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**Financing the DOD Acquisition Budget:  
Innovative Uses of Public-Private Partnerships**

**30 June 2006**

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# Abstract

This project identifies a need for alternative financing options in the Department of Defense (DOD) to provide increased capability to the warfighter in today's exigent military environment. Further, this project compares the history of Public-Private Partnerships in the U.S. Government with the United Kingdom (UK) Ministry of Defense (MOD). We intend to showcase the increased capabilities currently enjoyed by the UK MOD from entering into these agreements. Additionally, it will provide an in depth look of three Private Finance Initiatives (PFI) that Serco Inc. has undertaken and future prospects for the private financing technique. Finally, this analysis will evaluate the value for money gained by using Public-Private Partnerships through proper risk transfer in lieu of Full Up-Front Funding.

The examination concludes that continued and expanded use of Public-Private Partnerships provides increased real time capability to DOD while supporting private industry. Public-Private Partnership agreements may not always be the most inexpensive means of procurement from a purely financial standpoint. However, this relationship provides several tangible real time benefits to the government and seeks to reduce the full life cycle cost.

First and foremost, private relationships reallocate risk and up front capital requirements allowing the government to spread program cost over time. Freeing up the initial capital requirement affords the government the ability to acquire products and services with the limited resources provided in today's austere budget environment. Finally, Public-Private Partnerships provide the government with an increased infrastructure and technological capability without having to allocate current year dollars for additional property, plants, and equipment and unnecessary overhead.



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# Acknowledgements

**In Memory of John Shank**



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# Executive Summary

In the past year, the United States government has advised the nation's military to expect budget reductions. The military must look to different forms of financing in order to better utilize budget dollars and continue to acquire cutting edge technology. The Department of Defense must find a way to attain greater value for the money spent in its mission of maintaining national security.

This study examines the use of Public-Private Partnerships (PPP) in both the United Kingdom and Australia. Both countries have developed an acceptance and appreciation of Public-Private Partnerships in order to find greater value for their constituents. These governments use an economic tool called the Public Sector Comparator (PSC) in order to better compare the value gained in the transfer of risk and determine whether traditional procurement or PPP is the better solution.

Not utilizing the PSC in the United States is one reason, but there are multiple obstacles to overcome prior to the acceptance of PPP's federally. The United States should take the following steps to accept PPP's as a procurement option: 1. Form a committee to examine the use of PPP's, 2. Commit to PPP's as a viable option, and 3. Recognize the complexity of PPP's and may require subject matter expert's to be successful.

If the United States government is serious about gaining more value for every dollar spent, the federal government should look at other defense markets and acknowledge the advantages that can be attained through different forms of financing.



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# I. Introduction

The standard method of procurement for government projects is full up-front funding by the U.S. Congress. Historically congressional finance committees have determined that the most inexpensive method of purchasing additional warfighting requirements is by providing full authority up front. However in today's austere budget environment it is becoming increasingly difficult to allocate the funds necessary to procure 21<sup>st</sup> century warfighting capabilities. Recently government agencies have been employing nonstandard financing techniques to mitigate current year funding shortfalls. In August 2003 the Government Accountability Office (GAO), Congress' watchdog agency, was tasked to identify these techniques and provide supporting documentation to support their viability. The GAO reported the following:

“Agencies have been authorized to use an array of approaches to obtain capital assets without full, up-front budget authority. Our work identified 10 alternative financing approaches used by one or more of 13 agencies. These approaches are:

- Incremental funding
- Operating Leases
- Retained Fees
- Real Property Swaps
- Sale-leasebacks
- Lease-leasebacks
- Public-Private Partnerships
- Outleases
- Share-in-Savings Contracts
- Debt Issuance

GAO further stated in their report that meeting capital needs through alternative financing approaches can be very attractive because the



agency can obtain the capital asset without first having to secure sufficient appropriations to cover the full cost of the asset (GAO 1).”

In recent years federal agencies who control vast real estate portfolios have had good luck with “outleases” and “share-in-savings contracts.” Outleasing involves leasing underutilized properties to private industry. Share-in-savings contracts, on the other hand is a method in which the government pays back the contractor over time utilizing the savings generated by the product. However, DOD is generally more concerned with warfighting capability which does not normally equate to operating efficiencies. Therefore, of the options listed by the GAO, Public-Private Partnerships (PPP) or Private Finance Initiatives (PFI) seems to be the most promising for procurement of new capabilities. A Public-Private Partnership is a situation where private industry is brought in to help finance, or finance and run new government procurement programs. A Private Finance Initiative is a form of PPP where the private sector takes on the risk of financing the government project. Private industry can provide a deluge of capital and management expertise that government agencies do not possess and could not purchase with limited near term budget authority. The DOT found:

Expanding the private sector role allows the public agencies to tap private sector technical, management and financial resources in new ways to achieve certain public agency objectives such as greater cost and schedule certainty, supplementing in-house staff, innovate technology applications, specialized expertise or access to private capital (DOT 1).

As indicated above, Public-Private Partnerships can take many forms, but this paper will focus primarily on procurement arrangements vice service oriented contracts. Outsourcing services has become commonplace in today’s budget environment so as to avoid unnecessary personnel and overhead cost. This same technique can be applied to the procurement of systems and products in order increase readiness while reducing timely development costs.





## A. RESEARCH QUESTIONS

Considerable research has been done in this field by government agencies such as the GAO, Department of Transportation (DOT) and Department of Energy (DOE). However, DOD has limited its approach to service oriented activities. Our research focuses on the readiness benefits by forming PPP's to help finance the growing military procurement programs. The procurement problem will be addressed by answering the following questions:

- 1) What makes PPP/ PFI financing attractive to military procurement programs?
- 2) What obstacles are present in the United States to prevent entering into PPP or PFI agreements?
- 3) Why are PPP's more successful outside of DOD & Internationally?
- 4) Does PPP/ PFI financing produce reduced lifecycle cost?
- 5) What attributes help determine future success?



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## II. Alternative Options for Financing in Government

Government projects are traditionally “fully funded” and budgeted accordingly at inception. This type of procurement style requires a large portion of capital to be tied up early in a project’s life cycle. Large financial commitments to future development projects leave little room in today’s budgetary environment for the necessary and increasing cost of doing business.

Such up-front funding provides recognition for commitments that are embodied in budgetary decisions and maintains government wide fiscal control. However, providing budget authority for the large up-front costs of capital assets creates challenges in an area of resource constraints (GAO 1).

Today’s tight fiduciary environment will not adequately support undertaking new and necessary projects as the cost’s of new technology and infrastructure continue to climb. As these costs climb acquisition of new systems and capabilities, using the current “full funding” model, becomes unrealistic. Several new approaches have been identified and implemented. All of these options rely on private sector cooperation and business integration. The concept of Public-Private sector integration is nothing new. The Office of Management and Budget (OMB) has identified the necessity and future reliance on this business model in their A-76 circular.

Policy: The longstanding policy of the federal government has been to rely on the private sector for needed commercial services (OMB 1).

Of these alternative techniques, Public-Private Partnerships is the most prolific model used. Therefore, this report will focus on Public-Private Partnerships and broadening their role in support of federal acquisition projects.

### A. Public-Private Partnerships

The national council for Public-Private Partnerships defines PPP’s as:



A Public-Private Partnership is a contractual agreement between a public agency (federal, state or local) and a private sector entity. Through this agreement, the skills and assets of each sector (public and private) are shared in delivering a service or facility for the use of the general public. In addition to the sharing of resources, each party shares in the risks and rewards potential in the delivery of the service and/or facility (National Council for PPP's, Defined).

A Public-Private Partnership is simply a sharing of resources and profit potential for a publicly desired or needed project. Various agencies within the U.S. government have engaged in Public-Private partnerships with positive outcomes. The overwhelming majority of these partnership projects have been involved in infrastructure growth. The Department of Energy's Oak Ridge National Laboratories project is a good example of a successful PPP application in U.S. government.

Oak Ridge National Laboratory near Knoxville, Tennessee, functions as a primary research center for scientists and engineers to conduct research in the fields of physics, nuclear science, and energy exploration. The facility has been in existence since World War II, when it was used for the famous Manhattan Project. Since the end of World War II the facility has received little to no upkeep or attention. DOE had identified the laboratory as a necessary infrastructure project but lacked adequate current year construction funding.

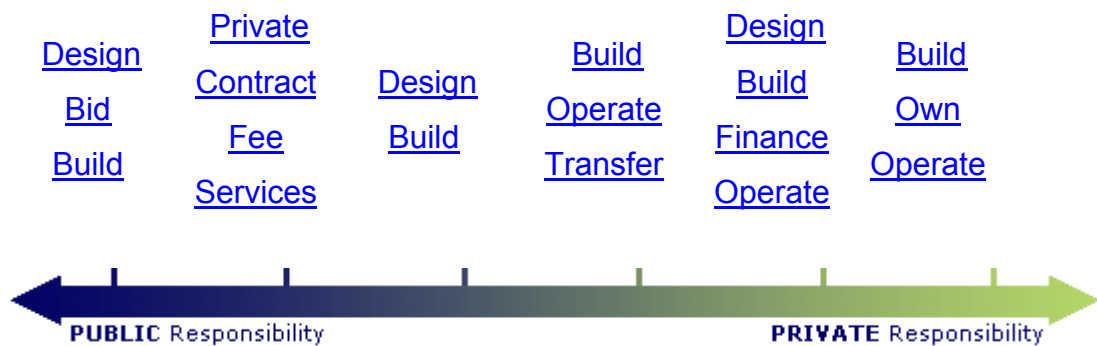
Using the PPP model, DOE solicited bids from private firms to provide the capital requirements to execute the construction project. Private financing entities would provide the funding source to the construction company. At completion of the project the private finance entity then leases the structure to the DOE's prime facilities contractor (GAO 47).

The Oak Ridge National Laboratories project is just one example of the benefits identified with combining public and private finance initiatives. The Oak Ridge model fits the traditional partnership mold; where the private firm bids-builds- operates the project using a lease mechanism to re-coupe expense and generate future revenue. The Oak Ridge project provided DOE the ability to obtain needed infrastructure updates without having to provide the up front capital.



The Oak Ridge National Laboratories project is a textbook example of a successful government PPP. However, the spectrum of Public-Private Partnerships is much broader when evaluating the risk responsibility relationship. Figure 1 (DOT) displays the complete spectrum of Public-Private Partnerships in relation to the risk incurred by the public or private organization. The left end of the spectrum, Design Bid Build, represents full public responsibility and ensuing risk. The right side of the spectrum, Build Own Operate, similarly represents full private responsibility and associated risk. When evaluating PPP contracts, determining who bears what responsibility is critical in determining value for money. In this case, responsibility and level of risk incurred is synonymous. The following paragraphs will further explain the spectrum of PPP's. The discussion will begin with the highest risk borne by the government, Design Bid Build, transitioning through the risk spectrum, ending with risk being completely shouldered by the private sector.

**Figure 1: Responsibility/ Risk Spectrum**



## 1. Design Bid Build

The design-bid-build relationship is the traditional method used in government procurement. This method uses private partnerships extensively, but limits expansion due to the high up front capital requirements on behalf of the public sector. This method requires full up front funding and is the industry standard for government acquisition projects. This is a PPP in that the government negotiates with private industry to complete a project, vice having a government entity complete



the project in house. This method is seen predominantly in the procurement of aviation assets. Private contractors are involved in competition to design, bid, and build aircraft.

## **2. Private Contract Fee Services**

The contract fee for services relationship is also referred to as “outsourcing”. This relationship is developed by divesting services necessary to the operation of the government but can be accomplished by an outside entity. Generally, any service not considered “front-line” can be bundled in a fee-for-service contract. This method is becoming commonplace throughout the public sector, as government agencies look to divest themselves of non-critical activities that do not fit the government’s core competence. Typically, these contracts appear as janitorial services, food and beverage service, and some security forces. The public sector has realized that outsourcing these activities reduces the manpower requirement and leverages current year budget.

## **3. Design Build**

The Design-Build partnership is a modification of the Design-Bid-Build partnership. The Design Build model combines the design and building phases into a single prime contractor. This model still requires the public entity to provide all up front capital requirements, but shifts some of the risk/ responsibility for design to the builder.

## **4. Build Operate Transfer**

The Build Operate Transfer model or Government Owned, Contractor Operated (GOCO) model provides a bundle of services to the public agency. The private sector partner is responsible for the construction, operation, and maintenance of the project. The public entity has the requirement to provide the up front capital, and funding stream to build and maintain the project. The added benefit provided to the public sector is that the acquisition and life cycle support cost is fulfilled by a single contractor for a fee. This concept was used by the Australian



Government to procure their Armidale coastal patrol boats that will be explored in greater detail in a case study in this report. The Australian government was responsible for the capital and financing of the project, however once complete the private contractor retained responsibility for maintenance and up keep.

## **5. Design Build Finance Operate**

The Design Build Finance Operate model bundles the total project cost, offering the public entity a comprehensive program. This partnership provides shared financial responsibility for the ownership of the total program. The Design Build Finance Operate partnership is a modification of GOCO where the private agency provides some debt and equity financing for the project in return for future income streams. This type of partnership has seen considerable success at the municipal level with road construction. Private companies are contracted by the local government to design, build, and operate public roads in return for a portion of future toll revenue. This type of partnership may also take the form of Contractor Owned, Government Operated (COGO) if the financing were structured in favor of primary private ownership.

## **6. Build Own Operate**

Build Own Operate is the consummate Public Private Partnership. This model allocates the majority of the responsibility for financing, operating, and maintaining the project to the private organization. This type of partnership is commonly referred to as Contractor Owned Contractor Operated (COCO) partnership. The COCO partnership places the full up front capital and cost burden on the private organization. This transfers the risk to the private sector for a secured future income stream. In the U.K. this model is also referred to as a Private Finance Initiative (PFI).

