

Survey and Analysis of Transportation Investment Models in Other Countries

Stage 2 Supplementary Report: Survey and Analysis of the Use of Public Sector Comparator (PSC) and Value for Money (VfM) Analyses in Developed Countries with Mature PPP Programs

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Abbreviations and Acronyms

Acronym	Definition <i>[Jurisdiction in which acronym is used]</i>
ATIMOC	Analysis of Transportation Investment Models in Other Countries
CP	Conventional Procurement
DBF	Design-Build-Finance
DBFOM	Design-Build-Finance-Operate-Maintain
DOT	U.S. Department of Transportation
EU	European Union
FDOT	Florida Department of Transportation
FHWA	U.S. Federal Highway Administration
FTA	U.S. Federal Transit Administration
GAO	Government Accountability Office
HM Treasury	Her Majesty's Treasury <i>[United Kingdom]</i>
IRR	Internal Rate of Return
NAO	National Audit Office <i>[United Kingdom]</i>
NPV	Net Present Value
OB	Optimism Bias
OGC	Office of Government Commerce <i>[United Kingdom]</i>
OST	Office of the Secretary of Transportation
P3	Public Private Partnership <i>[Canada]</i>
PFI	Private Finance Initiative <i>[United Kingdom]</i>
PPP	Public Private Partnership
PRG	Project Review Group <i>[United Kingdom]</i>
PSC	Public Sector Comparator
PwC	PricewaterhouseCoopers LLP
RFP	Request for Proposal
SBM	Shadow Bid Model
SCC	Standard Cost Categories
SoPC	Standardization of PFI Contracts <i>[United Kingdom]</i>
TIGER	Transportation Investment Generating Economic Recovery
UK	United Kingdom
U.S.	United States
VfM	Value for Money

1.0 Executive Summary

This Supplementary Report (the Report) provides a summary of the research and key observations and provides supplementary information on topics related Stage 2 of the Analysis of Transportation Investment Models in Other Countries: Survey and Analysis of the Use of Public Sector Comparator (PSC) and Value for Money (VfM) Analyses in Developed Countries with Mature PPP Programs.

This Report focuses on how different jurisdictions use VfM analysis and PSC to evaluate potential public and private procurement options. The United Kingdom (UK), Australia, Canada and other jurisdictions use VfM analysis to support the government's investment decisions. As illustrated in Figure 1, VfM analysis is conducted at various stages throughout the investment decision making process, from feasibility through monitoring and evaluation.¹

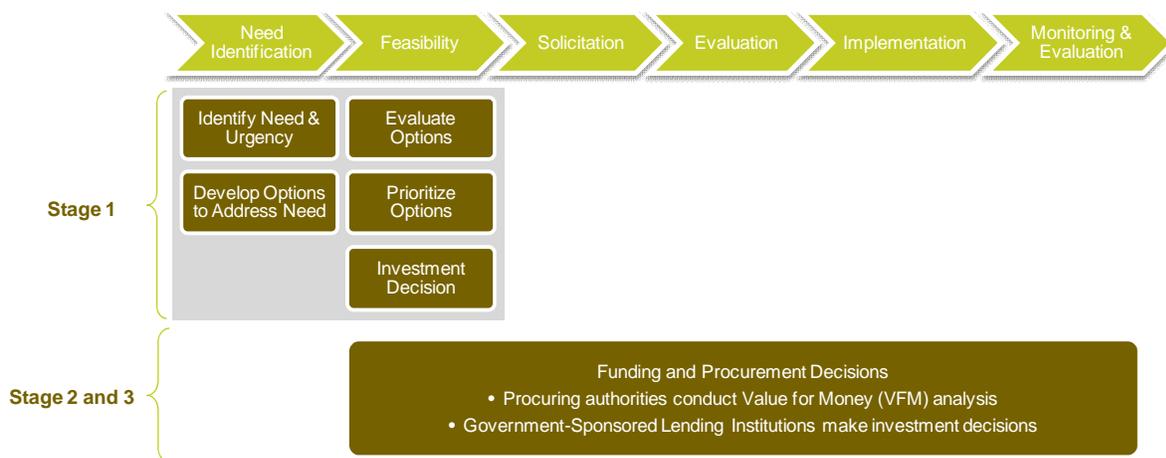


Figure 1: Investment Decision Making Process

As value is a relative concept, a VfM compares multiple project options to assess which option meets the particular need. VfM analysis helps procuring authorities identify, prioritize, and select projects for investment and identify the preferred procurement method. In many international jurisdictions, VfM analysis assists the public sector in making investment decisions that provide value to taxpayers. VfM analysis can provide greater clarity on the potential efficiencies, both qualitative and quantitative, of private sector delivery through PPPs. By focusing on risk-adjusted whole lifecycle costs, VfM analysis also assists state and local governments in understanding the true cost of the project over the entire term.

International jurisdictions, including the UK, Australia, and Canada, have developed specific guidance and practices for conducting VfM analysis. Consistent VfM processes and principles in the U.S. may improve transparency in the public sector's selection of PPP projects. Research conducted into the practices of the international jurisdictions indicate that a consistent approach to VfM analysis can often clarify the role of the government and the private sector in PPP delivery, increase the confidence of potential investors, and build public and political understanding of PPPs.² In the U.S., the Department of Transportation (U.S. DOT) may contribute to the adoption of an approach and principles for VfM analysis by requiring use of the approach for transportation projects applying for federal funding. In doing so, U.S. DOT may be able to more effectively compare projects within a specific funding program, as project applications would be based on similar practices.

Any benefits that may be realized by incorporating VfM principles into U.S. DOT's assessment and procurement of transportation projects need to be considered with the challenges of VfM analysis. Research on the practices in international jurisdictions indicate that VfM analysis typically involves assistance from external advisors, can require additional time and costs to complete, and requires significant reviews throughout the project. These factors need to be considered alongside the benefits of VfM analysis.

This Report discusses leading VfM analysis practices in international jurisdictions, with a focus on VfM analysis processes and guidance in the UK as requested by U.S. DOT.

