
Early commercial input from private sector partner	

Source: Deloitte Research, 2006.

The problem of uncertainty

Both the PFI and LEP/LIFT models require a degree of certainty about the type of infrastructure or services needed. In the case of PFI, the public sector needs a high degree of certainty about the desired output specification; in the case of LEP/LIFT, the public sector needs relative certainty about the kind of infrastructure required, but can be less certain about the scale or timing of the work.

But neither scheme will work well where there are serious and irresolvable uncertainties over the required infrastructure and services or the cost of meeting those requirements. Such uncertainties might be present as a result of: latent defects (flaws in the infrastructure that are not apparent until work commences), policy changes (which imply a change in service requirements), demand risks (resulting from e.g. the introduction of user choice), changes in public needs, or rapid changes in technology.

The potential implications of applying these models where such uncertainties are serious are one or more of the following:

- The private sector partner requires a significant risk premium to compensate for the uncertainty.
- The public sector needs to change its specifications post-contract, leading to extra costs.
- The public sector is stuck with a contract that fails to meet the public's needs.
- In extreme circumstances contracts have to be terminated at considerable public expense.

As it stands, one of the central issues is therefore how to develop infrastructure solutions in situations where such uncertainties are present.

New infrastructure challenges

While these models are least applicable in conditions of serious uncertainty, it is precisely here where many of the remaining infrastructure challenges lie.

For instance, there is a significant need to provide upgrade and refurbishment of existing schools, health care facilities, social housing and road and rail networks. But refurbishment and upgrade projects are less suitable for the PFI because they often involve a risk of latent defects.

In addition, in some areas, the infrastructure requirements are subject to significant technological uncertainties. In the waste sector, there are uncertainties about the optimal technical solution to enable local authorities to meet the EU Landfill Directive. In many areas of defence, it is often unclear what kind of infrastructure solution is technologically possible – let alone whether it would be affordable or value for money if it were possible. Information Technology (IT) projects are subject to well known uncertainties and complexities that make them unsuitable for delivery under a PFI model.



Building flexibility

New delivery models for public infrastructure projects

A changing policy landscape

While the limitations of existing models are becoming more apparent, changes in the policy and financial framework are also putting pressure on their use.

For example, in health the government is introducing patient choice and Payment by Results in the secondary care system. This will mean that money will increasingly follow the choices of patients who will seek the best combination of care, convenience, and waiting time. As a result, hospitals may need to be able to adapt their infrastructure and services at relatively short notice in order to meet changing public needs and demands. While this is an issue that could potentially affect all hospitals, regardless of how they have been procured, it may be particularly challenging for hospitals procured under PFI. In the case of PFI hospitals, any future changes to the infrastructure or service requirements would have to be negotiated with the private sector contractor. Given the strong position of the private contractor (see above) this could be difficult and costly. Partly as a consequence of the perceived expense and inflexibility of PFI, the future of several schemes is now in question.⁶

Similar consequences may result for schools from the implementation of the Schools White Paper.⁷ If implemented, this may increase pressure on schools to adapt themselves to the changing demands of parents. Again, this would tend to make the long-term service contracts of the kind used under PFI increasingly unsuitable.

Lastly, there are forthcoming changes in the accounting treatment of PFI transactions that may make them less attractive to the public sector. The accounting treatment of PFI transactions and many elements of the LEP/LIFT schemes can often lead to the relevant assets and liabilities being 'off-balance sheet' as regards the public sector. This can be seen as helpful with regard to the impact on the capital control budget and also the Net Debt economic control total. However, over the next few years UK Generally Accepted Accounting Principles (GAAP) are expected to converge with the rather different International Financial Reporting Standards. As a result, in the medium-term it may be challenging to achieve off-balance sheet treatment for such projects.⁸

So, for all these reasons there is an increasing need to think beyond the current delivery models to identify hybrid or amended models which can help meet these challenges.

More specifically, it would be desirable to:

- Improve the value for money and flexibility of PFI where possible.
- Develop models that have similar advantages to LEP/LIFT, but with more competitive pressure.
- Identify models that could be suitable in conditions of serious uncertainty – where neither PFI nor LEP/LIFT work well.

New delivery models to meet today's challenges

Improving affordability, competition, and flexibility

This section describes five new models that have the potential to help public sector organisations begin to meet these challenges. The 'De-risked PFI' has the potential to improve value for money in some situations. The 'Integrator' and 'Competitive Partnership' models have many of the advantages of the LEP/LIFT model, but provide more ongoing competitive pressure. Lastly, the 'Alliancing', and 'Incremental Partnership' models can be used in situations where uncertainty is great.

De-risked PFI

In a conventional PFI scheme, significant risks are transferred to the private sector partner. These include the risks of cost over-runs and delays in construction as well as meeting the operational requirements. The decision as to whether or not to transfer particular risks depends not only on who is best able to manage that risk but also on the financial implications of doing so. As a result, in some situations, value for money can be improved by reducing the overall risk transferred relative to a conventional PFI scheme. (See Figure 4).

One model that has been used in the concession for the DLR Woolwich Extension is to reduce the risk to the contractors by underwriting some of the financial risk during the operational phase (see Sidebar). In this case the contractor adds most value in the construction phase – so those risks remain transferred.

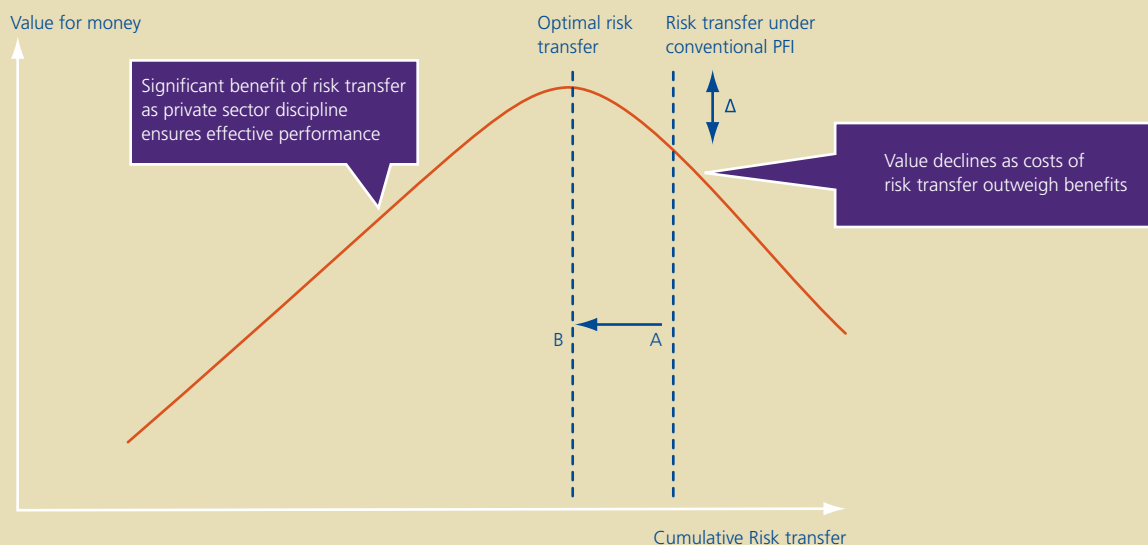
The Woolwich Docklands Light Railway extension: De-risking in action

Docklands Light Railway Limited (DLRL) is extending its network from near London City Airport to Woolwich Arsenal. The project cost is £240 million and involves a new twin bore tunnel under the Thames as well as creating a new DLR station at Woolwich Arsenal.