This report will focus on the application of the Design Build Operate (COGO) and Build Own Operate models (COCO). The difference between the models lie in the financing mechanism employed. The PFI/ COCO model retains ownership in the private sector, whereas the GOCO allows for Public ownership with some use of



private financing. This concept is used extensively in the U.K. The British Ministry of Defense has had success with this model in procuring helicopter simulation facilities, and a world renowned joint service staff college. Both projects were entered into by the British Ministry of Defense and a consortium of private firms. The projects, once complete are owned and operated by the private firms to provide a service for a fee to the government. A full examination of these case studies can be found in chapter V of this report.

The continuum of Public-Private Partnerships begins with simple service relationships that exist today, and ends with private firms procuring government hardware and providing support services. Value for money exists throughout the range of partnerships based on the program requirements. But, in today's austere budget environment private finance relationships are more useful to the public sector. These initiatives currently exist, and have demonstrated continued success at the municipal government level. Continued proliferation of these partnerships throughout the public sector will prove beneficial in the long run in acquiring end items with limited resources.

## B. Successful Partnerships in U.S. Municipal Government

Public-Private Partnerships within various governmental agencies throughout the United States have been effective and beneficial. The government has in the past relied on private industry for support in designing, building, and operating projects and services. This use of private industry is commonly referred to as outsourcing and has become prolific. However, as public needs continue to build in a fiscally constrained environment private industry will be a critical component in the field of procurement. In recent years, municipal government agencies have seen positive results with Privately Financed Initiatives. In particular, the Washington D.C. Police Department has successfully entered into a partnership with private firms to acquire a traffic light enforcement system. In doing so, the public sector has been able to limit its financial exposure to the project while providing additional public





goods and services at no additional cost. Washington D.C. has had success employing PFI partnerships in the arena of public safety.

### **Washington D.C. Automated Traffic Photo Enforcement**

Principal Partners: D.C. Metro Police Department and Affiliated Computer Services (ACS)

Size of Contract: \$5 million

Scope: Implementation of Red Light Photo Enforcement Program for Metro D.C. areas.

Automobile related fatalities are on the rise within most U.S. major metropolitan areas. Washington D.C. Metro Police have identified a method to try and combat the rising trend of automobile related casualties, red light photo enforcement. The D.C. Metro Police department has contracted with ACS to design, implement, and run sixty photo enforcement facilities throughout greater metro D.C. ACS is an S&P 500 company known globally as a premier technology vendor. Primarily, ACS is a diversified outsourcing company that specializes in information technology and networking systems (ACS).

ACS will procure cameras, install the system at police designated intersections, and run the system at no cost to the taxpayers of Washington D.C. In return, ACS retains a portion of the fine collected from the perpetrator. The revenue split between ACS and the district is volume dependent, with a floor set in favor of the district (57 percent DC /43 percent ACS) (National Council for PPP's Case Study). However, if infractions drop below a level of positive return for ACS, the city of Washington D.C. is not liable or required to supplement ACS in any way for the shortfall. Since the beginning of the program, red light infractions have dropped by forty seven percent having provided infraction generated revenue in excess of \$6 million (National Council for PPP's Case Study). The Washington D.C. red light



enforcement program is not only an effectively financed partnership, but has been instrumental in providing better public safety.

The Red Light Enforcement program is a textbook example of a Contractor Owned Contractor Operated partnership. This type of partnership requires private industry to provide for the financing and up front capital in return for future revenue. This type of financing model affords the public entity ability to procure end-items, infrastructure, etc. without incurring additional public debt or allocating current year dollars. The Washington D.C. automated traffic photo enforcement project is an example of how government agencies are using COCO partnerships to meet requirements in a fiscally constrained environment.



### III. RISK transfer

Growing pressures on the public budget have left the government looking for different ways to fund major projects. In this chapter, we will discuss how the United Kingdom (UK) turned to the private sector for help. By entering in Public Private Partnerships, the UK has been able to procure services and assets that they would have had to do without had alternative forms of financing not been available. This chapter will focus on the PFI arrangement and the success the UK has had in applying this financing technique through better risk allocation and how it can be used as a possible way to finance new assets outside of the traditional procurement stream.

In the UK, Public Private Partnerships are split into three distinct categories. The first and largest deals with the Private Finance Initiative (PFI) where the public sector contracts to purchase goods or services on a long-term basis so as to take advantage of private sector management skills that are incentivized by having their own money at risk. This includes projects where the private sector partner takes on the responsibility for providing a public service, including maintaining, enhancing or constructing the necessary infrastructure or assets. An example is the UK Ministry of Defense deal for the Joint Services Command and Staff College. The second category is the introduction of private sector ownership into state owned businesses using a strategic partner, with equity of either a majority or minority stake. An example of this type is the private contracting out of mess hall services where the private contractor is paid on a per meal basis while the government retains the ownership of the building and assets involved. The third category deals with selling government services into wider markets and other partnership arrangements where private sector expertise and financing are used to exploit the commercial potential of government assets. An example is the public use of aircraft training facilities to fill capacity at underutilized facilities.



The United Kingdom uses PFI to finance large capital assets and services only where it offers the best value for money, similar to the concept of lower lifecycle costs in the US acquisition cycle. Similar to the US, the UK recognizes that major capital asset procurement must involve the cost of the entire life-cycle not simply the unit itself. For this reason the lowest cost bidder does not necessarily win the contract. Also, in the UK, another stipulation is value for money benefits in PFI should never come at the expense of workers in the form of layoffs or decreased quality of life.

The use of PFI in the UK comprises about 11 percent of the country's budget. The UK's Ministry of Defense (MOD), has 46 PFI projects worth a total of £2.5 billion (\$4.3 billion US at 1.7449 exchange rate). The total defense budget in FY 2005-2006 is \$51.1 billion (Defence Budgets), therefore PFI constitutes about 5 percent of the defense budget. Their success has been noted in a study released by HM Treasury research of 61 PFI projects. The key findings were:

- 89 percent of projects were delivered on time or early
- All PFI projects in the HM Treasury sample were delivered within public sector budgets. No PFI project was found where the unitary charge had changed following contract signature – other than where user requirements changed
- 77 percent of public sector managers stated that their project was meeting their initial expectations (HM Treasury 4).

The UK defines value for money as follows: “the optimum combination of

whole-life cost and quality (or fitness for purpose) to meet the user requirement.”(HM Treasury 30) In this sense, they do not allow bias to influence which procurement option is best for the need at hand whether it is prime contracting, design and build contracting or PFI. To ensure that PFI is the best option, the UK Government undertakes a full evaluation of the costs and benefits including an assessment of risk both to the government and the contractor. One of the primary benefits of PFI is the transfer of risk. PFI seeks to ensure that the



private sector takes responsibility for the quality of design and construction it undertakes, and for long-term maintenance on an asset, so that value for money is achieved. Therefore in a perfect PFI scenario, value for money is achieved primarily through proper transfer of risk to the party best poised to limit that risk. The government retains risk of contract change to keep flexibility such as the number of ships purchased, or bears the cost of adding a new system to an already designed platform. The valuation of these risk transfers is what makes these arrangements attractive to the public sector. These concepts are applied later in three case studies from the private sector, in the UK the Medium Support Helicopter Aircrew Training Facility, and the Joint Services Command and Staff College, and an Australian example in hardware procurement, Armidale Patrol Boats. Key to these projects is the optimal sharing of risk.

Optimal sharing of risks between the private and public sector is important to realizing the best value for money of any PFI arrangement. There are certain risks that are best managed by the Government and to seek to transfer these risks would either not be viable or not offer value for money for the public sector. When risks are shared, projects are more likely to be completed on time and on budget. For example, construction risk, or the risk associated with the design of a warship are borne by the party who is best placed to manage them. In this way, the private sector is incentivized by having its capital at risk to perform well, and takes responsibility for the work it undertakes. In case of poor performance, the public sector ensures effective service delivery in three ways. First, quality service delivery is maintained first through deductions for poor performance, if the problem persists, the second is replacement of the subcontractor, and third, if the discrepancy cannot be improved, ultimate contract termination. An example is the government or private financier firing the food service provider for repeated poor performance at the Joint Services Command and Staff College and replacing with another food service provider, then the main contractor would be deducted for the payment.



## A. RISK SHARING

The success of a PFI project is seen in how risk is shared. As previously stated, risk that is shared in a PFI contract is placed on the party best situated to mitigate or control the risk. This section will explain how risk is allocated among the parties within a PFI contract. The UK Government's approach to risk in PFI projects does not seek to transfer risks to the private sector as an end in itself. Where risks are transferred, it is to create the correct disciplines and incentives on the private sector to achieve a better outcome.

### 1. Government Risk

The general principles behind the Government's approach to risk-sharing in PFI are as follows:

- The Government underwrites the continuity of public services, and the availability of the assets essential to their delivery.
- The private sector contractor is responsible, and at risk, for its ability to meet the service requirements it has contractually agreed to provide. The full value of that debt incurred by the project, and the equity provided by contractors and third parties, is the cap on the risk assumed by the private sector. (34)

The UK government retains risk in five areas much the same way a public entity would in normal procurement. The first is associated with date and adequacy for delivery. For instance, if the construction of an asset such as a warship did not have enough of a certain capability or beds, then the government assumes the risk and extra cost associated with adding more capability, beds, etc. The second is the possibility of a future change in public sector requirements. If the needs of the government change, the government retains the responsibility to make alterations within provisions set forth in the contract and will incur the cost of making the changes after the contract was signed. The third area is when the standards of delivery set by the public sector sufficiently meet public needs. The public sector retains the risk involved in planning the provision of public services, and specifying a



procurement of facilities that meets those requirements. The fourth area involves the extent to which an asset is used or not used over the contract's life. This primarily deals with land based facilities. However this can be applied to capital assets such as transport planes, trucks etc. Finally, the government retains the risk of general inflation.

## **2. Private Sector Risk**

Risks that are transferred by contract to the private sector are specifically identified and limited (See Appendix II for the Joint Services Command and Staff College). They typically apply to contract terms of 15-30 years and cover five areas. The first is meeting required standards of delivery. If the project's design (as determined by the private sector) was unable to provide the required service's needs, the private sector would need to pay the cost of correcting the design to bring the item to contractual specifications. This implies that all of the specifications are identified at project inception. Therefore, this type of financing is best used for projects of a specified length of time that uses mature technology. An example is contracting for trucks or other easily repeatable capital items that use modern assembly lines and need to be redesigned or incur added technology development costs. PFI financing would be difficult to implement for projects which incur high technology development costs because the Research and Development program for a specific technology can experience many unpredictable set backs and cost overruns.

The second area involves cost overrun during construction. For instance, if after the design and construction plans were approved, it is found that more support is needed for the weight of a ship system, then there would be no increase in the government's payment. The cost would be incurred by the private sector to correct the deficiency and bring the project in compliance with contract design standards. In conventional procurement the government would be forced to pay the charges.

Third is the private sector taking on the risk associated with the timely completion of a project, which typically leads to incentive payments for early



completion. If the project is delivered early, the private sector stands to profit more through bonus payments. However, this can prove disastrous if the project comes in late and the private sector incurs extra cost.

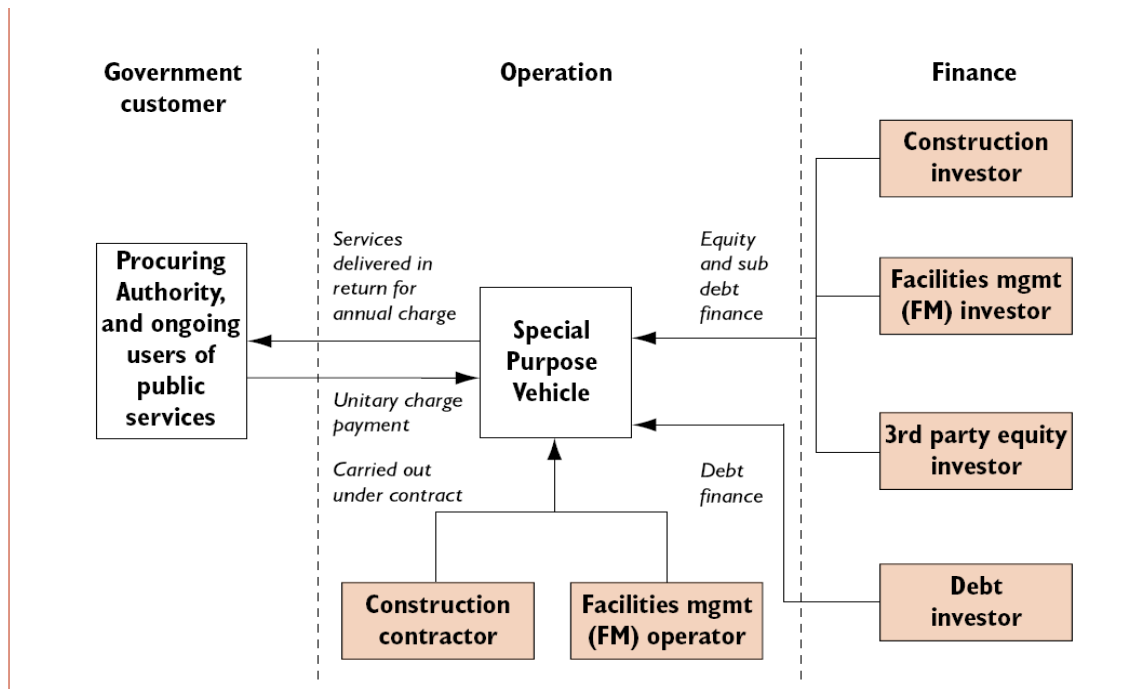
The fourth area in which the private sector incurs a share of the total risk has to do with the underlying costs to the operator of service delivery, and the future costs associated with the asset. This occurs if the private sector takes on an existing asset in a PFI project, thereby assuming the risk of any latent defects in the asset which must be resolved. The private sector would need to make these remedies, and cover their cost, in order to continue to receive payments for the availability of the asset. This could apply to refueling tankers. The private sector would assume the costs of the upkeep of the aircraft and assume the risk of defect upon delivery from the aircraft manufacturer because they “own” them. Finally, the private sector holds onto the risk of physical damage to the asset while it is in their care (36).