Approach to VfM Analysis

In the UK, Australia, and Canada, a VfM analysis consists of two components³:

- **Quantitative Assessment** - an evaluation of estimated, risk-adjusted net present costs (or net present revenue if the project is revenue positive)
- **Qualitative Assessment** - an assessment of key considerations that cannot be easily quantified such as environmental impact, safety considerations, use of innovative technology, and design quality

For the quantitative assessment, two tools are generally developed to assess a project that may potentially be constructed as a PPP⁴:

- **A Public Sector Comparator (PSC)** - A whole-life, risk-adjusted cost estimate of a project that is traditionally delivered by the public sector
- **A Shadow Bid Model (SBM)** - The estimated cost to the public sector if the same project were to be delivered as a PPP

For the PSC and SBM of the project to be valid during the quantitative assessment, it is important for the public and private sector solutions to deliver the same level of quality.

The qualitative assessment takes into account all other considerations, outside of cost, that may impact the public sector's willingness to structure the project as a PPP. Considerations in the qualitative assessment may be general, such as the market's appetite for risk transfer, or sector-specific, such as the potential for private sector design innovation. The results of the qualitative and quantitative assessments are considered in determining the overall VfM of the potential projects.

VfM Analysis in the UK

Included in the UK's extensive guidance for conducting VfM analysis for all forms of procurement are VfM principles and processes related specifically to prospective Private Finance Initiative (PFI) projects. PFI projects are a sub-set of PPP projects, with a high level of central guidance on procurement and contract structure. The UK has developed the VfM Assessment Guidance, which outlines a three stage approach for conducting VfM analysis for all potential PFIs⁵:

- **Stage 1** - Informs the development of the investment program, by indicating the investments potentially suitable for PFI delivery
- **Stage 2** - Informs the selection of a project's preferred procurement method (conventional procurement or PFI), and the development of the Outline Business Case

- **Stage 3** - Informs whether delivering the project as a PPP with the preferred bidder provides VfM prior to reaching Financial Close

Figure 2 below illustrates when each stage of the UK's approach to VfM analysis is likely to take place during the procurement process⁶.

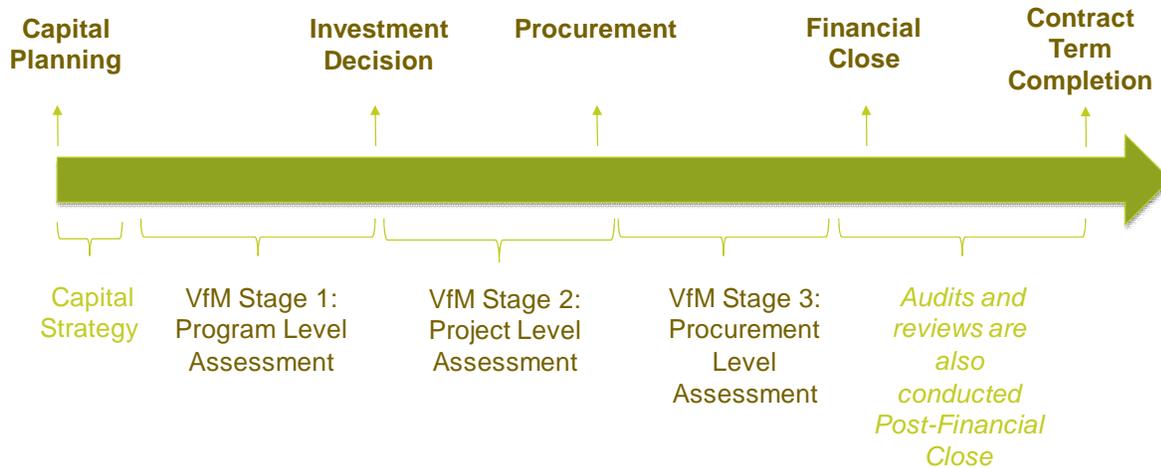


Figure 2: Stages of the UK VfM Approach

The UK has frequently revised its approach to VfM analysis over time to incorporate lessons learned from previous projects, leading practices, and industry trends.

Key Stakeholders in the UK

Many stakeholders are involved during the development of the VfM analysis in the UK. Due to the absence of a state-level government, the national government plays a significant role in all investment decisions and in mandating how VfM analysis is to be conducted for all projects. In addition to the procuring department, who conducts the VfM analysis, the key stakeholders include⁷:

- Supporting Government Agencies and Departments, including:
 - **Her Majesty's (HM) Treasury and Infrastructure UK** - Provides guidance and maintains the standard tools issued to complete the VfM analysis
 - **Office of Government Commerce** - Provides guidance on matters such as the procurement process, partnering arrangements, and project/risk management
 - **National Audit Office** - Conducts objective, independent analyses of PFI projects
- Other Supporting Stakeholders
 - **External Advisors** - Assists the procuring authority during the VfM assessment
 - **Interested Private Sector Companies** – Participates in market sounding exercises and prepare bids during the procurement stage.

Each department is also encouraged to provide additional, sector-specific guidance for procuring authorities and is responsible for assisting procuring authorities in completing VfM analyses for projects procured at the local level.

Tools and Guidance in the UK

As the VfM analysis is complex and takes into consideration both quantitative and qualitative factors, the UK has adopted a consistent application of the VfM analysis to establish a minimum standard of quality, reduce the transaction costs of procuring a PFI project, and provide transparency into how the government selects and awards PFIs.

For the qualitative assessment, the HM Treasury guidance identifies standard questions and considerations to be addressed at each stage of the VfM analysis. Considerations during the qualitative assessment include: clarity of output specifications, ability of the public sector to structure the project under a long-term contract, ability of the private sector to manage risks, ability of the private sector to estimate whole lifecycle costs, the level of market interest and appetite for risk transfer, the quality of expected competition, and the likelihood of market failure.⁸

For the quantitative assessment, HM Treasury has developed a quantitative VfM template spreadsheet that is required in the business case for any potential PFI project. To assist procuring authorities in completing the VfM spreadsheet, HM Treasury provides indicative values and guidance for estimating a project's whole lifecycle costs and revenues. The spreadsheet uses the data inputs to calculate an Indicative PFI VfM that indicates the difference between the estimated costs of the PFI and the Conventional Procurement (CP) options. If the Indicative PFI VfM value is greater than 0, then the PFI option provides quantitative VfM compared to the CP option.⁹

Livability and Sustainability Considerations in the VfM Analysis

In the UK, livability and sustainability is analyzed in determining whether to invest in a project. Although carbon reduction targets and other environmental regulations must be met by all potential projects regardless of the selected procurement structure, these regulations can also introduce important considerations during the VfM analysis. During the qualitative VfM assessment, consideration may be given to opportunities for the private sector to be innovative in its project design and delivery. This innovation may result in efficiently meeting carbon reduction, environmental, and sustainability goals if the project is structured as a PPP.¹⁰

Risk Assessment in the UK

Rigorous identification and management of risk throughout a project, whether procured conventionally or through a PFI, is also a key factor that drives VfM¹¹. For a PFI, the UK seeks to achieve optimal, rather than maximized, risk transfer. The UK uses a three step risk assessment process:

1. **Identify Risk** - Identify relevant risks associated with a project
2. **Allocate Risk** - Identify each risk to the party best able to manage it
3. **Manage Risk** - Develop risk management plans for risks remaining with the procuring authority

The outcomes from each stage are reflected in a risk register or risk log¹².