The primary delivery vehicle is a PFI (Design, Build, Finance and Maintain), but with 'de-risking' during the operational phase. The greatest risks in the project are during the construction phase (particularly the creation of the tunnels) – and it is here where DLRL sees the benefits of significant risk transfer. However, DLRL believe that once the infrastructure exists, the costs of transferring significant operational risk outweigh the benefits (because the actual benefit of risk transfer is dwarfed by the cost of private finance incurred). So they are guaranteeing 75 percent of the unitary payment after the infrastructure has been constructed and in satisfactory operation for two years (with 25 percent still at risk). With public sector agencies typically having good credit ratings (Transport for London currently has an AA credit rating), this is enabling the project to go ahead at substantially lower cost. The project will in any event be on-balance sheet, and therefore this enables DLRL to significantly improve affordability.

Source: Deloitte Research, 2006.

Figure 4: How de-risking can improve value for money for certain projects



Notes
X axis represents the extent to which key risks are transferred to the private sector under the PFI contract.
Y axis represents the overall value for money that results from that level of risk transfer.
De-risking achieves a shift from A to B, yielding a gain in value for money of Δ .

Source: Deloitte Research, 2006.

The advantages and disadvantages of the model are described in Figure 5.

Figure 5: The advantages and disadvantages of De-risked PFI

Advantages	Disadvantages
Ability to spread cost over lifetime of asset	Inflexibility
Greater predictability over cost and time	Length of procurement
Focus on value for money over lifetime of asset	Impact on balance sheet status
Strong performance incentives	
Increased value for money, relative to a conventional PFI	

Source: Deloitte Research, 2006.

Accordingly, this 'de-risking' approach is likely to be a good option where:

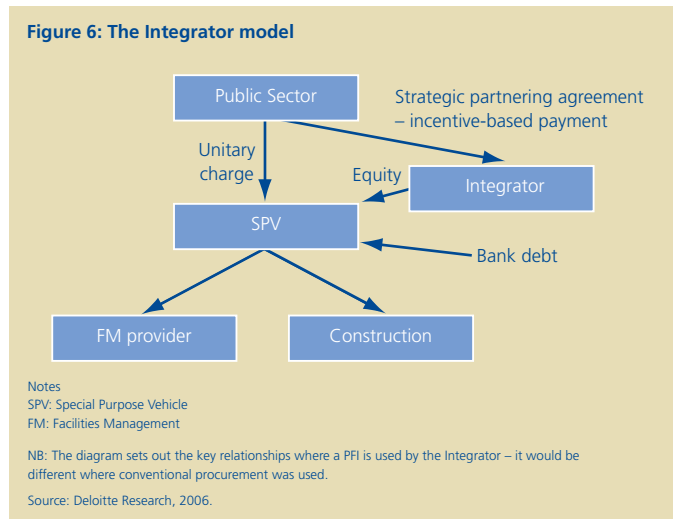
- The risks at the operational stage are perceived to be minor relative to risks during construction, or to decline swiftly after delivery.
- The project would in any event be on-balance sheet.
- The public sector body can afford to meet the extra costs that are incurred if the relevant risks materialise and/or the public sector is sufficiently confident that the risks will not materialise.

The Integrator

As discussed above, the LEP/LIFT model has important benefits but may not offer optimal competitive pressure over the lifetime of the project. One way of improving the overall competitive pressure is to retain the basic structure but to separate the role of the strategic partner (the 'Integrator') from that of direct delivery (design, construction and so on). We refer to this as the 'Integrator' model.

The distinctive element of the Integrator model is the inclusion of a private sector partner who has responsibility for project development (taking significant project risk) but has a less direct role in service provision. The Integrator is rewarded according to overall project outcomes wherever that is possible (with penalties for lateness, cost over-runs, poor quality etc). The Integrator then undertakes to arrange the necessary delivery functions, potentially using a variety of procurement options, including PFI and conventional procurement, as appropriate. (See Figure 6).

In some cases the Integrator is barred from being involved in direct delivery at all. In other cases, the Integrator is appointed to carry out the first phase of work, or specified works, but then barred from carrying out subsequent phases (see MoDEL below). The purpose of this prohibition is to remove the potential for conflict of interest between achieving best value for the public sector and maximising returns through the supply chain.



The advantages and disadvantages are set out in Figure 7.

Figure 7: Advantages and disadvantages of the Integrator

Advantages	Disadvantages
The procurement costs over the project life are lower	If the appointment of the strategic partner takes place before any fixed price tender for works there is less assurance about their skills and capacity to commission the appropriate services
Flexibility over programme delivery	
Ability for public sector to retain influence over strategic direction of investment	The lack of an integrated supply-chain
Potential for continuous improvement	
Early commercial input from private sector partner	
Clarity of roles and responsibilities (less conflict of interest)	
Improved competitive pressure	
Involvement of a wider range of organisations, including Small and Medium-sized Enterprises (SMEs)	

Source: Deloitte Research, 2006.

The London Borough of Greenwich has been using an Integrator model to deliver their Building Schools for the Future programme. The Integrator Model has also been used in the recent MoDEL project for the Ministry of Defence (MoD).

The Integrator model works best in similar circumstances to the LEP/LIFT model, but particularly where the work is heterogeneous (composed of different elements whose costs are uncertain), making ongoing competitive pressure over all elements of the work vital.

The MoDEL Project: The Integrator in action

Project MoDEL involves the consolidation of seven MoD sites to a single location in RAF Northolt in London. The consolidation will relocate up to 3,500 military and civilian personnel into modern fit-for-purpose accommodation. This requires creating new facilities to house the personnel, enabling the transfer of staff to the new accommodation, and selling sites that are surplus to requirements. The consolidation budget is around £200 million and it will take up to five years to complete.