Within the area of private sector risk, the total risk is passed to the various contractors as they assume a piece of the project. Figure 2 shows the structure of a typical PFI and how the risk is allocated on a project.





**Figure 2: The Consortium Company Joint Venture Model (37)**



In this structure, the private sector reallocates risk to subcontractors, the most appropriate parties to mitigate risks. Typically:

- The construction contractor, under a subcontract with the consortium company, takes the design, construction and completion risk;
- The service provider, or Facilities management operator, under a subcontract with the consortium company, takes the risk of timely and cost effective service provision;
- Insurers provide protection for risks of damage and business interruption
- The consortium company, the Special Purpose Vehicle, its lenders and investors are therefore left with a series of residual risks, some of which are credit risks on the subcontractors' performance.

The benefits of this consortium joint venture structure are that it permits different parties to become involved in the PFI scheme and share the risks effectively. It also can involve third parties such as financiers, who must assess the

strength of the contractual arrangements and the level of support offered as they rely on these when it comes to repayment of their loans (37). An example of third party involvement can be seen in the Joint Services Command and Staff College case study and the financing provided through the Royal Bank of Scotland discussed in Chapter V.

With regards to flexibility and public sector safeguards, the typical PFI contract stipulates that the government can make changes in design, or capability. However they will bear the cost of the changes much the same as with traditional procurement. In the event of poor performance, the contract stipulates that the special purpose vehicle can hire and fire subcontractors and the government can withhold payments in order to maintain the overall quality of the program's good or service. The revenue loss from deductions and penalties provides a powerful incentive for the PFI contractor to correct deficiencies.

The repercussions of revenue loss are large for the PFI contractor as shareholders will see a decline in their returns. Third party credit providers will be concerned that this loss of revenue will increase risk that the PFI contractor will be unable to meet its debt service obligations. Credit providers have contractual rights over the other private sector participants in the project, which can enable them to enforce performance against contractual obligations. Credit providers have the ability to replace the private sector participants in the PFI with other companies better able to deliver to the required standard. In extreme cases, the government retains the right to transfer the entire program out of the PFI umbrella in the event of total failure by the private sector. Upon expiration of a standard PFI contract, with rare exceptions the key assets needed to continue to deliver public services revert to the public sector free of charge (40). In the US, the government would likely pay the contractor a portion of the asset's useful value or its salvage value.

### **3. Cost of Risk**

Private contractors, investors and bankers evaluate cost of risk in a PFI contract by discounting back all future cash flows at a specified discount rate or cost



of capital which includes an implied risk premium that is assessed to the project. This rate is usually much higher than the government borrowing rate, typically in the US it is the T-bill borrowing rate or in the UK, the gilt rate. In a study conducted by the US GAO in 2001, it was determined that the promise of an internal rate of return of approximately 15% would draw considerable interest from the private sector. (Ungar 5).

A common misperception is that these deals are inherently bad for the government because the government's cost of capital is the lowest. However, the HM Treasury report found with publicly financed procurement, the taxpayer underwrites the risk associated with the project. This risk is then captured in a lower cost of capital to the government. It is the taxpayer that bears the risk with a project, and when a cost overrun occurs due to a construction set back for example, it is the taxpayer that bears the cost for the overrun. It is therefore inappropriate to compare a "risk free" cost of capital with the private sector cost of capital. PFI projects therefore provide value for money through the private sector taking on, pricing, and managing the risk that they can control. This cost savings is then passed onto the government. (HM Treasury 42)

In the public's interest, for PFI, risks are priced individually for each project option. The discounted costs of these risk-adjusted options can then be compared to accept the best project or option when considering risk and uncertainty. HM Treasury found that in traditional public procurement, the public sector pays for risk not in its borrowing, which for the government is at non-risk rates, but when the risks materialize and must be covered. (42) The valuation of the risk that is passed from the public sector to the private sector is known as the public sector comparator and is the basis for the next chapter.



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## IV. The public sector comparator

One major difficulty in comparing the value of a lease to the value of a direct purchase is valuing the allocation of risk. It is easy to compare the two alternatives using discounted annual cash flows and the net present value associated with each. However, in quantifying the greatest advantage associated with a lease, valuing the allocation of risk is not so easy. The Public Sector Comparator (PSC) is an attempt to quantify the value of this transfer of risk and give it a monetary value to better compare the two mechanisms so the government is better able to determine which proposal delivers the better Value for Money (VFM).

The PSC is a technique that gained acceptance by Great Britain in the 1990's (HM Treasury release). During the early portion of the decade, Great Britain found itself with a variety of public goods needing refurbishment, but did not want to significantly increase taxes or the national debt. The government's answer was to embrace PPP's to make the improvements. Great Britain was not a stranger to privatizing public goods, but still faced a major obstacle in the acceptance of PPP's. The greatest difficulty was proving that a greater value of money could be earned in a PPP than a traditional procurement program. The PSC allows valuation of risk transfer to be added to the public procurement option cost structure. This ensures that public procurement options and PFI options are compared equally. The following sections outline how the PSC is constructed.

### A. Components of the PSC

The goal of the PSC is to improve the comparison of the purchase and PPP options. In order to more accurately depict the costs and benefits of each financing option it is important to consider all the costs and benefits of each. A PSC is a function of four variables expressed as follows (Partnerships Victoria 7):

$$\text{PSC} = \text{Transferable risk} + \text{Competitive Neutrality} + \text{Raw PSC} + \text{Retained Risk}$$



Each of the above four variables constitutes a portion of the value of the contract and is important to consider when evaluating the value of a PPP. They will be defined below.

### **1. Competitive Neutrality**

Competitive neutrality is an attempt to negate any financial advantages or disadvantages the government enjoys over the private sector. For instance, the government does not pay taxes giving it an advantage over the private sector. Conversely, a private firm will not face the scrutiny public sector project may face. The competitive neutrality assigns a value to these factors and places them into PSC.

### **2. Raw PSC**

The Raw PSC is a calculation of how much the government would have to pay in a traditional acquisition process. The Raw PSC is comprised of three variables: capital costs, operating costs and third-party revenue. As shown in the equation below (Partnerships Victoria 24), these are the values used in comparing lease versus buy alternatives:

$$\text{Raw PSC} = (\text{Operating Costs} - \text{Third Party Revenue}) + \text{Capital Cost}$$

Operating and Capital costs are those costs associated with the purchase, operation and maintenance of the good or service. Capital costs are all costs (direct or indirect) that are associated with providing the good or service. Third party revenue is that revenue that may be lost by a government owned facility which provided services to the private sector. For instance, if the government is deciding whether to privatize a shipyard and pay a private firm for services or maintain a government operated shipyard, the potential lost revenue from services the government may provide to the commercial sector may be subtracted from the costs of operating the shipyard.



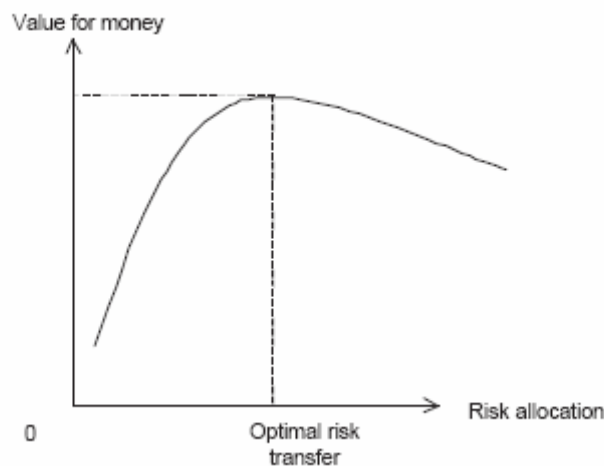
### 3. Transferable Risk

Transferring risk to the party best able to mitigate that risk is one of the greatest advantages of a PPP and one of the most often overlooked variables by those opposed to PPP's as a method of procurement. By transferring the risks to different parties in a contract, the project should increase the public sector's value for money. An increased value for money for the public sector and profit for the private sector is a winning situation for all parties involved.

### 4. Retained Risk

Retained Risk represents the cost associated with risk that will be assumed by the government. The key for a successful PFI is to transfer the risk to the party best able to mitigate that risk as shown in Figure 3 (Partnerships Victoria 52)

**Figure 3: Optimal Risk Allocation**



With Value for Money depicted on the vertical axis and Risk allocation on the horizontal axis, the curved line represents how the value for money increases as risk is transferred among parties. The value for money increases rapidly until the optimal risk transfer point is met and then the amount of risk transfer begins to adversely affect the value for money. The key for a successful PPP is to reach this optimal level because risk is properly distributed among parties and all parties receive the maximum benefit.

## B. Calculating Risk

The dispersion of risks throughout the parties in a government project may be a great advantage for the PPP options, but it is also hard to accurately quantify risks. The process is very subjective and requires some level of risk. An effective means of establishing a baseline level for risk follows the steps below (Partnerships Victoria 32,33):

1. Identify risks
2. Quantify consequences associated with each risk
3. Estimate the probability of each risk occurring
4. Calculate the value of risk

### 1. Identifying risks

There is a broad range of risks associated with any project. These risks may include those associated with the contract and financing to those incurred during construction, operation or possible destruction. The key is developing a list of risks that are incurred at every step in the procurement process. This task can be more easily accomplished with greater accuracy by conferring with subject matter experts and/or consultants.

### 2. Quantifying Consequences

Quantifying the consequences may be even more subjective than identifying the risks of the project. Determining point estimates may be extremely difficult and may represent a “best guess” in a given scenario. Estimates can be made using either a risk matrix or historical data, but the goal should be to develop a reasonable assessment of possible consequences of specific risks not a concrete value for the potential cost to the government.

### 3. Probability of risk

The probability of risk is best explained as the chance of the risk identified being realized. There are a variety of methods to develop these values, but again the process is subjective in nature and will provide only an estimate.





Although assigning a monetary value to the risk associated with a given project is a very subjective process, it is naïve to completely disregard risk. It is better to attempt to value additional costs and slightly miss the mark, than to completely disregard these costs and be grossly optimistic.

### C. The Value of the Public Sector Comparator

As depicted in Figure 4 (Partnerships Victoria 11), the sum of the four components which make up the PSC are equal to the real costs associated with given project.

**Figure 4: Components of PSC**

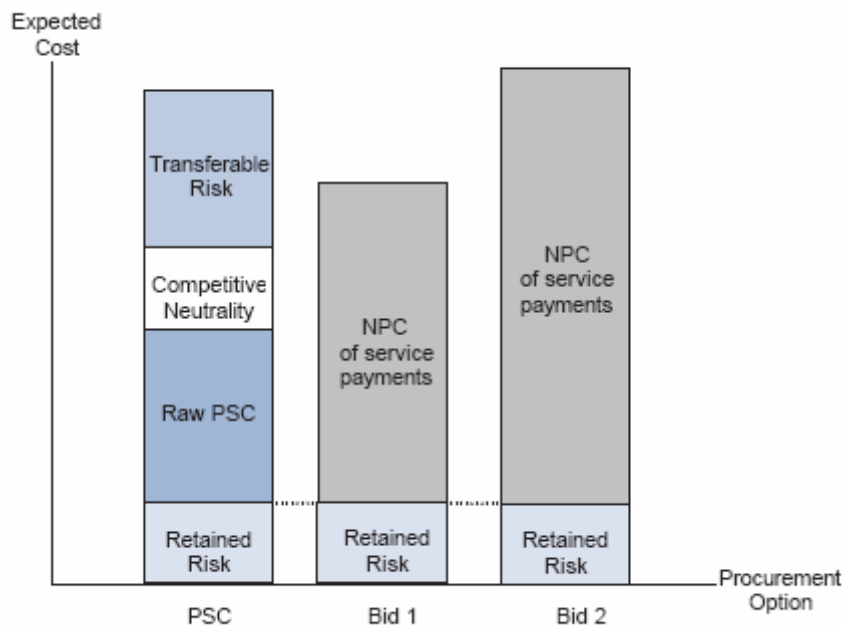


Figure 4 shows three separate bids for a given project. The PSC bid depicts the expected cost of the project broken down into the different elements of the PSC. The two alternative bids only depict the overall expected cost for each bid. The PSC allows the government to see the true value of a PPP bid. Without considering the risks associated with service and acquisition the true costs to the government are not reflected and the procurement option will most likely appear to be the better option. By taking the risks into account the government is better able to compare all

the costs associated with procurement and determine the best Value for Money solution. Using these risk transfer concepts, the following chapter outlines three case studies of successful alternative forms of financing, two in the United Kingdom and one in Australia.



## V. Case Studies

### A. Introduction

Our intent in this research effort is to present three separate case studies and discuss how each case was evaluated individually based on value for money, risk exposure, and affordability. Additionally provided for clarification and background is an introduction to Serco Inc. Serco is the primary conduit between the PPP's and was helpful in generating this report. Finally, a discussion of critical components of a Private Finance Initiative will be discussed.

The three case studies are described briefly as follows:

#### 1. **MOD Medium Support Helicopter Aircrew Facility**

The project involves three separate private companies working in concert to finance, design, build, and service a helicopter training facility (COCO) The contract includes \$220 million in hard assets, a 20 year life, and an option to bring in third-party revenue. The contract was valued at \$605 million through 20 years.

#### 2. **MOD Joint Services Command and Staff College**

This venture involves two independent private firms contracted to finance, design, build, and operate a joint service military college (COCO). The contract includes \$420 million in hard assets with a life of 30 years.

#### 3. **Australian Armidale Patrol Boat's**

This project incorporates traditional government hardware procurement with a private financed initiative to support life cycle costs. Several private companies formed a consortium to build and operate 12 Navy Patrol Boats (GOCO). The contract is valued at \$553 million involving construction and a 15 year service life.