In the UK, the identification and allocation of risks over the life of the project are important inputs into both the qualitative and quantitative VfM assessments.

Outcomes of VfM Analysis in the UK

In the UK, the outcomes of the VfM analysis inform decisions at each stage of the investment decision making process. The conclusions of the VfM analysis used for project selection, the evidence to justify

the conclusions, and the proposed project framework for the spending period are summarized in public documents such as Departmental Investment Strategies. The National Audit Office (NAO) may also conduct an objective, independent assessment of the VfM analysis once the procurement process is completed¹³.

Summary

U.S. DOT may seek to incorporate an approach to VfM analysis that meets the demands of the U.S. transportation sector and leverages practices and lessons learned from international jurisdictions. U.S. DOT may support and encourage the adoption of consistent VfM principles as part of state and local governments' project assessment and procurement practices by incorporating key VfM analysis standards in the eligibility criteria for federal funding programs.

Based on the research conducted, the following findings may be of interest to U.S. DOT in considering how to introduce VfM analysis into the U.S. transportation sector:

- VfM analysis may assist procuring authorities in comparing potential procurement methods, including PPPs, based on an evaluation of the long-term benefits and costs incurred by all in the community who may be affected by the project. Providing tools to state and local procuring authorities to conduct assessments of alternatives may encourage a transparent approach to investing in projects that are anticipated to deliver value for money to the community.
- A consistent approach to VfM analysis, whether developed nationally or at sub-national levels, helps streamline the analysis across projects, establishes a minimum standard of quality, and helps to reduce transaction costs.
- VfM analysis incorporates both qualitative and quantitative impacts, includes a risk assessment, and requires quality data. The accuracy of VfM analysis is dependent upon the quality and reliability of the data inputs.

2.0 Introduction

The United States Department of Transportation (U.S. DOT) Office of the Secretary of Transportation (OST) recently requested the development of research materials for transportation officials and other stakeholders to learn more about the infrastructure investment models used in other countries. The analysis includes three stages:

- Stage 1: Survey and Analysis of the Frameworks that Govern Transportation Investment in Other Countries
- Stage 2: Survey and Analysis of the Use of Public Sector Comparator (PSC) and Value for Money (VfM) Analyses in Developed Countries with Mature PPP Programs
- Stage 3: Survey and Analysis of Investment through Government-Sponsored Lending Institutions

The purpose of Stage 2 is to define the objectives of VfM analysis, identify the necessary roles and responsibilities, discuss the processes and steps involved in conducting a VfM analysis, and explore the benefits of conducting VfM analysis for transportation projects in the U.S. Detailed information on the research and key observations for Stage 1 is provided in the 'Stage 2 Report: Survey and Analysis of the Use of Public Sector Comparator (PSC) and Value for Money (VfM) Analyses in Developed Countries with Mature PPP Programs'.

This Report focuses on the VfM analysis methodology and practices developed by the United Kingdom (UK), and highlights differences and variations in both the Australian and Canadian approaches. In addition to providing an introduction to VfM analysis, this document discusses and analyzes the following topics with regards to the UK approach¹⁴:

Topic	Summary of UK Approach
Standard Processes and Milestones	The UK utilizes a standard, 3-stage VfM analysis methodology. VfM is analyzed during the following stages: Stage 1: Program Level Assessment Stage 2: Project Level Assessment Stage 3: Procurement Level Assessment
Key Stakeholders	The contracting UK national government department or procuring authority is responsible for conducting the VfM analysis, with guidance from HM Treasury
Tools Used to Conduct VfM	VfM guidance and a financial evaluation tool spreadsheet is used to calculate quantitative VfM. Customized tools may also be developed by specific departments.
Qualitative Assessment	Assessment may include: Use of new or innovative technology, environmental emissions, safety and prevented fatalities, health benefits, and design quality.
Quantitative Assessment	Assessment may include: Equity and project internal rates of return (IRR), comparative net present values (NPV), and estimated unitary payment

The document concludes with an analysis of key observations relevant to U.S. DOT in Section 8.0.

2.1 Summary of Report Research Analysis Questions

The following table summarizes the key research questions for Stage 2. The table briefly summarizes the research conducted for each question and provides references to where the questions are addressed in this Report:

Research Questions	Summary of UK Approach ¹⁵	Report References
<i>i. What are the objectives of the analyses and how are the results used?</i>	VfM and PSC analyses are used to assist governments in making investment decisions and selecting procurement methods that best meet the public's needs	Section 4.0 Section 6.4
<i>ii. Exactly what does the analysis consist of? Include detailed examples of calculations that make up the analysis.</i>	A VfM analysis consists of qualitative and quantitative assessments. The quantitative assessment uses a PSC and a Shadow Bid Model (SBM) to compare procurement methods. The UK uses a 3 stage approach to conduct VfM analysis for all potential PFI projects.	Section 5.0 Section 6.2 Section 6.4
<i>iii. Who undertakes the PSC or VfM analyses?</i>	Public Sector Procuring Department (e.g., Department for Transport) conducts the VfM analysis and PSC, although no longer required to develop detailed PSC.	Section 6.3
<i>iv. At what point in the planning process are the analyses performed?</i>	VfM analysis is conducted during the capital planning, investment decision and procurement stages of the project lifecycle. The PSC and PPP models are developed during the feasibility study, before bids are received and procurement method is identified, to enable the analyses to be performed	Section 4.0 Section 5.0
<i>v. To what extent do the analyses incorporate considerations that are not quantifiable, but are important for public decision-making?</i>	The UK has recently placed more emphasis on the qualitative assessment of VfM analysis, including social and environmental factors.	Section 6.1 Section 6.4