Neither a conventional procurement nor PFI would be suitable because of the uncertainty over the costs, work required, and future values of the sites for disposal. Instead, the approach taken has been to appoint an Integrator (termed the 'Prime Plus Contractor' in this case) who will take the principal risk on project delivery. All elements of the work are subject to open competition. The integrator competes for the initial specified works, and all currently unspecified works are then competitively procured by the Integrator. The Integrator is barred from carrying out works that are unspecified at financial close.

The Integrator is primarily remunerated through net disposal receipts and is responsible for ensuring that timescales and quality standards are met. This ensures that there are strong incentives for keeping costs down, consistent with other project objectives.

This model offers a potential approach for rationalising and upgrading estates within a single contractual framework, with a partner who can take significant risks on behalf of the public sector.

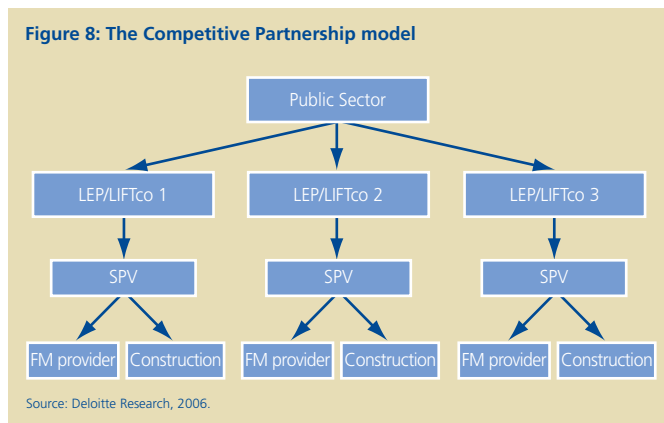
The project will reach financial close in the summer of 2006.

Source: Deloitte Research, 2006.

Competitive Partnership

In the conventional LEP/LIFT model, if the public sector is dissatisfied with the perceived value for money of future works, it has the option of having that work carried out by another party (after a specified time). But if it did so it would lose the benefits of having a single agency having responsibility for delivery in that area. On the other hand if it does not have the option of going elsewhere the competitive pressure on the private sector partner can be weak.

To overcome this disadvantage, an alternative approach is the Competitive Partnership model in which several LEPs/LIFTcos are appointed separately, in competition with each other. The contracts allow the public sector to reallocate projects between them at a later date as overall performance becomes clear. The public sector can also use the cost and quality benchmarks of each LEP/LIFTco as a benchmark for the performance of the others.



One natural way of doing this would be to split the responsibilities by area. For instance, in schools, this could mean appointing two or more LEPs, each provisionally responsible for a different area. After the first phase of work, the public sector (for instance, local authority) would be able to compare the timeliness, quality and cost of the work carried out by each LEP. It would then be able to shift responsibilities away from the weaker performers towards the stronger ones as appropriate. A significant advantage here is that the work of each LEP can be used as a benchmark for the others – given that they are likely to be working under very similar conditions.

This model is currently being explored in both the schools sector and in housing and regeneration (Oldham and Rochdale). It has also been used successfully in the private sector by the Bank of America. Bank of America has approximately 4800 branches in 22 states. It procured outsourcing contracts to provide maintenance to their branches and allocated a geographical region to each. The contractors were required to achieve continuous improvement of their service, year-on-year and were incentivised through regular review and reallocation of the size of their respective areas.⁹

The advantages and disadvantages of this approach are set out in Figure 9.

Figure 9: Advantages and disadvantages of Competitive Partnership

Advantages	Disadvantages
The procurement costs over project life are lower	Contractually it is more complex than a conventional LEP/LIFT, and is therefore more demanding for the public sector
Flexibility over programme delivery	
Ability for public sector to retain influence over strategic direction of investment	
Potential for continuous improvement	
Early commercial input from private sector partner	
Competitive pressure is maintained over time	
Effective benchmarking of costs is possible	

Source: Deloitte Research, 2006.

This model would work best where the required work was of sufficient scale to make a division of this kind possible, and where the work was reasonably homogeneous and could be divided into sensible and comparable segments (e.g. by area).

Alliancing

All the models discussed so far require at least moderate certainty – about the infrastructure and service specifications; in the case of PFI, a high degree of certainty, in the case of LEP/LIFT, Integrator, and Competitive Partnership models relative certainty about the infrastructure needs, if not the exact timing and scale of the work.

But what if it is not possible to have even that degree of certainty, perhaps because future developments are extremely uncertain, or because it is unclear what sort of infrastructure is technologically possible?

One possible approach is the use of Alliancing. Alliancing is a term used to describe delivery models in which the focus is on encouraging collaboration through the use of payment mechanisms that ensure that the interests of all parties are aligned with the project objectives. The aim is to avoid the adversarial relationships and acrimony that sometimes characterise more conventional delivery models, and instead seek to ensure that all parties work together collaboratively for the good of the project. Common features of Alliancing agreements are:

- A focus on specifying key project outcomes, rather than inputs, or processes.
- The use of integrated project teams (which include representatives from the public sector and all relevant contractors).
- Gain/painshare arrangements, which mean that all parties (public and private) have an interest in ensuring that all elements of the project are a success, and an incentive continuously to strive for out-performance, not simply minimum expectations.
- Simplified arrangements for managing risk, for example a single insurance policy.

Alliancing has been used in the oil and gas sectors. More recently it has been used by the MoD (see below), and by BAA in the management of its Terminal 5 project. It has also been used for several public infrastructure projects in Australia and New Zealand.¹⁰

The Alliancing model can take a number of forms. Sometimes the output specification and delivery is carried out by a single party. In other cases, it is possible to run separate competitive processes for the output specification and the delivery phase (depending on the extent of competition in the market place, and the synergy between output specification and delivery responsibilities).

The advantages and disadvantages are described in Figure 10.



Alliancing is not a panacea for infrastructure projects, but can be successful where:

- There is irresolvable uncertainty about the nature of the infrastructure or services required to meet project objectives (e.g. technological risks).
- The infrastructure is large, indivisible (cannot be easily separated into discrete elements), and complex.
- The public sector is an experienced manager of infrastructure projects and prepared and able to retain all significant project risks.

The Future Carrier (CVF) Project: Alliancing in action

The purpose of this project is to replace the current Invincible class of aircraft carriers (which date from the Cold War period) with two larger vessels that could support a more powerful air group. The approximate budget was £3 billion.

The first phase of the project – the Assessment phase – involved the development of several carrier designs. Two contractors – BAE Systems and Thales were appointed.