## B. Serco inc.

Serco emerged in 1986 as a spin-off of General Electric Company designed to focus on facilities management, system engineering, and support services. By 1987 Serco had established itself as a separate company home based in the U.K. In 1994 Serco entered North America, focusing on the Canadian market (Serco). However, by 1998 the UK partnership market had begun an evolution toward Private Finance Initiatives (PFI) where private companies purchase hard assets, bundle a service contract, and sell a capability to the public sector. Serco then began joining consortiums of companies in similar businesses to compete in the next evolution of Public Private Partnerships-Private Finance Initiatives. To date Serco has 600 existing contracts in over 35 countries employing over 35,000 personnel worldwide (Serco). In this research Serco Inc. is the common link between the three case studies. Serco Inc. has been successful in pioneering the Private Finance Initiative in the U.K. and introducing the concept to North America. Finally, Serco serves as an example of private sector interest in the evolution of government procurement.

## C. Private Finance Initiatives

A growing concern in today's military hardware procurement sector is obtaining value for the limited resources available. Similar to DOD, the MOD is fiscally constrained in procurement programs by budget shortfalls and cost growth. However, in order to provide for increased operating leverage, the U.K. Ministry of Defense, post 1998, emphasized using PPP/ PFI as the desired procurement mechanism. The MOD believes it increases its value for money and reduces its capital exposure in current year dollars. The expected value for money is based on the following premise (Kaye):

- The MOD expects improved quality of services through opportunities for innovation and application of latest commercial techniques.
- Risk transfer to the private sector through the use of appropriate incentive contracts.



- Efficiency gains by exposing staff to private sector management, commercial and financial skills.

The above assumptions, coupled with the necessity to expand operational capability, and value for money over time represent the value proposition put forth by the private sector. The MOD further details six primary factors critical to implementing a PFI program and retaining value for money (Kaye):

- Risk Transfer
- Output Base Specification
- Long Term Contract
- Performance Measurements & Incentives
- Competition
- Private Sector Management Skills

In showcasing these programs, this paper will continue to promote developing viable options for future defense acquisition projects. Additionally, by evaluating the transfer of risk to private sector companies, coupled with a diverse stakeholder consortium we intend to show true value for money.

#### D . Medium Support Helicopter Aircrew Training Facility

**The characteristics of this project are as follows:**

- Royal Air Force (RAF) Helicopter aircrew training facility in support of multi mission medium lift, Puma, Merlin, Chinook helicopters:

○ Puma



○ Merlin





- Chinook
- Located at RAF Benson in Oxford
- Contractor: CVS Aircrew Training PLC. (CVS)
  - CAE Electronics Ltd. (CAE)
  - Vega Group Plc. (Vega)
  - Serco Inc. (Serco)
- \$250 million capital Project Cost with a 20 year service contract valued at \$605 million through 20 years.

## 1. Background

The medium support helicopter training facility located at RAF Benson is designed to teach all facets of aviation to RAF helicopter Pilots. The facility is equipped with a tactical control center designed to simulate a military flying environment, computer based trainers to support ground school, and six fully integrated motion control helicopter simulators. The training staff is comprised entirely of civilian helicopter pilots and qualified ground training instructors. The primary intent of the facility is to reduce the flight hour requirements on the actual flying squadrons. The medium lift helicopter mission requirements are tactically diverse. The missions require crews to operate tactically under low light conditions in potentially hostile environments. Simulator flight training reduces the risk inherent with operating an aircraft in real conditions. The RAF can generate cost savings by reducing flight hours and eliminating the risk associated with operating fleet aircraft in dangerous training environments. The project viability rests in the cost savings generated by the aircraft flight hours saved in addition to efficiencies gained through using commercial sources to run the project.

The contract was awarded to CVS in October 1997 by the Defense Procurement Agency (DPA). CVS was formed by CAE Electronics, simulator manufacturer; Vega Group, computer technology provider; Serco, facility operators and aviation expertise provider.



## 2. Scope

The Ministry of Defense Procurement Agency identified a genuine need; reduce flying hour cost while maintaining pilot proficiency and quality. In developing an analysis of alternatives, the MOD identified three potential courses of action: 1.) Do nothing; continue using current training devices until beyond repair and then purchase new devices. 2.) Provide for the minimum requirements; meet the need half way and limit the financial breadth of the contract. 3.) Provide for the training needs as evaluated (HM Treasury Task Force 6).

The third option was chosen based on the economic value gained as evaluated through their internal analysis. However, the economic value gained is contingent upon the “quality” and “usage” of the simulators being negotiated. These are key cost drivers that require considerable capital expenditure at the inception of the project. Due to the large capital outlay requirement necessary for construction, and constrained financial resources typically confronting government agencies, the MOD identified a private finance initiative as a viable option. Additionally, the Ministry of Defense firmly believes that incorporating the private sector in all aspects of procurement can be beneficial. Sir Robert Walmsley, Chief Executive of the Defense Procurement Agency states (HM Treasury Task Force 1):

A significant outcome has been to show that the role of the private sector in defense can be widened through the use of PFI contracts, and that substantial value for money improvements can be achieved.

-Sir Robert Walmsley, Chief Executive Defense Procurement Agency

CVS was contracted to design, build, and operate the medium support helicopter training facility. In the context of our analysis this contract embodies the pure definition of a COCO. The contractor, CVS, will undertake the entire project including soliciting private institutions to provide the necessary equity to finance the building phase. The alternative option evaluated by the MOD procurement service follows a more traditional GOCO format in which the bulk of the initial capital outlay would fall to the government agency to provide in the first year.



The key concept of this undertaking was to provide the MOD with the following equipment and services (HM Treasury Task Force 5):

- 3 Chinook HC Mk 2 Dynamic Mission Simulators
- 2 Merlin HC Mk 3 Dynamic Mission Simulators
- 1 Puma HC Mk 1 Dynamic Mission Simulators
- Aircrew CRM training
- Computer Based Training Package for Chinook and Merlin
- Comprehensive Ground School
- Local Area Network Connectivity for Multiple Unit Simulation
- Facilities and Support for the Simulators and Ground School

The helicopter training facility and associated support structures are located at RAF Benson in Oxfordshire U.K. The simulator facility location was chosen in order to optimize training and minimize traveling time to operational airfields. The Merlin and Puma aircraft currently operate from RAF Benson while the Chinook aircraft have to be flown in when necessary from RAF Odiham (50 Km South) (Benson). Aircraft proximity to the training facility is a critical part of the contract. The MOD clearly stated that a large component of the comparative analysis consider the fuel cost savings from using simulators vice aircraft. However, at the conclusion of simulator and ground school training, students must qualify in actual fleet aircraft. Long transit times that cannot be used for training purposes simply increase the overhead involved, and detract from the viability of the project.

### **3. Contract**

The MOD entered into a 40 year contract with CVS to design, build, and operate the medium support aircrew training facility. The MOD is obligated to 20 years of guaranteed usage. The second 20 year period of the contract will be reevaluated at the completion of the first 20 year portion. The MOD is not obligated to continue after the first 20 years, and can cancel without financial recourse. The contract, from the MOD point of view, is designed to provide a service for a fee. The MOD in essence is purchasing a capability vice procuring a simulator facility. The





construction risk and success of training efficiencies is placed on the contractor. The contractor will only be paid for quality results and the successful completion of training for each pilot.

The payment function of the contract is based on MOD actual usage, quality of product, and availability. The MOD is billed at an agreed upon rate based on anticipated usage. The hourly rate is gradually reduced over time through the 20<sup>th</sup> year of contract life. The necessity for a scaled fee was imposed by the banks due to the front end loaded capital requirement (Symes). Accordingly, the MOD is billed proportionally to the hours used in excess of contract or penalized for under usage. Similarly, the contractor is penalized for lack of quality service or inability to provide training if scheduled. This payment scheme incentivizes both parties to maximize potential usage of the assets.

Additionally, due to the cyclic nature of MOD requirements, the contract was designed for only 80 percent of actual MOD usage requirement. Even if the MOD required 100 percent of its contractual obligation, 1/3 facility capacity would still remain, allowing CVS to solicit third-party usage. Third-party facility usage is beneficial to the MOD and CVS because revenue generated by outside sources is divided proportionally between the MOD and CVS. The amount of third-party scheduling is contingent and biased to the MOD contractual requirements. The MOD retains priority over simulator services. This type of multi-party contract, where outside revenue can be generated, is beneficial to the government and primary PFI contractor. A multi-party initiative such as this provides the potential for underutilized government assets (land) to be tied to procurement projects with revenue offsets, helping reduce the overall cost to the government. Public Private Partnerships help take advantage of underutilized government capacity.

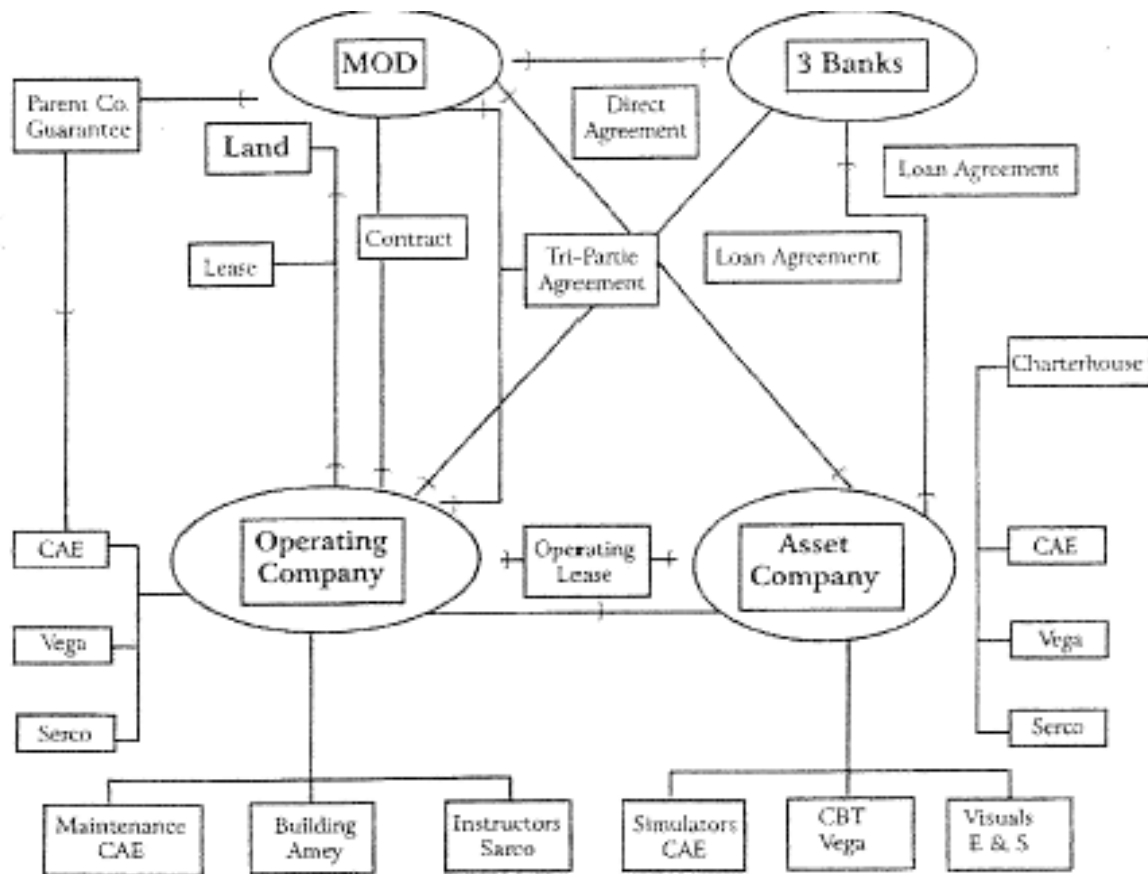
#### **4. Contractor**

The contractor, CVS, can be divided into two separate companies with different contractual obligations. In order to understand stakeholder requirements and incentives in relation to the contractor, we will discuss the role of the asset and



operating companies individually. Stakeholder relationships are further defined by identifying the equity share holders, debt holders (banks), and contracting agency (MOD). Figure 5 below graphically represents the interconnectedness of all participating entities (HM Treasury Task Force 8).

**Figure 5: Medium Support Helicopter Aircrew Training Facility Contract Structure**



#### a. Asset Company

The asset company is responsible for financing, designing, building, owning the facilities, leasing the land, purchasing the simulators, and purchasing the computer equipment. It is also the primary conduit for the financing liability. The primary contracting companies will act as sales agents; CAE will sell the simulators, and Vega will sell the computer equipment to the asset company.

The primary companies involved in the contract, (CAE, Vega, Serco) are tied directly to CVS via equity provided at project inception. The primary contractors, in



concert with Charterhouse Capital Inc. provided 20 percent of the required financing through equity (\$44 million). The major portion of the financing (80 percent) was through debt involving a consortium of six banks. The leading bank, HSBC, acts as consortium lead (Symes). The asset company is a mechanism that unifies the primary contractor's liabilities as a single entity. In reality it is just a subdivision of CVS Aircrew. However, the division of asset and operating companies shields the MOD and contractor consortium from the liabilities. This model affords the primary contracting companies the opportunity to retain project ownership and yet minimize their exposure to risky debt.

The asset company, once fully developed entered into a lease agreement with the operating company. In this case both companies are subdivisions of CVS. The lease agreement between the asset and operating companies is essentially a funds transfer mechanism used to satisfy senior debt payments (bank loan), and distribute remaining profit as interest on dividends to the equity partners. The asset company is invisible to the MOD on a daily basis. The asset company operates independent of the operating company and is only connected to the MOD via liabilities documents discussed later.

**b. Operating Company**

The operating company is the link between the contractor consortium and the MOD. The operating company is the face of CVS and is responsible for soliciting business whether it is from the MOD contract or third-party interests. The operating company is responsible for facilities maintenance, simulator maintenance, ground school administration, simulator scheduling and administration, and providing instructors. The operating company will subcontract the day-to-day services necessary to sustain operations. Unlike the asset company, the operating company may have upwards of 50 subcontracts. The subcontracts are awarded by the operating company for necessary services and do not impact the agreement with the MOD. In the case of the MSHATF the primary subcontracts were awarded to Serco, CAE, and associated partners for maintenance and manpower.