3.0 Summary of the Jurisdictions Selected for this Report

U.S. DOT identified the UK, Australia and Canada as having advanced models for analyzing VfM. The key determinants in selecting each jurisdiction are summarized in the table below¹⁶:

Jurisdiction	Rationale
UK	<p>The UK has an extensive set of published guidance and also a highly developed PPP market. It also has:</p> <ul style="list-style-type: none"> • High deal flow and a sophisticated PPP market • National VfM guidelines that are used as the basis for many of the guidelines developed around the world <p>Over the past few years, the UK has moved away from the use of PSC as a tool for the evaluation of VfM. As the UK has usually been a leader in developing best practices, the reasons for moving away from the PSC as a tool for comparing relative VfM throughout the procurement may be of interest to U.S. DOT.</p>
Australia	<p>Infrastructure Australia was recently created and mandated with developing a standardized approach for developing PPPs across Australia.</p> <ul style="list-style-type: none"> • Currently each state has their own PPP procedure, with Victoria and New South Wales as the most advanced states • The role of the National and State Governments in overseeing the delivery of PPPs may be of interest to U.S. DOT <p>Extensive guidelines are available for PSC and VfM, from both Infrastructure Australia and Partnerships Victoria.</p> <p>Also, in Australia the PSC is compared against bids received, but is only part of an overall assessment evaluating the merits of a project. Qualitative factors are also considered.</p>
Canada	<p>In Canada, PSC and VfM are applied to almost every PPP project. There are some guidelines on PPP and Value for Money at the Federal level, such as with Public Works & Government Services Canada; however, specific guidelines and regulations are developed mostly at the state/provincial level. Because infrastructure in the U.S. is managed primarily at the state and local levels, Canadian best practices may be of interest to U.S. DOT.</p>

The UK was chosen as the primary jurisdiction for this Report due to its extensive history with using VfM analysis to evaluate potential PPP projects. Critical differences between the UK, Australia, and Canada were researched to identify variations in the processes, tools, and methodologies used in other regions.

4.0 Introduction to Value for Money (VfM) Analysis

Value is a relative concept that may consider both monetary and non-monetary factors. It can be based on a unique set of preferences that are not universally shared, and may therefore be difficult to define. Value can represent quantifiable and non-quantifiable costs, benefits such as money and time, and outcomes such as economic and environmental impact.

Value for Money (VfM) is a concept that is adopted in the UK, Australia, Canada and other jurisdictions to support the government's investment decisions. In general terms, **VfM can be defined as the optimum combination of whole lifecycle costs and quality needed to meet the public's requirement for a good or service.**¹⁷ To incorporate the VfM concept into the government's decision making processes, governments require a VfM analysis to be conducted.

A VfM analysis is based on a comparison between options and is conducted throughout a project's lifecycle to support the¹⁸:

1. Identification, prioritization and selection of programs or projects for investment
2. Selection of the preferred procurement method for an investment
3. Determination to deliver the project as a PPP with the preferred bidder

A VfM analysis may be used to support the investment decision and it can also be used to identify the appropriate procurement method for a project once the investment decision has been made. In the UK, Australia and Canada, VfM analysis considers different public or conventional procurement options, as well as procurement options with differing levels of private sector involvement.

This Report focuses the use of VfM analysis to assess if a project may be delivered as a Public Private Partnership (PPP). The frameworks that govern the initial project investment decision are considered in Stage 1 of the Analysis of Transportation Investment Models in Other Countries: Survey and Analysis of the Frameworks that Govern Transportation Investment in Other Countries.

Globally, there is no single, accepted definition of a PPP. In the most general sense, a **PPP is a procurement method in which a single private company is contracted by the government to design, build, finance, operate, and/or maintain a public asset.**¹⁹ PPPs may involve private sector financing, and allocate risk between the contract parties, to the party that is best able to manage the risks. A PPP may be referred to as a Private Finance Initiative (PFI) project in the UK or as a P3 in Canada²⁰.

For a project that may be procured as a PPP, the UK, Australia, and Canada select a preferred public procurement option and private procurement option and compare the relative advantages and disadvantages offered by each option. Further information on how VfM analysis supports a government's investment decisions is provided in the Stage 2 Report: Survey and Analysis of the Use of Public Sector Comparator (PSC) and Value for Money (VfM) Analyses in Developed Countries with Mature PPP Programs.

5.0 VfM Analysis in PPP Procurement

For a potential PPP project, procuring authorities may conduct a VfM analysis during the project assessment and procurement to assess if a PPP is a viable procurement option. This approach to VfM analysis is based on the assumption that the government is able to deliver the project and the procuring authority is able to assess whether or not a private sector entity may be able to deliver the project and generate additional efficiencies and benefits. In this way, a VfM analysis is a useful tool in informing the public sector on how to best utilize limited funding available.

A VfM analysis typically consists of two major components²¹:

- **Quantitative Assessment** - a comparison of estimated, risk-adjusted costs
- **Qualitative Assessment** - an assessment of key considerations that cannot be easily quantified such as environmental impact, safety considerations, use of innovative technology, design quality, etc

The contracting government agency (the public sector) develops tools to assist the qualitative and quantitative assessments. Tools that may be developed to assist the quantitative assessment include a **Public Sector Comparator (PSC)** and/or a **Shadow Bid Model (SBM)**²².

Several jurisdictions mandate the development of a PSC and/or a SBM as part of the quantitative assessment of the VfM analysis. These tools are typically developed using estimates early in the project lifecycle, and are continually updated and refined throughout project assessment and the procurement process. In general, if the potential exists for the project to be delivered more efficiently and at a greater benefit to the public as a PPP, when compared to a conventional procurement, then the PPP option presents greater VfM.

There are several **benefits of completing a VfM analysis**, such as helping to identify the elements of a project that may provide a public benefit and guide the development of the necessary procurement, project planning, and contractual documents. It also provides a consistent framework to develop requirements and an understanding of what and how benefits can be achieved and focuses the public sector's evaluation on the whole lifecycle costs associated with a project²³.