The decision as to how to procure this resulted in the selection of an Alliancing model in which KBR act as the ally, with BAE Systems and Thales contracted to produce the necessary components. The Alliancing framework aims to ensure that the ally is rewarded for project outcomes, and all parties are incentivised to economise wherever possible.

Source: MoD Major Projects Report 2005, National Audit Office, 2005.

Incremental Partnership

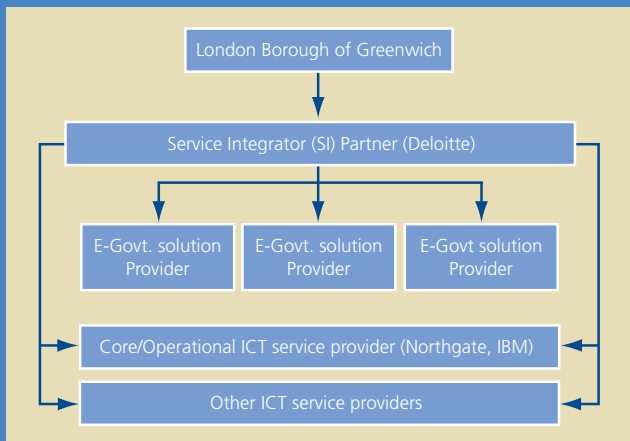
There are other situations in which although there is a high degree of uncertainty, Alliancing would not be suitable because the required infrastructure is smaller and can be built up in successive waves.

Under the Incremental Partnership approach the public sector enters into a framework agreement with a private sector partner who procures the necessary infrastructure and services on behalf of the public sector. The public sector can 'call off' specific projects as its requirements become clear. The private sector partner competitively procures the services and infrastructure from sub-contractors but retains overall responsibility for service levels as assessed against clear performance measures. There is no exclusivity for the private sector partner – the public sector retains the right to use alternative providers if it wishes.

Greenwich Council ICT: Incremental Partnership in action

In 2002, the London Borough of Greenwich was faced with reletting its ICT facilities management contract and addressing the increasing requirements for e-enabled service provision. The Council considered but rejected the option of a ‘big bang’ approach which would introduce a new package of infrastructure and services with a private sector partner. This was due to considerable uncertainty about the service requirements, the rapidity with which ICT systems can become obsolete, and the potential risk of entering into a major financial commitment with a private sector partner. It was also wary of entering into a relationship with a private sector partner that was not truly independent and would be constrained to offer its own service solutions.

As an alternative the Council contracted with Deloitte to act as the ‘service integrator’, under a framework agreement lasting for five years. The Council is then able to ‘call off’ individual projects as and when it wishes, without any long-term commitment. Deloitte then sub-contracts on behalf of the Council for the provision of new hardware and software as appropriate – using its procurement expertise to negotiate the best possible deals. The Council is not bound to use Deloitte’s services, but it has continued to see value in the relationship – having now worked on over 40 individual project briefs. Should the contract end, Deloitte’s licences and contracts would simply revert to Greenwich.



Source: Deloitte Research, 2006.

This avoids the weaknesses associated with ‘big bang’, large scale contracts that are difficult to reverse and which require a long-term commitment from both parties. This ‘Incremental Partnership’ model has been used successfully with Greenwich Council for the provision of new Information and Communication Technology (ICT) infrastructure (see sidebar).

Note that although this has similarities to the ‘Integrator’ model (discussed above) it differs in some crucial respects. In an Incremental Partnership (but not with an Integrator), the private sector partner has no exclusivity, the term of the agreement is much shorter (the partner is not necessarily responsible for the assets over their lifecycle) and there is typically no need for project finance structures such as an SPV (as the private sector partner does not provide capital).

The advantages and disadvantages are described in Figure 11.

Figure 11: Advantages and disadvantages of Incremental Partnership

Advantages	Disadvantages
Low procurement costs (because typically only one OJEU ¹¹ notice)	Major risks continue to lie with public sector
High flexibility to meet changing requirements	
Does not require a long-term contract; relationship can be formed gradually	
Competitive pressure is maintained	

Source: Deloitte Research, 2006.

Accordingly, the Incremental Partnership model is potentially beneficial where the infrastructure in question is divisible (can be built up in discrete phases) where it has a short life, and where there are ongoing uncertainties about the requirements. It is also suitable for smaller organisations that lack the internal capacity to manage the infrastructure procurement themselves. In these situations, the high level of flexibility of the model makes it attractive – allowing the public sector to build up the infrastructure it requires, without the need for a long-term agreement.

Choosing the right delivery model

Knowing the unknowns

Given the plethora of delivery models available the question arises: how can the right model be selected from the available alternatives? On what basis should that decision be taken?

Figure 12 overleaf provides a simplified decision tree, which could provide a tool for public sector organisations trying to select an appropriate delivery model. It does not seek to capture all the relevant considerations, but instead focuses on the main issues that are likely to determine the appropriate model.

The central importance of certainty

Infrastructure development is difficult because typically a decision must be taken now, which will have serious implications over a long period of time. This is why, when deciding on an appropriate model, it is vital to consider how certain the public sector can be about its infrastructure and service requirements. Certainty is crucial because without it, it is difficult to achieve a fair price on contracts, or to ensure that the infrastructure will continue to meet needs in the future.

In the case of existing assets, the key issue is the level of knowledge the public sector has about the condition of those assets and therefore the extent of work needed to meet future asset and service requirements. This issue can partly be remedied by maintaining adequate data about the condition of assets and/or undertaking the necessary surveys before contractual negotiations begin. However the risk of latent defects remains a challenging one, requiring careful consideration.

In the case of new assets, the key issue is how certain the public sector can be about the nature of the infrastructure and services it will need. The public sector need to attempt to assess their own level of confidence about their future asset and service requirements. Important questions to consider are:

- How confident can we be now about the type of infrastructure and services we need over the next 5, 10, 15, 20 years?
- How likely is it that the needs of citizens in this area will change?
- How likely is significant policy change?
- How easy is it to specify what we will need?
- When will advances in technology make these assets obsolete?

There will always be uncertainties in these areas, which should not necessarily be a reason for inaction. However, the key thing is to assess how serious the uncertainty is and to what extent it is possible to adequately foresee the changes that are likely to be required.