Additionally, the operating company is responsible for administering the contract with the MOD. Primary contract administration services are also subcontracted and include quality assurance, revenue collection, and dispute settlements. From the MOD perspective, this acquisition resembles a fee-for-service contract, because payments are made to a private company for services without ownership.

Finally, the operating company is also the agency responsible for soliciting third-party usage and allocating profit from the extra use. Since the government contracted usage is set to 80 percent of 75 percent capacity, there is an incentive to the operating company to generate supplementary revenue. Part of the revenue generated is used to offset the MOD cost, per the primary contract. However the remainder is pure profit, because there are no additional costs incurred. Third-party usage charge is generally \$1,500 per hour, and traditionally booked in two-hour increments or greater (Symes). This option could prove to be quite lucrative to the MOD and CVS.

### **c. Banks**

HSBC is the lead of a six bank consortium involved in providing the debt leveraged capital for the helicopter training project. The banks entered into an agreement with the asset company to provide the required capital (80 percent asset value). In order to secure the line of credit, the banks required a 20 percent equity share and a “tripartite agreement” with the MOD and operating company. The bank consortium deemed it necessary to contractually bind all interested parties in order to allocate risk in a more equitable fashion. The asset company generates revenue from the lease agreement with the operating company. The operating company is bound by contract to the MOD to provide a service for a fee. However, by implementing a tripartite agreement, the MOD and the bank consortium become bound in the event the MOD exercises an option to exit the contract. This stipulation only becomes an issue if the MOD breaks the contract within the first twenty years of service. But, with 80 percent of the debt financed, the bank consortium wanted this protection if the MOD exercised this option (Symes). This level of scrutiny is



common in the private sector and effectively used to allocate risk equitably. Additionally, the private companies must complete a detailed financial analysis to sell the concept to private banks. This level of financial analysis and evaluation of risk required by the banks is essential to the growth of PFI projects.

**d. Equity Shareholders**

The primary equity shareholders are the three contract companies (CAE, Vega, Serco) with Charterhouse Capital as a third-party interest. CAE holds the majority of equity interest (10 percent) with Serco trailing as the minority (1.8 percent) equity partner (McNaught).

The three contracting companies play an additional role as service providers over the life of the contract. The service package is critical to understanding value for money from the private company's perspective. Without the service package there is no need for a long-term contract and the deal reverts back to an outright purchase. The contract length and service requirements are private industry's reward for risk incurred by providing the up front capital. The mechanism that connects the service providers with the equity shareholders is the operating company. The operating company provides for services by entering into contracts with the equity providers for building maintenance, instructor pilots, and various other facility management services.

The risk associated with design and construction as well as interest rate fluctuations falls to the asset company. The asset company is financially backed by the primary contracting companies in the form of equity and the bank consortium via debt. The asset company is the mechanism that generates equity growth for the shareholders after senior debt is satisfied. The equity growth is independent of any fee-for-service contracts levied by the operating company. In the case of the CVS consortium, equity return coupled with long-term fee-for-service contracts is the value for money proposition.

**e. MOD**



The MOD entered into a forty-year contract with the CVS operating company. The MOD is financially obligated through the first twenty years, and can choose to continue through an additional twenty. The MOD bears no liability of asset ownership, facility maintenance cost, procurement cost, etc. during or at the end of the contractually obligated period. The MOD pays a fee for service to CVS, the operating company. The fee is based on actual usage rates and is downward adjusted over time with offsets from third-party usage. In keeping with standard fee for service contract obligations, the MOD is penalized for scheduled time not used, early exit of contract, and changes to training not specifically stipulated in the original contract. However, the MOD bears no responsibility of ownership or requirement to purchase the assets at the conclusion of the contract. From the perspective of the MOD this is a service not procurement contract.

## **5. Risk**

The transfer of risk from the public to private sector used by PPP/ PFI models such as the MSHATF ensures the value for money. The most significant level of risk transferred is in two categories, construction-project overruns and performance justification. Government procurement has a long standing tradition of soliciting the lowest bid contract, not value, resulting in significant slippage and cost overrun. The PFI/ PPP model transfers the initial high risk portion of the acquisition, where the large up front capital requirement exists, to the private sector. The private sector has, over time, developed effective risk matrices and is efficient in dealing with this environment. In short, the true value for money does not lie in a dollar for dollar financing comparison, but in the cost of risk avoided.

The MSHATF project, in keeping with MOD finance department regulations, was evaluated against a Public Sector Comparator (PSC) designed exclusively to evaluate this project. The PSC and contractors independently evaluated the project on a full cost basis including cost of capital, physical construction cost, and risk incurred. The primary difference between the contractor evaluation and the PSC is in the risk at project inception. The following excerpt is from the risk/ transfer value



for money chapter of the MOD finance department case study (HM Treasury Task Force 17):

4.1.4 The most significant risks to be valued and added to the PSC were:

- Construction Overruns. The main risks that were not addressed in cost terms by a conventional fixed-price contract were planning risks and delay in entry into service. Because of the greater incentive to deliver on time inherent in a PFI contract it was assumed that any delay in entry into service would be significantly shorter under PFI than under conventional procurement.
- Performance Failures. Down time of the simulators was expected to be much less under the PFI than under conventional procurement because of the greater penalties/incentives under the PFI contract.

From the government perspective, the true value for money proposition is transferring project ownership to the private sector during high risk evolutions. The private sector, in turn, solicits debt and equity providers to evaluate and enter into project ownership. Because of the number of private parties involved, the project is evaluated several times and must withstand a high level of financial inquiry. The public sector does not entertain this level of scrutiny, and will commit to higher levels of risk without mitigating circumstances.

The primary reason for the difference in evaluation techniques is due to the difference in focus between the government and private industry. The government is concerned with keeping cost within a reasonable margin, while private business is focused on maximizing profit potential. For these reasons, the MSHATF contract shifted the high risk portion of the project to the private sector, but provided fiscal incentives to arrive on target, and on price. Additionally, the nature of the project led to further risk discussions and reasonable load sharing between the MOD and CVS.





Appendix I contains a break down of the risk sharing matrix used for the MSHATF contract (HM Treasury Task Force 22).

The MSHATF contract was let in October 1997 and valued at \$605 million though the first 20 years of contract life (HM Treasury Task Force 4). For evaluation purposes the MOD employed the PSC model provided by the UK treasury and evaluated several different risk profiles. The MOD using PSC analysis valued the contract between \$695 million to \$726 million through 20 years of life. Both the PSC and contractor analysis assumed the same MOD utilization rates (80 percent), 66 percent capacity available for third party usage, and a 6 percent discount rate provided by the treasury (HM Treasury Task Force 7). Ultimately, the PFI model proved to be the optimal financing mechanism, besting the public procurement option by a conservative 15 percent (Symes). However, future third-party sales may further offset the MOD's cost. This payment mechanism limits the potential cost to the MOD by setting their take-or-pay rate, but does not limit profit sharing potential generated by third-party interest. By providing the potential for an income stream in the financing mechanism of the project, traditional military cyclic usage could be dampened by third-party revenue. This type of contractual obligation displays the potential value to the government involved in using private sector financing techniques.

## E. JOINT SERVICES COMMAND AND STAFF COLLEGE

### 1. Background

The Joint Services Command and Staff College was conceived in 1994 and started temporarily in 1997 to serve as the Ministry of Defence Tri-service officer training college. It is located on a 100 acre site at Shrivenham and boasts a £90 million 45,500 square meter new facility which includes:

- 7 lecture theater 70-450 seat capacity
- 67 syndicate rooms and library
- 170 offices and 2 conference rooms





- Mess facilities including 2 bars
- 483 single bedrooms
- 290 residential homes
- Extensive leisure and sports facilities (United Kingdom 1)

The opening of the new College enabled the UK Ministry of Defense to consolidate three separate military colleges to create a truly joint education experience. The College trains 2,000 people a year with a staff of 160. Its forecast expenditure in 2001-2002 is £35 million (United Kingdom 1). The funding for the project was originally going to be by traditional procurement using public funds. The Ministry of Defense then experienced affordability problems as the price tag rose too high. Private Financing Initiative (PFI) was selected to fund the college, housing, teaching and facilities management. PFI funding was found to be 10 percent less than traditional public procurement by the U.K. National Audit Organization (the US equivalent is the GAO).

## 2. Timeline

The following timeline in Figure 6 annotates the key events in the creation and building of the Joint Services Command and Staff College. The project was delayed a year because the decision to move from traditional procurement to PFI led to more intense contract negotiations due to the transfer of risk and the question of how to value those transfers.

**Figure 6: Chronology of Events for JSCSC**

2 Chronology of events	
Date	Event
July 1994	Decision to form the Joint Services Command and Staff College
September 1995	Decision to explore the use of the PFI to provide the College's permanent facilities
August 1996	Invitation of preliminary PFI proposals
January 1997	Establishment of the College
February 1997	Selection of Defence Management as preferred PFI bidder
September 1997	Start of the first joint Advanced course in temporary facilities at Bracknell
June 1998	Signature of PFI contract
August 2000	Completion of the new facilities at Shrivenham and admission of the first students
September 2000	College fully established at Shrivenham; interim facilities close

(United Kingdom 2)



### **3. PFI Contract**

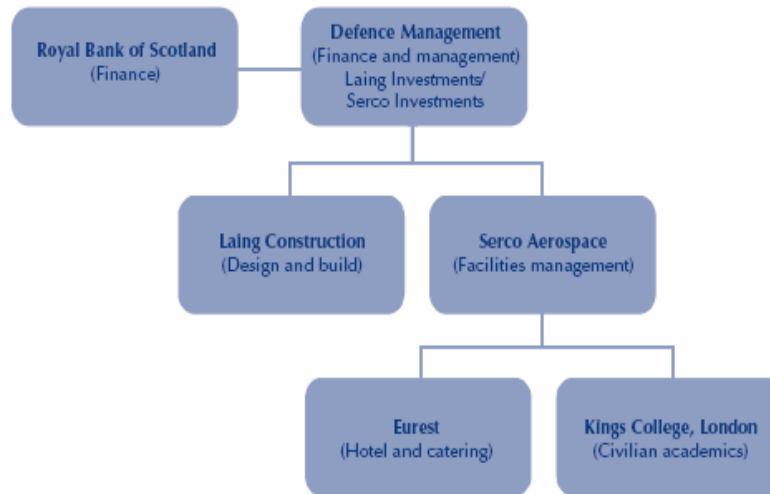
Once the Department turned to PFI, invitations for bids were received from four companies. The contract was awarded to Defence Management, a special purpose company wholly owned by Laing Investments and Serco Investments. Under the 30 year contract Defence Management had to design, build and finance the permanent facilities for the college. It then has to provide a range of support services. “In return for making the facilities available and providing the support services to the required standards Defence Management is paid £26 million a year (at 2000 prices).”(17) The Royal Bank of Scotland provided the upfront financing to fund the school construction to the overarching holding company of Defence Management which contains two parts, the construction component (Laing Construction) and the facilities management component (Serco Aerospace). Serco then subcontracted hotel and catering services to Euresst and the faculty/staff and academic portion to Kings College, London. The table in Figure 7 summarizes the relationships of the PFI parties involved in the deal.



**Figure 7: JSCSC PFI parties**

**7 Defence Management and its contractors**

*Defence Management's shareholders are Laing and Serco Investments. Associate companies of these were awarded the contracts for construction and the provision of support services. Serco Aerospace in turn sub-contracted the provision of certain of these services.*



*Source: National Audit Office*

Additionally, the structure of the fee received by Serco totals £26 million per year for 30 years and is summarized in Figure 8 (18). This fee was based on three parts: student place days, residential place days, and married student quarters weeks. This arrangement ensured that Serco was being paid for the services they provided. The student rate covers the faculty, staff, and maintenance of the facility as well as a portion of the building cost. The residential place days covers the building and maintenance of the single quarters, and likewise for the married student quarters. The contract also stipulated a level of guaranteed usage, meaning they promised to fill to the agreed number in the first column of Figure 8. Additionally, for extra capacity, Serco received a non-guaranteed usage fee per extra student day, resident, or married quarter week that the school used to reflect the marginal cost incurred by Serco. The payment base is £26 million but increases as the school reaches full capacity over the specified minimum usage levels.

**Figure 8: JSCSC PFI fee structure**

**8 The structure of the PFI fee<sup>1</sup>**

*Defence Management will receive £26 million a year (at 2000 prices) if it makes the facilities available and provides the support services to the required standards.*

	Number	Guaranteed Usage		Non-guaranteed usage fee rate
		Fee rate £	Total Payable £ million	£
Student place days	128,860	97	12.5	2
Residential place days	138,894	45	6.3	5
Married quarters weeks	15,080	489	7.4	62
			26.2	

**NOTE**

<sup>1</sup> All figures are at July 2000 prices and exclude VAT.

Source: PFI Contract

The school was built to have a 60-year useful life. The PFI contract stipulates that at the end of the 30-year contract, the school would revert back to the Ministry of Defence at no cost, or they can choose to leave it with Defence Management. This ensures maximum flexibility to the department. Defence Management would have recovered all costs of the design, and construction of the school, as well as the facilities management and maintenance of the school (22).

#### 4. Risk Transfer

The attractiveness of the PFI option is the ability to transfer risks to the party that is best situated to mitigate that risk. For example, if construction lasts longer than expected, the risk was allocated to Defence Management. They did not receive any payment until the start of the service delivery. This allocation provides a very strong incentive to finish the project on time. In traditional procurement, the government pays for most if not all schedule delays, which explicitly leads to cost overruns. Appendix II illustrates the risk that was transferred to other parties from the PFI contract and was included in the NAO report.