There are also several **challenges in completing a VfM analysis**, including the need for specialist experience and expertise that may not reside in the public sector and the time and cost associated with conducting a complete and detailed analysis at each stage of the investment cycle. Importantly, VfM analysis is predicated on the assumption that the public sector does have the resources to complete the project. For several reasons, including budgetary constraints and lack of project management capacity, this may not be the case. As a result, the PSC may represent a biased estimator of the public sector's ability to deliver the project if these factors are not taken into consideration²⁴.

Further detail on the benefits and challenges of conducting VfM analysis in overseas jurisdictions is provided in the Stage 2 Report: Survey and Analysis of the Use of Public Sector Comparator (PSC) and Value for Money (VfM) Analyses in Developed Countries with Mature PPP Programs.

Public Sector Comparator (PSC) and Shadow Bid Model (SBM)

A PSC is described as a **whole-life, risk-adjusted cost estimate** of a project that is efficiently delivered by the public sector²⁵. During the development of a PSC, several assumptions are made, including the assumption that the public sector can complete the project to the same quality and standards anticipated by private sector delivery. As the PSC presents a baseline cost of whole-life project delivery for the government, it can be a useful tool that assists governments in forecasting the costs associated with conventional procurements as well as being used in the VfM analysis for PPP projects. Developing a PSC requires a focus on government costs and risks associated with project delivery over the life of the project. A PSC or a baseline cost model that **considers the whole-life project costs** may assist federal agencies such as U.S. DOT in its oversight role of projects utilizing federal funds, as it demonstrates how agencies plan to maintain and manage the capital assets.

A SBM is described as the **estimated cost to the public sector if the same project were to be delivered by the private sector as a PPP**²⁶. A shadow bid is the public sector's estimate of the bid price that it may receive if the project is structured as a PPP.

A PSC and SBM can be developed during the inception of the project business case and feasibility study, prior to determining the procurement method and issuing the solicitation. After bids are received in response to an RFP, the PSC may be compared to the actual bids received to assess if VfM is still achieved prior to awarding the contract as a PPP.

The public sector typically uses financial and statistical modeling techniques to develop the PSC and the SBM for a project. For example, a Monte Carlo simulation, a commonly used mathematical modeling technique, uses statistical sampling to provide a range of estimates for the cost of risk for the quantitative assessment. These modeling techniques may assess a range of potential outcomes for the PSC and/or SBM²⁷.

In general, the quantitative VfM assessment seeks to make a like-for-like comparison between a conventional procurement option and a PPP option:²⁸

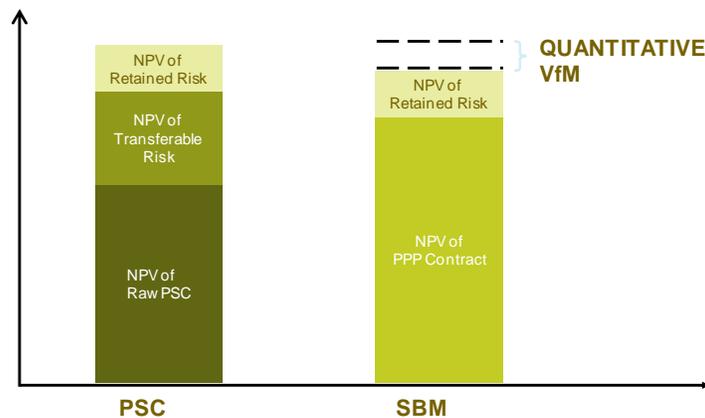


Figure 3: Calculating Quantitative VfM

Costs that are common to both procurement options, for example, retained costs such as land acquisition and project management costs, which are incurred and may not vary regardless of the option selected, are not included in the VfM analysis. In instances where costs vary between the two options, they are included in the VfM assessment in order to assist the public sector in determining the total cost exposure under both a PSC and PPP²⁹.

For instance, in Australia and on some Canadian projects, a “competitive neutrality” adjustment is performed, to neutralize the effect of cost components which may give an unfair advantage to one delivery model³⁰. This adjustment may be taken into account in the U.S. in similar circumstances, for example if certain investment instruments or tax treatment would favor one delivery model.

Figure 3 illustrates how quantitative VfM is calculated as the difference in the total costs offered by the PSC and SBM. A PPP offers better value for money if the total costs calculated by the SBM are less than the costs calculated by the PSC. If the project is not revenue positive, the net present value (NPV) of the contract represents the required government contribution for a private contractor to deliver the project.

It is important to note that for the quantitative assessment of the project to be valid, the same quality of delivery needs to be assumed in both the public and private sector solutions. Experience in the international jurisdictions indicates that procuring authorities have sometimes had difficulty in assuming the same quality of service, as they begin by pricing the service as they expect to deliver it in the PSC (i.e. to the existing quality threshold) rather than to the quality threshold requested of the private sector providers through a PPP, such as higher service levels or more modernised facilities³¹.

Although the development of the PSC and SBM are significant components of the quantitative VfM assessment, the results of these tools are usually considered in conjunction with additional qualitative considerations, such as the competitiveness in the market and the private sector's appetite for risk transfer. **Together, the quantitative and qualitative assessments typically inform the overall VfM analysis and decision-making process³².**

5.1 Approach to VfM Analysis in the U.S.

In the U.S., there have been some isolated cases of project teams employing concepts of VfM analysis to assist the procuring agency in selecting the preferred procurement method for a project. In general, VfM analysis has been conducted by the procuring agency and stakeholders/advisors with **each project being evaluated and assessed on a case-by-case basis** and best practices or lessons learned throughout the evaluation and procurement processes may not have been collected and shared across procuring agencies at the state or national level. Recent projects of note include the Dulles Greenway in Virginia, the Indiana Toll Road in Indiana, and I-595 in Florida³³.

In the case of I-595, a VfM analysis was employed during the project development pre-bidding phase and after contract close with the selected bidder to compare the delivery of a major highway corridor project as a design-build-finance (DBF) to a design-build-finance-operate-maintain (DBFOM). The Florida Department of Transportation (FDOT) evaluated both qualitative and quantitative factors as part of a VfM analysis for this project; however, FDOT relied primarily on a cost comparison of the two procurement options. The results of the VfM analysis indicated that the government would achieve greater value if the project was procured as a DBFOM.³⁴

To conduct the cost comparison, FDOT developed pre-bidding costs using preliminary estimates, and compared actual bids received during post-contract close. The pre-bidding VfM analysis assisted the government in determining the procurement structure which offered the best value and lowest cost to the public sector (a DBFOM procurement). The post-contract close VfM analysis was conducted to assess if the results of the pre-bidding VfM analysis remained true after bids were received. FDOT's selection of the procurement mode relied on the estimated cost comparison, with consideration of qualitative factors such as focus of design on long-term service quality and transfer of appropriate risks. Both the pre-

bidding and post-contract close VfM analyses concluded that the State would receive optimal VfM via DBFOM procurement³⁵.