High certainty

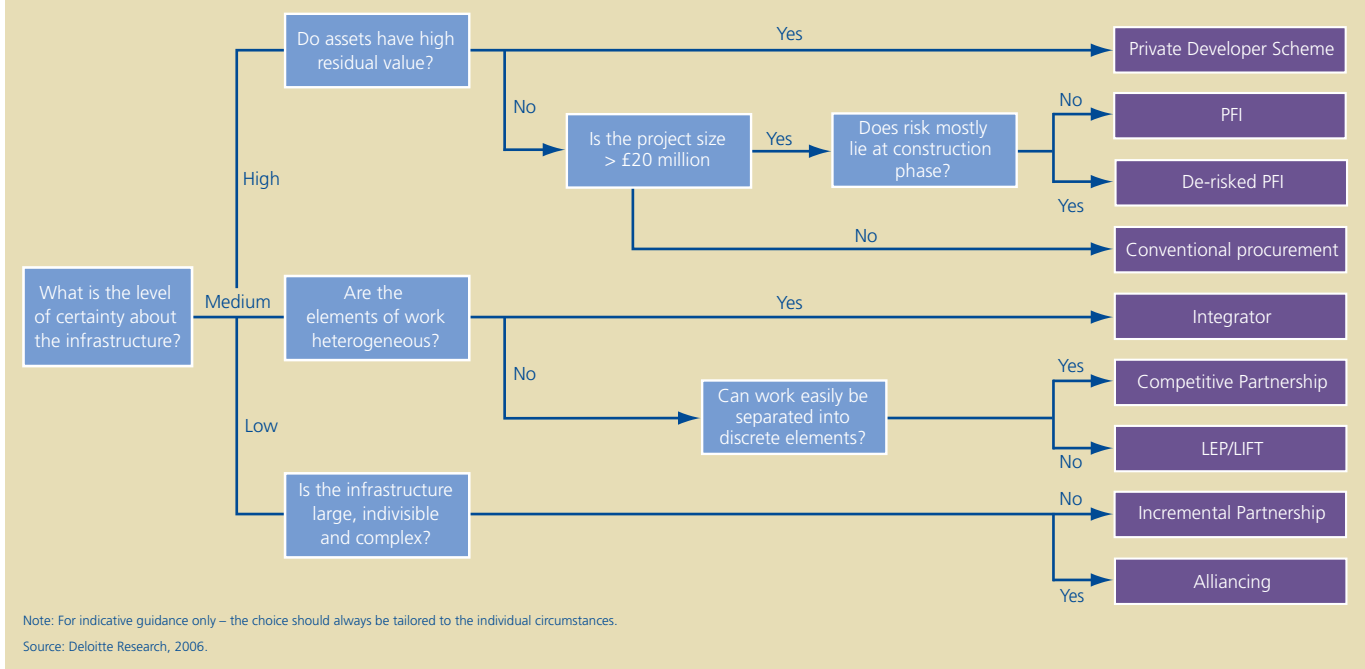
A high level of certainty would mean that the public sector knows with confidence either the condition of the assets and/or the future asset and service requirements at a detailed level. In this case the main options are a Private Developer Scheme (PDS), a PFI, or a conventional procurement. A PDS will work best where the assets have a high residual value because they have multiple alternative uses such as office accommodation. It will not work well if the assets have little or no residual value, for example a section of motorway. On the other hand, a PFI will work best where residual value is low and the project size is large (greater than £20 million). This is because of PFI's high procurement costs – which are only acceptable if the project is large enough to absorb them. If risks lie mostly at the construction phase and it is financially feasible to do so (e.g. balance sheet status will be unaffected), it is worth considering a 'De-Risked PFI'. Where the project is small (less than £20 million), the main option is conventional procurement, or variants of it, because of its lower procurement costs.

Medium level of certainty

A medium level of certainty would mean that the public sector knows the kind of infrastructure it needs, but is less certain about the timing and exact extent of work it wishes to undertake. In such a case, the main options to explore are LEP/LIFT, Integrator or Competitive Partnership. All these models enable the public sector to avoid several lengthy procurement processes, while ensuring that successive waves of work can be delivered quickly and without excessive cost.

Broadly, the Integrator will work best for projects where the overall programme of work is heterogeneous (i.e. different types of infrastructure), whereas the Competitive Partnership and LEP/LIFT models will work best where the elements of work are more homogeneous. The Competitive Partnership model will be best if the work programme can easily be separated into discrete and similar elements, whereas the LEP/LIFT model will work best where the project needs to be tackled as a whole.

Figure 12: Decision tree for the selection of an appropriate infrastructure delivery model



Low level of certainty

A low level of certainty would mean that the public sector is unsure about the infrastructure it needs (or even what is possible), let alone when or how it wishes to have it delivered. In such a case the Alliancing or Incremental Partnership models are worth considering.

The choice is fundamentally driven by the nature of the infrastructure requirement. Where the infrastructure is large, indivisible and complex (e.g. a new, expensive item of defence technology), then Alliancing is worth exploring. However, if the infrastructure is smaller, more divisible (can be acquired in discrete phases) and simpler, then it can be procured using an agreement of the kind involved in an Incremental Partnership.

To reiterate, this is for indicative guidance only, and any final decision should only be taken after a full options appraisal, specific to the particular circumstances has been carried out.

Conclusion

More flexibility needed

The United Kingdom has been a path-breaker in the development of innovative delivery models for infrastructure projects. Both the PFI and LEP/LIFT models have many merits and will remain useful models in the right circumstances. But they have their limitations and, quite understandably, many sectors are now experimenting with new or hybrid models that are more suitable for smaller projects or where uncertainty is greater.

What this report argues is that this innovation must continue – that there can be no ‘one size fits all’ in infrastructure development. Instead what is needed is to make a principled and informed choice based on an awareness of the full range of delivery models and the conditions in which they are successful.

For central government and policy-makers, this means supporting the exploration and use of alternative models of the kind outlined here. When new programmes of infrastructure development are designed, the model should be selected from the full range of possibilities and on the basis of its likelihood of delivering the optimal mix of government’s objectives.

For local government and public sector delivery organisations, this report presents some new models for consideration in situations in which the conventional or existing models are unsatisfactory.

By making the best use of the full-range of models that are available the public sector can maximise the likelihood of achieving its infrastructure objectives in the future.



Appendix: Advantages and disadvantages of PFI and LEP/LIFT

This appendix provides a fuller explanation and discussion of the PFI and LEP/LIFT models and their relative strengths and weaknesses. It is intended for those readers who are unfamiliar with the details of the models and require further explanation and elaboration of their advantages and disadvantages.

The Private Finance Initiative

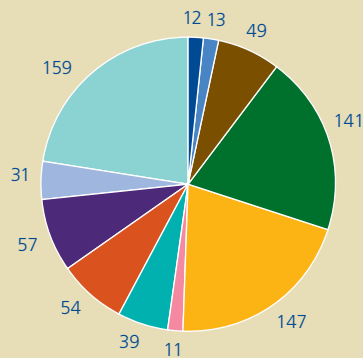
Over the past few years government has used the PFI to deliver a large number of major infrastructure projects. Since 1997, 725 PFI schemes have been signed with a total capital value of £46 billion.¹² The department with the largest number of schemes has been health (excluding devolved administrations), but the department whose schemes have the largest value is Transport due to the London Underground PPP which accounts for £17 billion.