Overall the NAO found that,

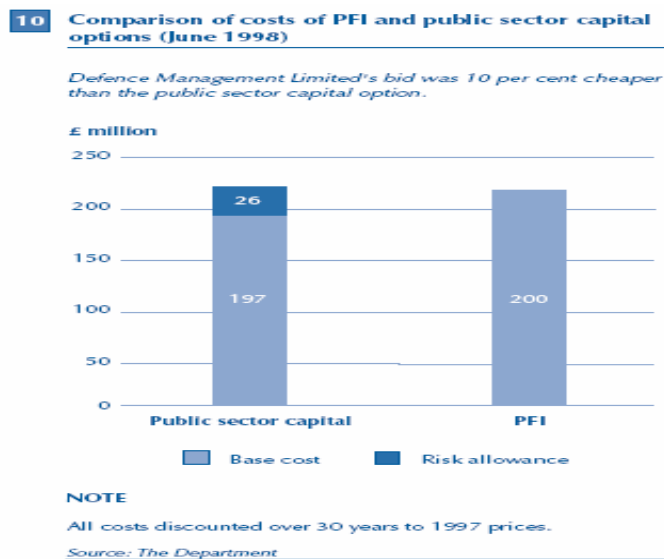
the Department and its financial advisors, Price Waterhouse, valued the amount of risk transferred to the private sector at £26 million and added it to



the public sector capital option. This addition was necessary in order to put the costings of the PFI and publicly financed options on an equal footing as the PFI bidder included its own allowance for these risks in its bid price. At 13 percent of the public sector capital options' base cost, the risk allowance on this project is at the low end of the range of between 10 percent and 40 percent of such allowances on the other PFI projects examined by the NAO (20).

Figure 9 illustrates the cost comparison between the public sector option and the PFI option.

**Figure 9: PFI vs. Public Procurement for JSCSC**



The NAO concluded that value for money was achieved in this project as compared to a similar public sector capital option. The project was completed on budget and on time and it proved affordable and flexible to the government. The total project was delivered a year later than previously expected, but that was due to the switch from public to private funding and additional negotiations in risk transfer before a final contract could be signed. The school has been a success, receiving favorable reviews from students and a construction and design award.

The department considered that the proposed deal brought non-financial benefits. The public sector capital option would not meet its requirements as well as the PFI because of the limitations of (alternate) site which would entail the need for two separate buildings and thus make for an environment that



was less joint than required. The alternative option of remaining at (the original) site and upgrading the facilities there was likely to be more expensive and difficult to implement due to problems in obtaining planning permission, and would bring fewer operational benefits (20).

The project provided better affordability to the government. If they had to provide all of the funding up front (in this case £197 million) as is done in traditional public projects, they could not afford a joint professional institution. This deal spaces out payments and transfers risk down to the contractors. Additionally, the contractors do not receive a dime until the project is finished, and students are admitted and taking classes.

#### F. The Armidale Class Patrol Boat



Picture found in the Austal July 2005 newsletter

### 1. Background

#### a. Department of Defence Need

In November of 1999, the Australian Department of Defence looked to replace its aging patrol boat fleet. The legacy fleet of 15 Freemantle Class Patrol Boats (FCPB), commissioned between 1980 and 1984, had all exceeded their original 15-year service life



and an initial life extension (ANAO 23). The decision was made to terminate further extensions of the FCPB service life and focus on the development of a replacement system.

#### **b. Defence Maritime Services (DMS)**

An equal partnership between Serco-Australia and P&O Maritime was established in 1997. P&O Maritime Services is a subsidiary of P&O Services Ltd which focuses on “providing specialist shipping and related logistics (P&O).” Beginning as a single ship chartering and ship agency in the 1960s, P&O Services now serves a variety both government and commercial customers. Both parent companies brought different expertise to the agreement: Serco possessed the necessary aptitude in project management, Public-Private Partnerships, and bidding methodology: while P&O Maritime provided the needed expertise in ship operations, supply, financing and engineering (Chisholm).

DMS was initially formed and awarded a ten-year contract to provide Port services and support craft to the Australian Defence Force (DMS). This partnership was possible as the result of the Australian government’s launching of the Commercial Support Program in 1993. To reduce inefficiencies found in government activities and manpower limitations, this program aimed to outsource more of the government’s non-core activities.

## **2. The Acquisition Process**

In replacing the aging patrol boat fleet, the Defence Material Organisation (DMO) used a two phase approach: Phase 0 and Phase 1. Phase 0 began with the decision to replace the FCPB’s. The desired capability the Department of Defence identified was the ability “to provide 3000 patrol days of annual operational availability of specified performance (DMO website).” In addition to the desired operational days, the Department of Defence also required performance specifications and a certain level of surge capacity, but the principle requirement remained 3,000 operational days.

By desiring a capability rather than a given number of ships, the Department of Defence allowed contractors to meet these capability requirements, most notably





the operating days, as they deemed most efficient. For instance, the number of patrol boats provided may vary as long as the specified performance requirements and 3,000 operational days were attained. This type of contracting often allows for the very best in innovation and efficiency as firms are able to fulfill the operational need rather than a material need.

With this requirement in mind, the DMO began a two-stage Request For Tender (RFT) process. The first stage of the RFT, open from September to November 2001, asked bidders to use one of two options for the replacement patrol boats (ANAO 28):

1. PFI
2. Direct purchase option with through life support provided under the same contract, for the life of the program.

Six responses were received during Stage 1 of the RFT. It should also be noted that the request for both a PFI and procurement with life support significantly increased bidding costs upon contractors.

### **3. Comparing Finance Options**

To better compare the advantages of the PFI option, the DMO added \$65 million over the direct purchase tender prices (ANAO 29). This is referred to as the Public Sector Comparator (PSC) and attempts to take into account the risk accepted by the government in the direct purchase option. For example, in the case of the ACPB's, 112 risks were identified with the direct purchase presenting a greater risk in 39 areas, the PFI option presenting greater risk in only five areas, and 61 areas were granted equal risk from both options, and seven areas of risk which were not applicable to the project (ANAO 30). Taking the transfer of risk into account allows the government to better determine the best value for money solution.

Comparing the direct purchase option (PSC adjusted) with through life support and the PFI option found that three of the four PFI options were more cost effective than the direct purchase option (ANAO 30). With this in mind, the DMO





attempted to move forward with both the PFI and traditional procurement approaches while the legality of the PFI option was more thoroughly investigated.

#### **4. Operating or Financing Lease**

Further investigation of the PFI option caused the ANAO to focus attention on the classification of the lease agreement. As a result of this inquiry the Department of Defence sought advice from the private sector. A private sector accounting firm provided the following analysis:

the adopted leasing structure will result in Government bearing substantially all of the risks and rewards of ownership of the [patrol boats] and as a consequence the lease should be classified as a finance lease under AAS 17/AASD 1008. The primary basis for this conclusion is that Government bears substantial risks and rewards of the [patrol boats] given they have use of the ships for the first 15 years and retains substantially all the residual benefits of the [patrol boats] at the end of the lease period (ANAO 29).

The classification of the proposed PFI option as a finance lease rather than an operational lease forced the DMO account to count the entire project's cost in one fiscal year, rather than payments over several years. Although the Net Present Value of the payment streams associated with the PFI option provided an eight percent advantage over the traditional procurement option, having to account for all project expenditures as a financing lease proved to be too much to overcome. In June 2002, the Department of Defence decided on the traditional procurement with contracted life support of the ACPB's.

#### **5. Outcome**

On December 17, 2003, DMS signed a \$553 million contract with the Department of Defence for the building and 15 year servicing of 12 ACPB's (DMO website). The contract called for approximately \$330 million for the acquisition and \$225 million for the 15 year service agreement. Although the PFI option was not accepted, the Australian Government still felt most comfortable with some form of partnership with the private sector and effectively entered into a form of a Government Owned-Corporate Operated Contract (GOCO). In an effort to provide



government oversight on the service aspect of the contract, an abatement point system was established.

## **6. The Abatement Point System**

The abatement point system is an adverse point system designed to punish contractors for not meeting contract requirements. Abatement points provide incentives for the contractor to meet desired performance targets and removes some the risk of not meeting operational obligations from the Australian government. This system serves as a contract enforcement mechanism in order to ensure the private sector meets the standards set forth in the contract.

Throughout the life of the service agreements abatement points will be awarded if the contractor fails to meet operational requirements. In the initial bidding in 2002, the government of Australia desired that abatement points be assigned if any of the following were encountered (Chisholm email):

1. The patrol boat is not available for a period of baseline activity due to an act or omission of the Contractor. If the patrol boat continues to be not available beyond the specified Cure Period the Contractor incurs further Abatement Points.
2. The Contractor fails to meet a Commonwealth 'Request for Surge Availability'. Further abatement points are incurred for each additional Cure Period that the Contractor's failure continues.
3. Commonwealth issues a 'Request for Support' in respect of a defect. The number of abatement points incurred varies according to the priority of the request. If the Contractor fails to rectify the defect within the specified Cure Period further abatement points are incurred.

These criteria are accompanied by specified cure periods and operational requirements.

The number of abatement points awarded differs with the severity of the failure to meet operational requirements. If the contractor accumulates too many



abatement points in a given quarter they could face deductions in their service support payments. With fixed annual payments to DMS of approximately \$15 million, DMS is rewarded for its efficiency in maintaining patrol boat availability and for servicing the patrol boats efficiently by controlling their costs.

Not only does the abatement point system provide DMS with incentives to meet all service obligations, but by combining the acquisition and service contracts it is in the best interest of DMS to build a high quality product. The more capable and reliable the patrol boat is built, the less service costs will be incurred in the future.

## **7. Current Status**

As of spring 2006, DMS has delivered three patrol boats and all deadlines have been met (Chisholm teleconference). Although the Australian government rejected the PFI proposal due to financial accounting rules, the government still recognized the value of public-private partnerships and the benefits from the transfer of risk. With this in mind, the Australian government signed a contract for two additional patrol boats (for a total of 14) in September 2004.

The satisfaction of the Department of Defence was further expressed by Defence Minister Robert Hill upon the launching of HMAS Armidale in January 2005, “I congratulate DMS, the principal contractor, and Austal Ships, responsible for the design and construction of the vessels for their work on this project...The delivery of the first of this patrol boat class on schedule has reaffirmed the Government’s commitment that the contracted delivery schedule for the remainder of Armidale Patrol Boats will be met (Hill).”

## **8. The Future of Public and Private Partnerships in Australia**

The acceptance of PFI for procurement of military goods still must overcome some obstacles in Australia. An accurate Private Sector Comparator remains an elusive task as does the general acceptance of PFI. The Armidale Patrol Boat project is a step in the right direction and may have opened the door for future PFIs. It is debatable whether a traditional procurement process provides better value for



money, but if executed correctly it is proven that varying forms of Public-Private Partnership will deliver the government a quality product.

## G. Case Study summary

The three case studies showcased in this report span the conceptual gamut of Public-Private Partnerships. The Armidale Patrol Boat case is the quintessential build-operate-transfer or GOCO case. Contrarily, the MSHATF and JSCSC are textbook examples of the build-own-operate or COCO model. Each model has its place in the public arena, and can provide value for money when implemented under the appropriate conditions.

The Australian patrol boat case, GOCO, sits in the middle of the risk responsibility spectrum, in that the government retains the financial responsibility for up front funding. The risk and responsibility for the project are transferred to the contractor in the form of a long-term maintenance and service package. Even though PFI was not the holistic financing model chosen, a public private agreement was generated for future service and maintenance of the asset. In this particular case the Australian government decided to shoulder the construction risk early in the project and transfer later life cycle cost to the private sector. By doing so, the government places the impetus on the private sector to reduce long-term life cycle cost.

The GOCO model used by the Australian government is intended for long-term service oriented contracts, and is appropriately suited for most government activities. However, the focus of this research is on acquiring end items or warfighter assets. The GOCO model does not adequately address the higher risk activities occurring early in an acquisition project. Government entities routinely have major problems with these early risks.

The Joint Services Staff College and Medium Support Helicopter Aviation Training Facility projects typify the ideal COCO PFI model. Here the contractor is forced to bear the entire risk burden throughout the life of the project. The contractor



does not generate revenue until the project is effectively running within specified parameters. By placing all of the financial risk on the shoulders of the contractor there is a strong incentive to consistently meet milestones and complete them at or below cost.

The government has demonstrated over time an inability to effectively mitigate risk, resulting in continuous project cost overruns blindly paid by the government. The JSCSC and MSHATF projects provide true value for money by shifting the risk burden to the contractor during early tenuous evolutions such as construction. The private sector has been able to develop techniques to deal with risk so that the companies that are still in operation are truly efficient risk managers. Finally, the JSCSC and MSHATF projects bundle a long-term service contract with the financing and construction efforts providing a more holistic project approach

There is no single correct answer, such that one PPP is better than the other. It is our conclusion that through proper risk transfer, PPP or PFI can provide true long-term value for money in today's financially constrained acquisition environment. By embracing these evolving financing techniques, DOD can allocate more resources to high technology programs with the savings borne from other programs through risk transfer. The key is to shift the risk burden to the entity that is in the best position and is incentivized to mitigate its effects. In this case, combining private sector expertise and financing in any form will prove to be beneficial to future defense programs.



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## VI. Could PFI work in the US?

In this chapter we will discuss the experience of the United Kingdom and the private sector view of Public Private Partnerships.

### A. United Kingdom PPP experience

These expensive projects can be attractive to the public sector, because the UK has shown through experience that these projects deliver real products and services to the public often for less and faster than the long laborious US acquisition cycle. Figure 10 shows aggregate comparisons of studies by HM Treasury (HMT) and the NAO (National Accounting Office, which is UK's equivalent to the US GAO) on the success of on time delivery of assets or services by the private sector to the public or government; as compared to traditional timing where the government assumes all the risk. The conclusions drawn are that about 80 percent of the projects were delivered on time or early as compared to only 30 percent through the traditional cycle. Since 70 percent of the latter were late, they probably had significant cost overruns also.