Key Observations: VfM Analysis in PPP Procurement

- VfM is a tool that may assist governments in determining appropriate procurement methods for public sector delivery and private sector delivery, and selecting between public and private delivery options.
- A systematic, aggregated and transparent analysis for PPP projects, such as a VfM analysis, can increase overall confidence in the PPP market and add clarity to state-level governments, private investors, banks, and other stakeholders seeking to invest and deliver PPP projects.

6.0 VfM Analysis in the UK

The UK maintains an extensive set of national VfM guidance and tools which serve as the basis for many of the guidelines developed in other global jurisdictions. Although the UK conducts VfM analysis for all forms of procurement, the national government maintains specific guidance for conducting VfM analysis for prospective PFI projects.

In the UK, the government specifically differentiates between Public Private Partnerships (PPPs) and Private Finance Initiative (PFI) projects. According to available guidance, **a PPP is any form of joint working relationship between the public and private sectors. A PFI, in comparison, is one specific type of PPP.** A PFI is defined as an arrangement whereby the public sector contracts to purchase services from the private sector on a long-term basis, often between 15 to 30 years, and where the private sector is typically responsible for designing, building, financing, operating, and maintaining an asset. A PFI involves a degree of risk transfer to the private sector, and results in the private sector receiving annual unitary payments from the public sector during the operations phase. PFI projects use a standard contract form approved by HM Treasury³⁶.

The following sections provide an overview of the UK's methodology and approach to VfM analysis, the key stakeholders involved, and the tools used to conduct the qualitative and quantitative assessments. Further information on the UK approach is provided in the Stage 2 Report: Survey and Analysis of the Use of Public Sector Comparator (PSC) and Value for Money (VfM) Analyses in Developed Countries with Mature PPP Programs.

6.1 Origins of VfM Analysis

The UK first developed and implemented PFIs in the early 1990s³⁷.

The VfM guidance and tools available in the UK have evolved and changed over the last 18 years to incorporate industry leading practices, trends, and lessons learned as the market has matured. Today, the UK uses **national VfM guidance to conduct a standardized and simplified approach to VfM** that:

- Assists in selecting the appropriate procurement method, whether it be a PPP or a conventional procurement
- Informs the development of procurement documents, such as RFQs/RFPs, as well as bid evaluation criteria
- Assists in selecting the preferred bidder for a project³⁸

The primary sources of VfM guidance in the UK are the Value for Money Assessment Guidance (released in August 2004) and the Value for Money Quantitative Assessment User Guide and Evaluation Spreadsheet (released in March 2007). These documents are both maintained by HM Treasury at the national level, and provide standard, mandatory rules and regulations for the development of VfM analysis and supporting documents. Specific government departments, for example the Department for Transport, also provide supplemental guidance related to the development of VfM analysis for potential PFIs.

In recent years, the UK has placed additional emphasis on the qualitative assessment, to reflect key lessons learned on the inherent limitations included in the quantitative data, the high cost of developing complex financial models (PSCs and SBMs), and how the PSC may be influenced to achieve a specific result³⁹.

Current guidance recommends that procuring departments in the UK **conduct both a qualitative and quantitative assessment**, and departments are no longer required to develop a customized PSC. Instead, a standard spreadsheet tool has been adopted to calculate the relative quantitative VfM offered between a conventional procurement and PFI option. This revised approach to VfM analysis is designed to increase efficiencies and support a simplified and consistent approach to developing models for analysis⁴⁰.

The introduction of these changes has resulted in several benefits for the UK; however, it has also created new challenges⁴¹:

Benefits of Revised Approach	Challenges Associated with Revised Approach
<ul style="list-style-type: none"> • Reduces the level of reliance on the quantitative VfM assessment to select projects/award contracts and places additional emphasis on qualitative considerations such as innovative design and environmental factors • Limits the impact of subjectivity and bias on the quantitative VfM assessment outcomes to address concerns that a PSC can be influenced to deliver a desired result • Reduces the cost associated with the development of the quantitative VfM assessment 	<ul style="list-style-type: none"> • Reduces the ability of the public sector to accurately compare bids received with a conventional procurement option – historically, a detailed PSC would serve as a baseline against which to measure bids and often fostered increased communication between the public and private sectors if estimates were not comparable with actual bids • Uses a set discount rate, which does not incorporate a risk adjustment and often varies from the discount rate calculated by the private sector. To assess potential PFI projects, the procuring department adjusts the cash flows for the impact of risk before applying an essentially “risk free” discount rate (Note: the UK uses a set discount rate for all procurement structures, including but not limited to PFIs)

The effectiveness of the changes to the VfM analysis is still debated in the UK and the government continues to assess the effectiveness of the current tools and identify appropriate changes and modifications to the current guidance.

6.2 Overall Approach to VfM Analysis

The VfM Assessment Guidance in the UK outlines a **three-stage approach for conducting VfM analysis for all potential PFI projects**⁴². The graphic below shows the high-level procurement process, from capital planning through contract completion, and outlines the standard approach for conducting VfM analysis in the UK. The detailed process map included in the actual VfM guidance is included in Appendix B.