The PFI is now a well established procurement model that has the potential to provide strong incentives for delivery on time and to budget, while enabling the public sector to spread the cost of the investment over a 25-30 year period. Government supports the use of the PFI in local government through the allocation of 'PFI credits' which effectively provide additional funds for the capital element of a PFI project.

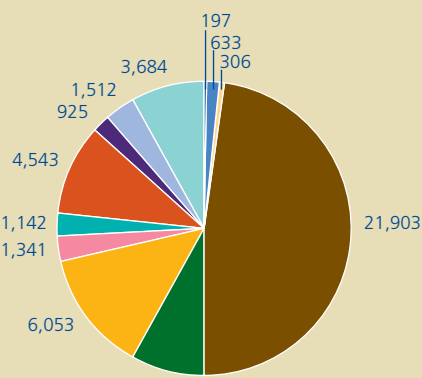
Typically, although not always, the PFI involves a long-term contract between the public sector and a private sector Special Purpose Vehicle (SPV) to deliver infrastructure and services in exchange for an annual, performance-related payment. Payment for the infrastructure does not begin until it has been commissioned and meets the required specification. The SPV is funded through a combination of bank debt (typically 90 percent) and equity (typically 10 percent). The structure of the PFI contracts and the extent of risk transfer they can involve mean that in many cases they can be off-balance sheet for the public sector.

Figure 13: Number and value of signed PFI deals

Number of signed PFI deals by department



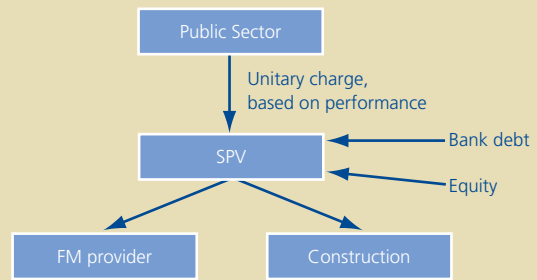
Value of signed deals (£,000), by Department



- Culture, Media and Sport
- Environment Food and Rural Affairs
- Transport
- Education and Skills
- Health
- Work and Pensions
- Home Office
- Defence
- Office of the Deputy Prime Minister
- Other departments
- Devolved Administrations
- Constitutional Affairs

Source: HM Treasury. Statistics cover period up to September 2005.

Figure 14: The PFI model



Notes
FM: Facilities Management.
Source: Deloitte Research, 2006.

Advantages of the PFI

It is difficult to carry out a systematic review of the performance of PFI relative to other procurement approaches. There have been few comparable schemes that have been carried out under both PFI and conventional procurement for which adequate data is available. Furthermore the PFI is still in its relative infancy, with very few schemes being more than a few years into their operational phase. Despite these difficulties, the experience so far and available evidence suggest that it has a number of merits.

Ability to spread cost over the lifetime of the asset.

Conventional procurements require the public sector to provide significant up front capital when the benefits are delayed and uncertain. As a consequence many otherwise viable projects are rejected because of the potential mismatch of cost and benefit.

Under the PFI, the public sector is able to spread the cost of investment over time, rather than having to provide large up-front capital investments. This means that the timing of the costs of infrastructure schemes can be better aligned with the timing of the benefits that accrue from those schemes. This has enabled projects that would otherwise not have been approved due to either the uncertainty or immediate cost of investment, to go ahead. In addition this is one of the major reasons why the government makes PFI credits available to local government for the purpose of infrastructure development.

Greater predictability of cost and timeliness. Partly as a result of the fact that payments are better aligned to the delivery of project objectives, projects delivered under the PFI are more likely to be delivered on time and on budget compared to conventional procurements. A 2003 NAO Report found that while 73 percent of non-PFI construction projects were over budget and 70 percent delivered late, the figures for PFI were just 22 percent and 24 percent, respectively (see Figure 15). There has been no similar, more recent review of performance.

Focus on value for money over the lifetime of the asset.

Under a conventional procurement the focus is on providing value for money in the short-term (often two to three years) i.e. during the design and construction phase. However the consequence is that sometimes short-term savings are delivered that result in higher costs over the lifetime of the asset (e.g. the use of cheaper building techniques which require higher maintenance).

In a PFI scheme this is less likely as the contractor has responsibilities to meet required levels of maintenance and operational requirements over the lifetime of the infrastructure. There are some indications this has led to good quality design and construction: an NAO report included the results of a survey that suggested that over half of managers surveyed considered the design and build quality to be good or very good.¹⁴

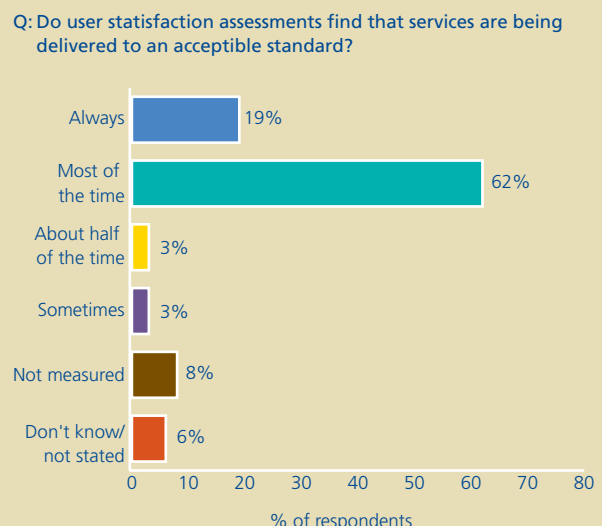
Strong performance-related incentives. Under the PFI the performance of the contractors is strongly related to their achievement of key project outcomes: notably the delivery and availability of the infrastructure on time and to budget, and in the operational phase, the achievement of required levels of service. The unitary charge is automatically adjusted to penalise poor performance. This should increase the likelihood of high performance in the operational phase. Although evidence on this is modest, there is some emerging evidence of good feedback from user satisfaction assessments. (See Figure 16).

Figure 15: Benefits of PFI: greater predictability over cost and time



Notes
Previous experience based on 1999 government survey.
PFI experience is based on NAO survey of 37 projects.
Source: NAO (2003)¹³

Figure 16: User satisfaction with PFI services



Source: The Operational Effectiveness of the PFI, KPMG, 2005.