**Figure 10: PFI vs. Non-PFI Delivering on Time**

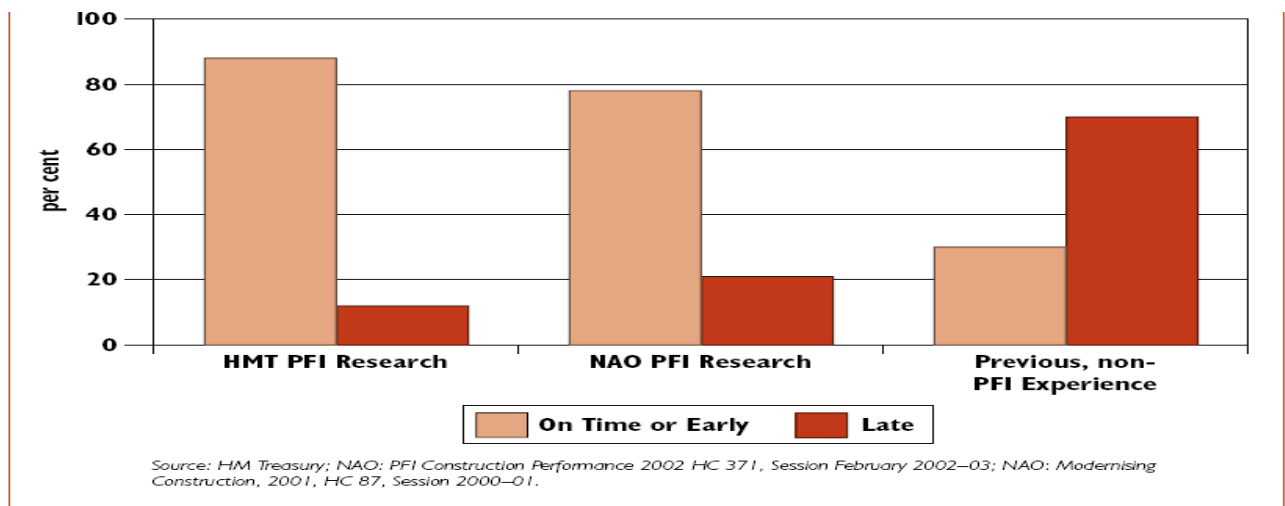
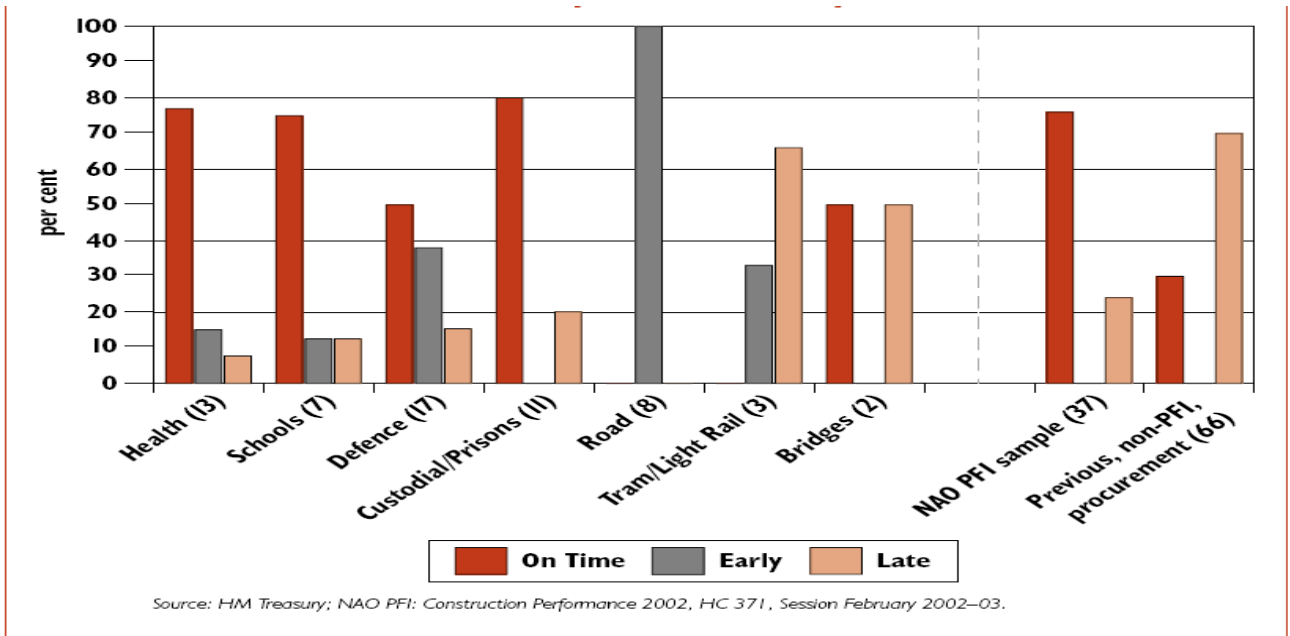


Figure 11 shows the PFI construction projects across different sectors and the proportions of delivery performance for each sector. The defense industry had 17 projects, eight were on time, six were early, and only three were late. In a construction type of project, which the military can apply to many areas, these results are very encouraging.

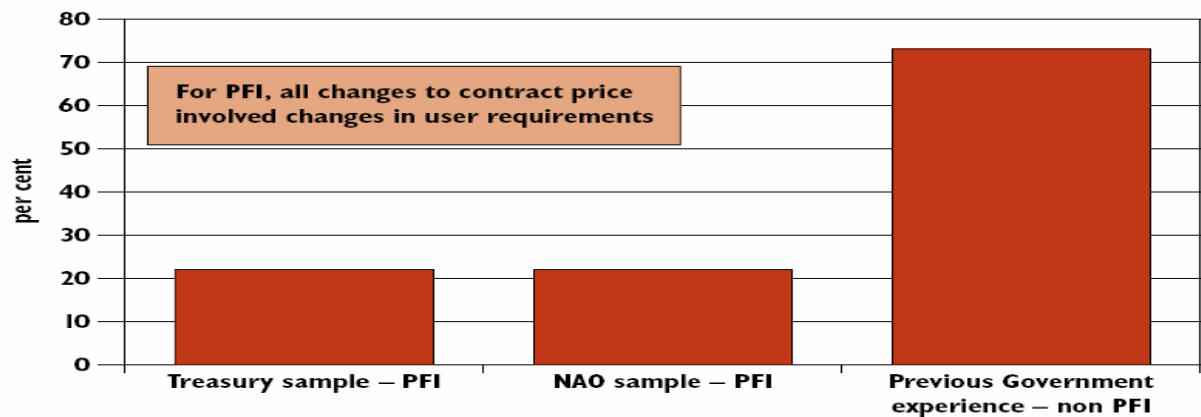
**Figure 11: Construction Performance by sector**



Finally, Figure 12 shows the cost overruns of PFI vs. Traditional projects. It shows that of the projects that had overruns, those overruns amounted to only about 20 percent of the contract value where non-PFI experience shows a 70 percent cost increase over the contract signature price. The increase of 20 percent was due to subsequent changes that the government made to the original contract to better fit user requirement.



**Figure 12: Delivering to budget- price uncertainty in public procurement**



Source: HM Treasury; NAO: Modernising Construction, 2001, HC 87, Session 2000–01; NAO: PFI Construction Performance 2002 HC 371, Session February 2002–03.

This shows that better allocation of risk improves results, and when the government changes its requirements, they do pay, but only about 20% more is paid. Previously, government paid four times more. It should also be noted that PFI is attractive to private firms because it is long-term in nature. As such, this approach should not be used in projects where technology changes rapidly, because these changes can drive up costs exponentially. But for repeatable items, such as trucks, air refueling tankers, maritime transport tankers, training aircraft, and others, or assets that are not subject to constant technological change and customer interruption, these contracting structures should appeal to the United States government.

## B. Obstacles the private sector must overcome

Like the government, private companies also view PPP's with some apprehension. Similar to a public agency's desire to provide value to its constituents, a private firm desires to provide its constituents with substantial return on investment. Listed below are several reasons the private sector is reluctant to pursue returns in a PPP.



## **1. Adequate Levels of Risk and Return**

The first potential stumbling block for private companies working with the United States government is the level of risk and return. All corporations expect to gain a satisfactory rate of return from their investments, otherwise why invest? As the level of risk increases, so does the potential level of return (DOT 93).

In a study conducted by the GAO in 2001, it was determined that the promise of an internal rate of return of approximately 15 percent would draw considerable interest from the private sector (Unger 5). Due to OMB-76 requirements for outsourcing bids to be significantly cheaper, it may be difficult for private companies to gain such substantial returns.

As private companies may have to accept a reduced return, this must be met with a reduction in risk to gain interest from the private sector. For instance, a longer lease agreement would be a way to limit the amount of risk. In the same 2001 GAO study, interviews of private contractors found that they required a 50 year master ground lease in order to make the investment proposition attractive.

## **2. Lease Length Limitations**

The United States government is reluctant to enter into long-term leases. In an effort to limit the ability of federal agencies to enter such situations, Congress only allows for outlays up to five years. Leases beyond five years require specific permission from Congress. The inability to enter a lease for greater than five years significantly increases the private company's risk.

## **3. Turnover within Federal Leadership**

The United States military acquisition process moves slow and inefficiently. The pace of acquisition not only detracts from PPP interest, but changes in leadership throughout the process may hinder or prevent a successful PPP (DOT 88). PPP contracts are complex and require a significant amount of time to complete all details. Economic conditions or assumptions also change. Therefore, continuity in leadership is necessary for arranging a successful PPP. Although there



are career procurement specialists, personnel changes still occur frequently which may limit the trust built between the government and contractors. Private companies will be more willing to enter into agreement when there is long-term stability rather than a situation with ever-changing personnel.

#### **4. Stakeholder Opposition**

The United States Department of Transportation noted, “Effective public outreach is essential in garnering support for the use of alternative financing and must continue throughout the project planning, implementation, and operation (DOT 91).” Stakeholder opposition is also a significant obstacle for DoD’s use of PPPs.

Defense contractors, members of Congress, and the Department of Defense officials, commonly referred to as the “Iron Triangle,” each pose a significant hurdle to any PPP. In his last speech as president, General Dwight D. Eisenhower warned against the formation of such a relationship stating, “We must guard against the acquisition of unwarranted influence, whether sought or unsought, by the military-industrial complex. The potential for the disastrous rise of misplaced power exists and will persist (Knickerbocker).” Over 45 years have passed since this warning was made, but the influence of the defense industry on elected officials and the military is ever present.

With an annual appropriation bill upwards of \$400 billion, each leg of the triangle exercises a certain amount power within the system. There are few incentives to change the system because all sides benefit from the outcomes. The defense industry continues to profit, Congressmen maintain their jobs by bringing employment and government dollars to their constituency, and the Department of Defense continues to acquire new and advanced weapons systems to provide for national security. Any change to the traditional procurement system has the potential to upset this balance of power and influence.



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## VII. Obstacles in instituting PPP's for the Department of Defense

The United States government faces several obstacles in its acceptance of Public-Private Partnerships (PPP's). Many of the obstacles the United States federal government faces in PPP's are self-imposed, but the odds of overcoming such obstacles are extremely difficult.

### A. Anti-Deficiency Act/Other acquisition laws

Since the leasing of the Maritime Pre-positioning Ships in the early 1980s, Congress has adjusted the laws and reporting requirements for potential lease agreements by the federal government in an attempt to make all life cycle obligations more transparent. As a result, one of the main advantages of a lease (lessening the cost of an acquisition in the near term) is negated. The current system states the following:

When an agency is authorized to enter into a lease-purchase or capital lease contract, budget authority will be scored in the year in which the authority is first made available in the amount of the net present value of the Government's total estimated legal obligations over the life of the contract... (OMB A-11)

This policy is in response to the Anti-Deficiency Act, which prohibits the government from entering any agreement which they cannot honor. The amount obligated in the first year must be sufficient to cover the intended life of the contract, or as in the case of leases, the annual costs and full termination costs.

Prior to the passing of The Balanced Budget and Emergency Deficit Control Act of 1985, the Navy was able to avoid this extra required obligation. An example is found in the passing of the Supplemental Appropriation Act of 1983. The Supplemental Act of 1983, which was followed by additional contract authority, permitted the Navy to obligate only the current year cost of the lease and 10% of the termination costs (GAO). Unless a similar act is passed in response to a future



lease proposal the military must obligate additional funds to meet the Anti-Deficiency Act requirements.

Many of these laws are the result of Congress' reluctance to incrementally fund capital requirements for the military. When asked a question regarding the current obligation rules associated with leases, the Assistant General Council (Financial Management & Comptroller) Ms. Anne Brennan, expressed that it is extremely difficult to gain incremental funding even for vital programs such as the Refueling Complex Overhaul (RCOH) program. The RCOH program is the refueling required for the nuclear aircraft carriers and is critical to the United States Navy. This apprehension is not surprising, but the unwillingness of Congress to relinquish any control over the federal budget is a definite obstacle that must be overcome for PPP's to be successful in the United States.

## B. Standardized Forecasting Methods

In addition to the up-front budget authority requirements, Congress' desire to make all potential leases more transparent have further reduced the feasibility of leases. The elimination of increased tax revenues, addition of special tax benefits to the cost of the lease and establishing the discount rate have combined to create an unattractive environment for leases.

### 1. Elimination of Increased Tax Revenue Consideration

In its analysis for the MPS lease, the Navy subtracted the increased income tax revenue associated with the lease from the price paid to the government (GAO). In the Net Present Value (NPV) analysis this was considered to be a cash inflow and not offset by the cash outflows. This deduction was controversial at the time, and is no longer valid because, as the GAO argues, whether a company gains revenue through leasing an asset or selling an asset, the company will pay taxes on its revenue.



## **2. Addition of Special Tax Benefits to the Cost of the Lease**

The guidance passed in 1984 requires that special tax benefits gained from leases by private investors be added to the cost of the lease (OMB). This change significantly affects the offer price for leases because tax benefits gained from leases could be passed along to the leasing government agency in the form of lower payments on the lease.