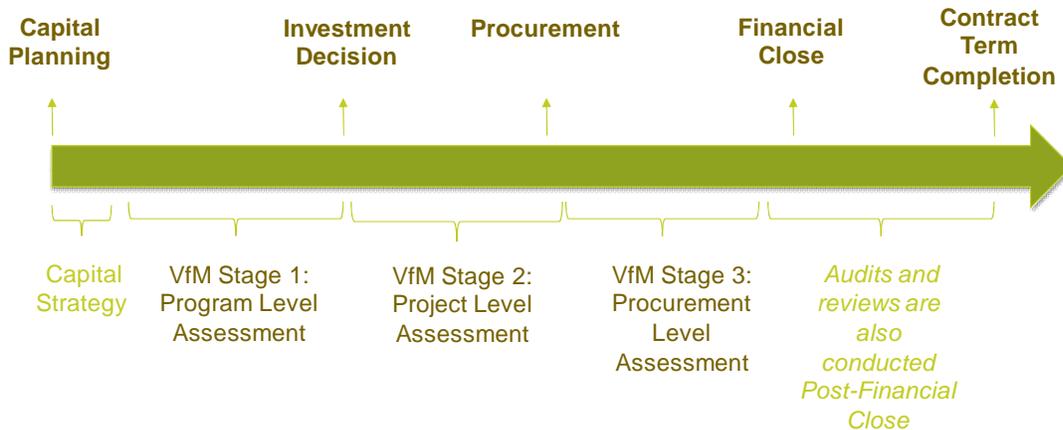


Figure 4: Stages of the UK VfM Approach⁴³

Below is a summary of each stage. Additional information on each stage is also provided in Section 6.4.

VfM Stage 1: Program Level Assessment⁴⁴

The purpose of Stage 1 is to **identify those projects that may be suitable for PFIs**, while at the same time providing flexibility for alternative procurement approaches to be considered at later stages if VfM for a PFI is no longer estimated. Investment programs that are identified to be suitable for PFIs move to the Stage 2 analysis. A PFI is pursued if the option is expected to represent greater VfM than a conventional procurement. PFI projects are also often pursued as they help meet affordability constraints by spreading the costs over a longer period.

Due to the uncertainty of many variables during this early planning phase, a high degree of estimation is used to conduct both the qualitative and quantitative assessments. Often, the procuring authority utilizes benchmarks and historical data from similar projects in order to complete the analysis.

Databases with historical project information are maintained by HM Treasury and Partnerships UK (which was recently absorbed into Infrastructure UK, a new team within HM Treasury). The database maintained by Partnerships UK provides users with historical information about PFI transactions (i.e., when they closed, who was involved, funding terms, deal size, etc)⁴⁵. The HM Treasury database includes data captured and provided by different departments, including a list of deals signed, projects in procurement, and equity holders. Although this data may be used to assist during Stage 1 of the VfM analysis, the quality of the data often varies. As a result, it is important for the procuring department to review the data and identify the most appropriate sources for each individual project prior to conducting the Stage 1 analysis. For this reason, a large portion of data used is provided by the procuring authority's Financial and Technical advisors, based on their market experience⁴⁶.

Output: The results of the Stage 1 VfM analysis are **used to inform the spending review process**. For programs that are considered suitable for PFIs, the procuring authority publishes an investment program with an estimated project breakdown and timings. The results are then passed on to the project teams (either within the department or within local authorities, depending on the nature of the project and level at which it is therefore delivered) for further analysis in Stage 2.

VfM Stage 2: Project Level Assessment⁴⁷

The purpose of Stage 2 is to reexamine the conclusions made in Stage 1, and **assess if the PPP option continues to offer VfM for the public sector**. The project teams conduct a more detailed analysis of

VfM for the individual projects that make up the program and seeks to verify whether appropriate risk transfer arrangements are achievable.

Stage 2 identifies any remaining issues that may prevent the project from being procured as a PFI, and verify any assumptions upon which the Stage 1 decision was made. This includes testing whether the PFI solution garners sufficient market interest. At the conclusion of Stage 2, the project team should have a clear understanding of whether VfM is likely to be provided if the project is procured as a PFI.

Output: The results of the Stage 2 VfM analysis are used to **develop the Outline Business Case**, which must be reviewed and approved by the Project Review Group (PRG). The PRG is hosted and chaired by HM Treasury, and includes representatives from various parts of central and local government. If the decision is made to structure the project as a PFI, the project moves to Stage 3 of the VfM analysis. Otherwise, the project team considers alternative procurement options.

VfM Stage 3: Procurement Level Assessment⁴⁸

Stage 3 is an iterative process and makes sure that **VfM is still achieved during the procurement process**. The project team conducts a continuous assessment to check that the market conditions, competitive landscape, and proposed risk allocation continue to support the use of a PFI.

The qualitative VfM analysis is the focus of Stage 3 and the analysis focuses on comparing the bids received. The UK does not compare the actual bids received to the estimated costs calculated in the PSC. Instead, the procuring authority focuses on evaluating VfM offered by the bidders, and generally assumes that a PFI offers better VfM than a conventional procurement during Stage 3. Although this is the prescribed approach in UK VfM guidance, the impact of the global financial crisis has resulted in some PPP projects being reassessed and delivered as conventional procurements if the bids received no longer offered VfM. In both Australia and Canada, bids are compared against the PSC up until financial close, and a project may be reassessed and delivered as a conventional procurement if VfM is no longer offered.

Output: The results of the Stage 3 VfM analysis **inform the development of the bid documents**, if appropriate, and select the preferred bidder. VfM analysis and proper risk allocation are the basis for selecting the preferred bidder for a PFI project in the UK. If deliverability and cost are both judged as being capable of achieving the output specification and are affordable, the bid offering the best VfM in terms of whole lifecycle costs and quality of service is accepted.

Post Financial Close

Over the life of the contract, reviews and audits are completed to **assess the effectiveness of the VfM analysis process and approach**. The audit process is discussed further in Section 5.5.

6.3 Key Stakeholders

The UK requires the participation of many stakeholders during the development of the VfM analysis:

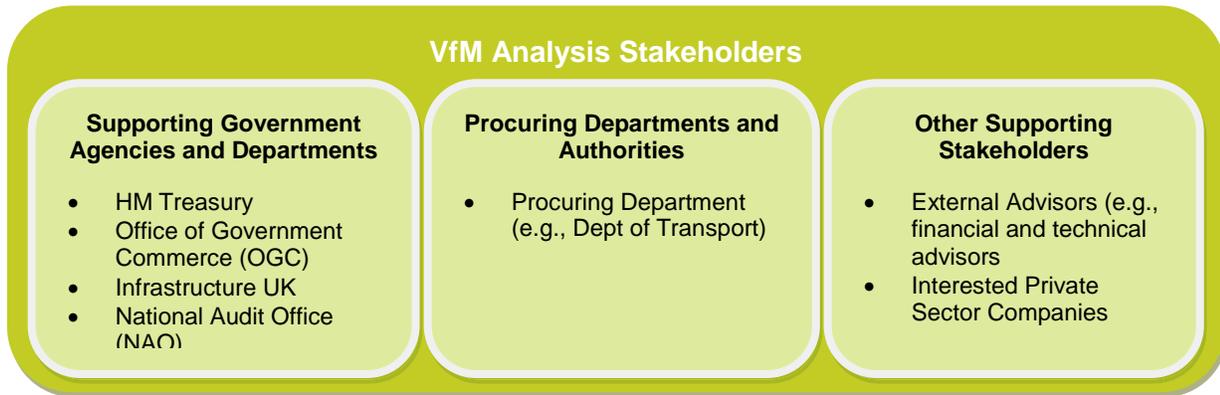


Figure 5: VfM Stakeholders in the UK⁴⁹

The roles and responsibilities for each stakeholder in the UK are described below.