Building flexibility

New delivery models for public infrastructure projects

Reduced impact on public borrowing. The UK government is subject to both external and self-imposed limits on the amount of borrowing it is prepared to undertake. This includes the condition imposed by the European Union as part of the Stability and Growth Pact that current account deficit should not exceed three percent of GDP. In addition, the current government has set itself the objective of limiting net debt to a 'stable and prudent level, below 40 percent of GDP'. This means that government must consider the borrowing implications of all decisions on infrastructure investment.

Under conventional procurement approaches, new infrastructure will almost invariably be on the balance sheet of the public sector, as key risks are retained by the public sector. In a PFI scheme, many risks are transferred to the private sector, often enabling the scheme to be off-balance sheet for the public sector.¹⁵ This means that the scheme will not count against the net debt totals, enabling some projects to go ahead that would otherwise not be viable.

Disadvantages of the PFI

As experience with the PFI has grown its limitations are now becoming relatively well understood.

High cost. PFI schemes can be more costly than other procurements due to three main factors: the cost of procurement, the level of risk transfer, and the cost of private finance.

The PFI procurement process is long and costly. HM Treasury has estimated that the average procurement time is 22 months.¹⁶ The length of the contracts and relative certainty that PFI schemes aim to give the public sector over costs mean that a great deal of pressure is placed on both parties to negotiate a contract that is acceptable in the long-term. It takes a long time to agree the risk transfers, payments and terms that are acceptable to both parties – imposing considerable legal and due diligence costs on both the contractors and client side.

In addition, PFI contracts seek to transfer more risk to the private sector partners than under other models. This is particularly so for PFI schemes that are off-balance sheet. However private sector partners will expect the contracts to cover the financial risks they face. The cost of risk transfer is particularly high where the condition of the assets is uncertain, or where the future asset and service requirements are unclear. In these situations the private sector will expect to receive a 'risk premium' to make the project viable. In some cases this exceeds the public sector's estimate of the cost of the risk materialising.

Lastly, because PFI schemes involve private finance and it is more expensive to borrow money privately than publicly, this constitutes an additional cost under most PFI projects. For PFI projects to be value for money these costs must be exceeded by the savings.

Inflexibility. PFI contracts typically include detailed specification of the outputs required and the penalties for failing to meet them.¹⁷ If the public sector wants to change its service requirements at a later stage, this is usually possible, but it may be costly. This is because for small changes, the strong position of the incumbent partner usually makes the competitive pressure fairly weak.

Consequently there is a range of situations in which the PFI is an unsuitable delivery model. It is particularly unsuitable for small projects because of the high procurement costs, or projects for which the lead time is short, because of the lengthy procurement time. It is also unsuitable where there is a high level of uncertainty over the condition of existing assets, or future asset and service requirements. Such uncertainties may mean that the public sector finds itself with a contract that is unsuitable in the long-term or poor value because the contractor has had to add a significant premium in the price to cover the extra risks.

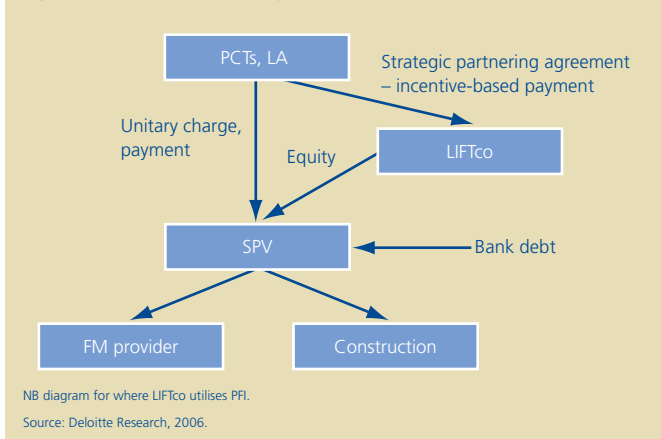
This explains why government guidance introduced in 2003 recommended that the PFI not be used for small projects (below £20 million), or for IT projects (where uncertainty about future needs is too great).¹⁸ This is also why PFI is generally thought to be less suitable for most upgrades or refurbishments (rather than new builds) – because of the risk of latent defects.¹⁹

The emergence of hybrid models: LEP and LIFT

For several reasons government has developed an alternative delivery model for investment in the primary care and schools estates.

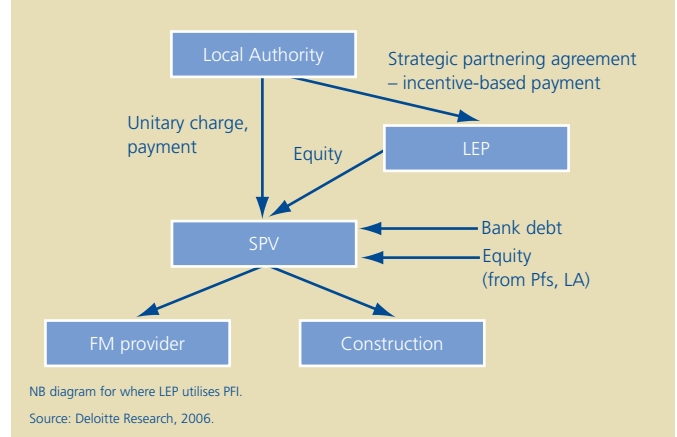
In the case of the primary care estate, individual projects tend to be small and the estate has required both upgrade as well as new build work. This has meant that neither single nor successive PFI schemes would be optimal because of the procurement costs and difficulties in transferring risk. Simultaneously, there was a desire for a vehicle that could enable the public sector to commission successive phases of work with a single partner who could provide clear lines of responsibility. As a result, the Department of Health developed the LIFT model. (See Figure 17).

Figure 17: LIFT model (Primary Care)



A similar model was subsequently developed for the Building Schools for the Future programme, for similar although slightly different reasons. In the case of schools, PFI has already been used extensively, and largely successfully. However the remaining problem was that PFI remained largely unsuitable for school upgrades or refurbishments due to the issue of latent defects. At the same time, there was a similar desire for a vehicle that could enable a series of waves of investment in the schools estate without the need for multiple separate procurements. Accordingly, the LEP model is being used. (See Figure 18).

Figure 18: LEP model (Schools)



The LEP/LIFT Partnership model

Although the two approaches are not identical they are sufficiently similar to be treated as variants of a single model. The basis for the model is a joint venture company that is majority-owned by a private sector partner. In the case of schools, the Local Education Partnership (LEP) has equity investment from the local authority, Partnerships for Schools, and the successful private sector partner. In the case of primary care, Primary Care Trusts (PCTs), or the Strategic Health Authority, together with Partnerships for Health and the strategic partner invest in the joint venture – the Local Investment Finance Trust Company (LIFTco).