## **3. Predetermined Discount Rate**

In 1992, the OMB required government agencies to use the United States Treasury's borrowing rate as the discount rate for the calculation of lease costs. The United States Treasury enjoys some of the lowest borrowing rates in the world. The lower discount rate makes it less attractive to postpone payments because the expected return on present dollars is dramatically reduced. Thus, one of the principle advantages of leasing versus buying is all but eliminated.



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## VIII. Conclusion

PFI can be a very attractive alternative to traditional public financing and procurement. Throughout this project some common themes become evident as stated in an article by Andrew Kaye in November 2000. In that article there are three high level criteria for attracting private sector participation in financing government acquisitions.

1. Achieving good value for money as compared to other procurement options.
2. Where workable service can be purchased with appropriate risk transfers and payment mechanisms
3. Where there is a strong probability of negotiating a reasonable deal for both the public and private sectors in an acceptable time scale.

According to Serco's Executive Vice President, Strategic Development, Simon Chapman, "The key to PFI is the acceptable transfer of risk to both sides. It is a mutual decision made by each side in the negotiation process" (Chapman). The public sector can benefit greatly by taking advantage of the ability of the private sector to manage risk.

Achieving good value for money, or life cycle costs can be very difficult. There are six primary drivers for value for money that are key to PFI contracts: (Kaye)

1. Risk transfer
2. Output base specification
3. Long term nature of contracts
4. Performance measurement and incentives
5. Competition
6. Private Sector management skills



In the case of the Joint Services Command and Staff College project, the total lifecycle cost was evaluated to be 10 percent cheaper than the publicly funded option. Serco seeks projects that can achieve at least a 10 percent savings. In evaluating the project using the format above, the following results are seen.

1. £26 million worth of risk was transferred to private contractors. The risk matrix outlining the types of risk transferred is located in Appendix II,
2. The specifications were explicit in the contract and were tied to payments,
3. The contract was for 30 years with the buildings reverting back to government ownership at the conclusion of the contract. There would be no additional charge for 30 more years of useful life,
4. No payments were made until the project was completed, and students were in the classrooms. There is also an abatement system in place in the event of poor performance on the service delivery. Thus, for extreme cases of poor performance payments may be withheld,
5. The original Request for Bid had four bidders, and the Serco group won,
6. Serco actively manages the costs of the service delivery now that the school is built. If they can manage their costs while meeting the contract's specifications, there is an added profit incentive.

Additionally, private sector PFI solutions are usually more affordable than the public sector alternative in the early years of a project because PFI project payments are spread over the project life.(Kaye) One advantage is that PFI's annual payments help the MoD avoid budget spikes that occur in one-time upfront funding of conventional public sector capital investments . A more profound advantage is that PFI can lead to better life-cycle costs (Kaye)

### *Economic arguments*

According to Professor Keith Hartley, Director of the Centre for Defence Economics, University of York:

PFI/PPP's are expected to lead to cost savings through specifying clear and enforceable contracts, transparency in the bidding process and proper cost



efficiency incentives. Typically, the private sector becomes responsible for the initial design, construction, operation and maintenance of the project, [therefore] providing incentives for low-cost construction and minimum life-cycle costs. As a result, project risks are transferred to the private sector (e.g. reducing cost over-runs and delays during construction) and private firms are encouraged to be innovative in project design, construction, operation and maintenance.

One feature of PFI/PPP appears attractive, but needs addressing, namely, the desire by governments to transfer expenditures from the public budget to the private sector so as to avoid exceeding government financing limits (e.g. to meet Maastricht criteria). Simply transferring resources from the public to the private sector has no effect on resource allocation if identical resources are used. Moreover, governments can always borrow more cheaply than the private sector. If PFI/PPP contracts are to lead to genuine cost savings, the extra financing costs for the private sector must be offset by savings elsewhere on the project (e.g. management and running costs over the life of the project) (Hartley).

This reference seems to refute the attractiveness of PFI. However, in the world of government procurement, where few projects are completed on time and significant cost overruns are common, the idea of allocating risk to the private sector and avoiding paying for the “entire” project seems to be attractive. Additionally, most of these projects have been completed on time and within budget which is a vast improvement over our current practices. We should use PFI if the asset is a support asset. A simple adage from Serco is “if it does not move, definitely PFI it, if it moves, look into PFI it, and if it is cutting edge technology development, do not PFI it because there is too much uncertainty.” (The Private Finance Initiative 7) The money saved year to year in not funding entire projects at the outset, thus eating up precious procurement dollars, can be used in our cutting edge programs.

Critics of this method of financing point to the notion that since the government can borrow at the lowest rates, it almost never makes sense to stretch out payments over long periods. They further point out that these arrangements are actually a bad idea for the country because they add to the debt. They say that we are buying goods and services with more debt, further widening our budget deficit. PFI proponents counter in saying that because of the risk that is transferred from the



public sector to the private sector, cost overruns and schedule slips become rarer and less severe because it is the private contractor capital that is on the line until the project is completed. Thus, a preponderance of PFI projects are actually completed on time and within budget. Further, cost estimates for many government programs are wildly inaccurate, and in most cases are “low balled” to gain Congressional approval to appropriate a little money to the project even though cost growth down the road is all but inevitable and cost overruns run rampant making even the most simple and repeatable programs more expensive.

## A. RECOMMENDATIONS

On the basis of this research and a conversation with Simon Chapman, Executive Vice President, Strategic Development of Serco North America (Chapman) several recommendations follow:

1. Form a committee to study the use of PFI methods on US projects consisting of PPP/PFI experts from industry, government budget experts, specialists in contract law, and lawyers. This committee would study the examples of the British, Australians, and Canadians and investigate how these innovative financings concepts can be applied in the US
2. Keep sustained Political Commitment. After the Maritime Prepositioning Ship deal in the early 1980's, most methods of private financing and leases have been very difficult to get through the budget. The primary reason is because Congress felt they lost oversight of the MPS program and wanted to tie the hands of the military for future ventures. PFI deals can meet with Congressional approval much the same way programs are approved now. The above mentioned committee could turn into the US PFI Committee similar to committees in the UK and Australia.
3. Recognize that PFI deals take longer to negotiate due to the risk transfer. A PFI contract is actually upwards of 180 small contracts in one. Therefore, they do take longer to negotiate, but recent guidance from HM Treasury has streamlined this process in the UK. Due to the details and



complexity of these contracts, subject matter experts should be added to the government committee and they should be empowered at the SES level with authority to execute these deals.

4. Further study on the notion of debt and risk transfer. Is it better for the government to enter into long-term (30 year) service contracts and obligate a financial restraint on the budget for the next 30 years than to outright purchase the capability and fund it in the first year of service? Is the country really just using debt to finance its military support power?

There is no question that the UK has put faith in PFI projects. They have even proposed that government makes sure to use private financing before using public funds. They have been able to attain capabilities that they would not have been able to attain without the PFI option. We have mentioned three programs in the preceding case studies and they serve as good examples of “do vs. do without.” They have also shown that new assets can be made without a bow wave of upfront financing and these assets are manned, and maintained via long term contract relationships. In a world of ever tightening budgets, the US should at the very least look into this as an option to fund support equipment in order to free up budget dollars for cutting edge development and procurement tomorrow’s Armed Forces.



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## Appendix A: Risk Allocation Matrix MSHATF

Risk	Borne by MoD	Borne by Contractor
Risks in relation to the land on which the facility is to be built	Ability to grant a leasehold interest in the site (determined before contract award)  Obligations under the lease in respect of utilities, security etc.	Ability to obtain planning permission (obtained before contract award)  Compliance with building regulations, CDM etc.  Most risks in relation to utility failure etc. remain with the contractor despite MoD obligations under the lease
Delayed in-service date for the Merlin Mk 3 aircraft	MoD will pay Take or Pay amounts as contracted even if it does not yet require the training service	Income above Take or Pay is still at risk  In practice contractor and MoD should have agreed revised simulator timetable to suit both parties
Availability of aircraft data and other intellectual property	MoD assisting contractor to obtain but no liability	Contractor responsible for obtaining what it needs to fulfil the programme
Change	MoD pays for additional databases and for MoD-driven changes in aircraft specification after a freeze date	Contractor pays for wide-spread changes in requirements (e.g. Federal Aviation Authority changes to simulator standards) and contractor-proposed changes.  Several changes known to be in the pipeline to be dealt with by the contractor at no charge to MoD
Political risk	MoD meets costs if the facility is sequestered in a crisis.  Take or Pay level commits MoD to certain usages even if requirements change	Contractor is exposed to changes in income above Take or Pay resulting from changes in the MoD requirement (e.g. reductions in crew numbers)

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## Appendix B: Risk Allocation on Joint Services Command and Staff College

Type of risk	Allocation	Comments
<b>Design and construction</b>		
1 Construction lasts longer than expected.	Defence Management	Defence Management did not start to receive any payment due under the contract until the start of service delivery in the newly completed facilities. Despite problems during the construction, the new facilities were completed on time in August 2000 (paragraph 2.23).
2 Construction costs more than expected.	Defence Management	Increased costs arising from problems during the facilities' construction were not passed on to the Department (paragraph 2.24).
3 Failure to provide the new facilities to specification.	Defence Management	Defence Management had to complete the new facilities to the approved specification and design and to rectify any defects at its own cost. An independent certifier, whose costs were met jointly by Defence Management and the Department, certified that the new facilities had been completed satisfactorily in August 2000.
4 Equipping the facilities costs more than expected.	Defence Management	Defence Management was responsible for the provision of equipment that it needed to provide the contracted services. The Department only supplied library books and some other, minor items.
5 Unsatisfactory design causes operational problems.	Defence Management	The payments to Defence Management are reduced if an unsatisfactory design results in the unavailability of areas of the new facilities or the poor performance of the support services.
<b>Decant</b>		
6 The transfer of College staff and their equipment to the new facilities takes longer, or costs more, than expected.	Defence Management	Defence Management transferred College staff from the interim facilities to Shrivenham by the agreed date for the agreed price within the contract.
<b>Maintenance</b>		
7 The facilities' condition is not properly maintained.	Defence Management	Defence Management's fee is reduced if it fails to maintain the facilities in good condition. At the end of the contract Defence Management is required to rectify any dilapidations arising at its own cost.



Type of risk	Allocation	Comments
<b>Residual value</b>		
14 The facilities have little or no use at the end of the contract.	Shared	College facilities will revert back to the Department at the end of the contract for nil consideration or the Department can choose to vacate and leave these with Defence Management (paragraph 2.29).
<b>Legislation / regulation</b>		
15 Adherence to the terms of planning permission.	Defence Management	Defence Management is required to comply with obligations imposed by planning permissions.
16 Changes in legislation increase Defence Management's costs during operation.	Shared	The Department will reimburse Defence Management for increases in its support services costs if these arise due to discriminatory changes in law or changes to health and safety, employment and environmental law. If the change in law involves additional capital expenditure, the Department will meet all extra costs if it is a discriminatory change or, if the change is after five years of operation and is to employment, health and safety or environmental law, only those costs in excess of £1 million in aggregate; Defence Management has to meet the first £1 million.
<b>Finance</b>		
17 Interest rate changes increase Defence Management's costs.	Defence Management	Defence Management pays interest on the loans it has taken to finance the construction of the new facilities. In order to limit its exposure to the risk of increases in its financing charges due to movements in interest rates, it has entered into interest swap deals which fix the interest rates that it will pay.
18 Changes in the tax regime increase Defence Management's costs.	Defence Management	Defence Management will meet any extra costs arising itself. However it can seek to increase its fee accordingly for market-tested services at each market testing.
19 Inflation increases Defence Management's costs.	Shared	Defence Management's fee is subject to annual indexation by a pre-agreed formula. This formula is based on a mix of indexation by the Retail Price Index and Average Earnings Index and of no indexation at all, with the mix varying depending on whether the fee is for a student place, residential accommodation or married quarters. If Defence Management's costs increase by more than the increase to the PFI fee under the above indexation, it will meet the excess (until, for the market-tested services, the next point at which it can reset its fee levels in line with market rates - see risk 8).

## Appendix C: Timeline of Events in the Procurement of the Armidale Class Patrol Boats

Date	Activity
<i>Concept Development</i>	
Nov 1999	Phase 0 ACPB project, the scoping component, approved at \$0.321 million. Total end costs of Phase 0 analysis was \$3.43 million.
Dec 1999	FCPB LOTE Halted
<i>First Pass Approval</i>	
Jun 2001	Government provided approval for Defence to solicit industry in an effort to establish the costs associated with a replacement patrol boat capability.
Sep 2001	Stage 1 of Request For Tender (RFT) issued for a replacement capability, to be offered as both Private Finance Initiative using a leasing finance construct; and as a Direct Purchase option, with follow on support option.
May 2002	Tenix, Australian Defence Industries Ltf. (ADI) and Defence Maritime Services Pty. Ltd. (DMS) announced as successful tenderers following 9 respondents to the Stage 1 RFT.
Jun 2002	Stage 2 RFT authorized for issue, citing a requirement to proceed with a direct purchase option combined with an integrated follow on in service support contract.
Nov 2002	Stage 2 tenders received.
Feb 2003	Clarification Workshops were held with ADI, DMS, and Tenix.
Jun 2003	Defence announced DMS and Tenix as preferred tenderers for further negotiations, setting aside the ADI offer, and the DMS steel hull bid.
Jul 2003	Contract definition workshops were convened, with developed solutions being delivered to Defence in Late Jul 2003.
Apr 2003	DMS announced as the preferred tenderer.
<i>Second Pass Approval</i>	
Dec 2003	Defence signed a contract with DMS to deliver 12 ACPB's, each with a 15 year support package. Total contract worth, as signed, was



\$552.86 million.

- Sep 2004 Government announced that 2 extra ACPBs would be purchased.
- Apr 2005 HMAS Armidale delivered (1 month ahead of schedule)
- Jun 2005 HMAS Armidale commissioned (on time)
- Feb 2006 HMAS Larrakia and HMAS Bathurst commissioned



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