The private sector partner is selected through a competitive process that includes a fixed price for some of the initial work to be carried out. So-called 'soft FM' services are excluded in the case of LIFT but not in LEP.²⁰ The contract is for 20 years in case of LIFT and ten years in the case of LEP. Subsequent phases of work are commissioned by the public sector partner, but (typically) carried out by the strategic partner using the first phase of work as a benchmark to the appropriateness of future costs. In the first five years of the contract, the value for money of work is assessed using the first phase of work as a benchmark. Thereafter the public sector has the right to market test proposals if it is unconvinced of value for money.

The joint venture can utilise both conventional procurement and PFI mechanisms according to the work needed.

Advantages of LEP/LIFT

The model is still in its infancy. In LIFT, 51 projects over four waves have been approved but currently only 31 buildings are open to patients.²¹ In the Building Schools for the Future programme, three waves of investment have been launched, covering 38 local authorities. However no projects have yet reached financial close.

It is therefore too early to evaluate its performance fully. However there are several reasons for concluding that it ought to offer some significant advantages over conventional procurement or PFI in certain circumstances.

Reduced procurement cost and time over the project life.

While the initial procurement can be lengthy, over the lifetime of the project the overall procurement costs should be lower than under a number of separate PFI schemes. This is because once the initial procurement has been completed, successive phases of work often do not require an EU procurement process, or if they do, they are likely to take less time. For the same reasons this should enable more rapid delivery of new infrastructure.

Flexibility over programme of delivery. The structure enables phases of work to be commissioned as and when the public sector decides on the type and scale of work required. In this respect it is more flexible than a conventional PFI scheme.

Potential for continuous improvement. The appointment of a single strategic partner (LEP/LIFTco) who commissions all phases of work should enable continuous improvement to occur. This is because the strategic partner can learn lessons from the early phases and incorporate them into subsequent elements of the work.

Ability to retain influence over strategic direction of work.

The joint venture arrangements should enable the public sector to retain influence over the strategic direction of development, without having to take responsibility for delivery.

Disadvantages of LEP/LIFT

Conflict of interest. There is a potential conflict of interest for the private sector partner who is expected to provide value for money for the public sector, while simultaneously seeking to extract maximum return through the delivery of most or all of the required work.

Reliance on benchmarking to ensure value for money.

The effectiveness of the LEP/LIFT model depends on the use of benchmarking as a means of ensuring the value for money of subsequent phases of work. To this end, Partnerships for Schools is investing in the development of a comprehensive benchmarking database which it hopes will provide robust data to ensure the value for money of LEP proposals.²² The intention is that the public sector can use this data to establish helpful parameters of cost and quality for their schemes.

While benchmarking of this kind can be a useful tool, in some circumstances it does not offer sufficient assurance that value for money will be achieved. Sometimes subsequent phases of work are significantly different from the first – making the benchmarks from the first scheme inadequate. There are always numerous possible explanations for why a proposal might depart from the established benchmark,²³ and site specific costs cannot be benchmarked. This means that in practice it may be difficult for the public sector to know whether or not successive proposals constitute value for money.

Strong disincentives to utilise alternative providers. Although the LEP/LIFT model gives the public sector the right to market test and use alternative providers if it is not convinced of the value for money of the LEP/LIFTcos' proposals, in practice there are very strong disincentives for it to do this. If an alternative provider is appointed, the public sector immediately loses the central benefit of the model, which is to commission work through a single partner, with a single point of responsibility. As a result even if the public sector is doubtful of the value for money of proposals in practice it is unlikely to use alternative providers.

Accordingly, the LEP/LIFT model works best for projects where benchmarking is likely to be an effective tool for ensuring value for money. These are projects whose elements are relatively homogeneous in nature – i.e. of the same kind, subject to the same expectations on cost and quality. Where projects are composed of many different elements, and vary considerably from one place to another, the LEP/LIFT model will be less suitable.

Notes

- 1 The £20 million threshold is outlined in government policy in PFI: Meeting the Investment Challenge, HM Treasury, July 2003.
- 2 Benchmarking refers to the use of certain standard cost or quality measures that have been pre-established through a number of possible routes. Possible means of benchmarking are the use of prices or standards used in other comparable schemes, or in work of a previous kind.
- 3 See http://www.p4s.org.uk/about_pfs_leps.htm#benchmarks
- 4 Variations could be explained by differences in labour costs, changes in cost of capital, variations in size and design, changes in price of inputs etc.
- 5 Source: BCIS Online.
- 6 'All PFI hospitals on hold', Building Design, 13 Jan 2006; 'Hewitt to move 1m outpatient appointments from hospitals', Financial Times, 30 Jan 2006.
- 7 Higher Standards, Better Schools for All, Department for Education and Skills, 2006.
- 8 See 'PFI deals under threat from balance sheet shift', Public Finance, 16-22 September 2005.
- 9 See e.g. <http://www.conway.com/ssinsider/snapshot/sf011015.htm>
- 10 See Project Alliances: An Overview, Alchimie Pty Ltd and Philips Fox Lawyers, for Centre of Advanced Engineering Seminars, New Zealand 2003.
- 11 Official Journal of the European Union – where all public procurements above a certain threshold must be published according to EU procurement directives.
- 12 PFI Signed Projects Excel spreadsheet, HM Treasury (covers projects up to Dec 2004).
- 13 PFI: Construction Performance, National Audit Office, 2003.
- 14 Ibid, p. 16.
- 15 The relevant regulations are set out in Financial Reporting Standard Five (FRS5), and Treasury Taskforce Technical Note 1.
- 16 HM Treasury, op cit.
- 17 For instance, in the case of the London Underground PPP, these are split broadly into the categories of Availability (covering delays etc.), Ambience (covering customer experience, graffiti, cleanliness etc.) and Service Points (covering the functioning of e.g. departure boards and the like).
- 18 HM Treasury, op cit.
- 19 For instance, for many types of infrastructure the knowledge of their condition is poor or incomplete and a proper understanding of its weaknesses may not be possible until work is underway.
- 20 'Soft FM' services typically means catering, cleaning and security services. This is contrasted with 'Hard FM' services which are those necessary to maintain the building e.g. heating and electrical services, and health and safety compliance.
- 21 Source: [www. partnershipsforhealth.co.uk](http://www.partnershipsforhealth.co.uk)
- 22 See http://www.p4s.org.uk/about_pfs_leps.htm#benchmarks
- 23 Variations could be explained by differences in labour costs, changes in cost of capital, variations in size and design, changes in price of inputs etc.

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