Supporting Government Agencies and Departments

These agencies provide guidance and maintain the analysis rules and regulations:

- **HM Treasury and Infrastructure UK⁵⁰** - Provides guidance on the development of VfM analysis and maintaining the quantitative VfM spreadsheet and user guide. Infrastructure UK was established within HM Treasury to respond to the future infrastructure challenges in the UK, and provides coordinated decision-making across departments, a single source of project expertise, and a long-term strategic view of infrastructure issues. It is responsible for advising Government on long-term national infrastructure priorities, including how to support a transition to a low carbon economy.
- **Office of Government Commerce (OGC)⁵¹** - Provides guidance on the procurement process, partnering arrangements, project management, dispute resolution, and risk management. OGC maintains the Competitive Dialogue documentation (guide for contracting authorities to improve consistency and efficiency in public procurement), and assists as part of the general procurement process (not specific to PFIs).
- **National Audit Office (NAO)⁵²** - Conducts objective, independent analyses of PFI projects, which are released to the public.

Procuring Departments and Authorities

The procuring department is responsible for conducting the VfM analysis, and is responsible for all communication with HM Treasury as needed. In the UK, projects may be procured nationally by the relevant department or at the local level by a procuring authority. If a project is procured by a local authority, the national procuring department (i.e., the Department for Transport) works with the procuring authority to make sure it has the necessary resources and capabilities to conduct the VfM analysis, and interfaces with HM Treasury as the primary contact as needed⁵³.

External advisors and interested private sector companies assist the government and provide additional inputs to the VfM analysis as required.

- **External Advisors**⁵⁴ - Professional financial and technical advisory firms assist the procuring authority during the VfM assessment as needed. These firms can provide valuable assistance, and provide assumptions needed during the VfM analysis based on their previous experience. The extent to which external advisors are used varies greatly depending on the type of project, as well as the internal skills, experience, and capacity of the department that is procuring the project. Most authorities have in-house financial and legal professionals and external advisors supplement the in-house experience.
- **Interested Private Sector Companies**⁵⁵ – Participate in bidder conferences and market sounding exercises that are conducted during Stages 1 and 2 of the VfM assessment, and prepare the actual bids in Stage 3. When preparing the bids, private companies may also conduct their own VfM analysis in determining whether to bid on a potential project.

Although the UK provides national guidance on the VfM analysis process, the structures of the Australian and Canadian governments necessitate a different approach. In Australia, the national government recently released suggested guidance for VfM. The Australian national guidance was developed with input from the states and is broadly consistent with state-based approaches. It also provides flexibility for states to address issues which are typically prescribed in the legislation of each state (e.g. land acquisition)⁵⁶. In Canada, VfM guidance is provided mainly at the provincial level (e.g., in British Columbia and Ontario); however, there are some federal guidelines available on PPP and VfM through Canada's Public Works & Government Services⁵⁷.

6.4 Tools and Guidance

The UK has developed several tools and documents to provide procuring authorities with guidance on conducting the VfM analysis, as well as additional guidance relevant to procuring PFI projects. There are 5 main sources of information that procuring authorities must consult when developing VfM analysis for PFI projects in the UK. These documents include⁵⁸:

- **Value for Money Assessment Guidance** - Provides procuring authorities with a process and approach for conducting a VfM analysis for all potential PFI projects. The VfM Assessment Guidance was last updated in November 2006, and is maintained by HM Treasury.
- **Value for Money Quantitative Assessment Evaluation Spreadsheet and User Guide** - Provides procuring authorities with a standard Excel spreadsheet that is used to calculate quantitative VfM, and defines terms, input variables, output calculations, and the supporting assumptions used in the spreadsheet. The VfM Quantitative Assessment documentation was last updated in March 2007, and is maintained by HM Treasury.
- **Standardization of PFI Contracts** - Provides a guide for procuring authorities when drafting PFI contracts (effectively a template contract with associated guidance) and focuses on three main objectives: 1) Promotes a common understanding of risks involved in a PFI project, 2) Standardizes the approach and pricing across a wide range of projects, and 3) Reduces the time and costs of negotiation by developing a standard, agreeable approach for all parties. The Standardization of PFI Contracts document is maintained by HM Treasury.
- **Competitive Dialogue Procedure** - Provides guidance and suggested approaches to procuring authorities for conducting the procurement process for PFI projects (under the Competitive Dialogue element of the EU procurement regulations). Information contained in the procedures was compiled from the experiences and advice of contracting authorities, practitioners, bidders, and advisors with significant PFI procurement experience, and the document is maintained by the Office of Government Commerce (OGC).

- **The Green Book** - Provides a guide for procuring authorities on the appraisal and evaluation process of any new policy, project, or program, including PFI contracts. In the UK, the Green Book includes guidance on the set discount rates used in the quantitative VfM assessment. The Green Book is maintained by HM Treasury.

Additionally, several departments and agencies, such as the Department for Transport, provide specific guidance relevant for conducting VfM analysis for PFI projects⁵⁹. Department-specific guidance may include additional considerations needed for the qualitative or quantitative VfM assessments for sector-specific projects.

Through the development of standard guidance, the UK has developed a consistent approach to VfM analysis that offers several benefits for procuring authorities. These benefits include⁶⁰:

- **Providing consistency** in the application of VfM across all projects and is not sector specific
- Supporting a **minimum standard of quality** in the analysis that underpins the government investment decision, procurement method, and selected bidder
- **Reducing transaction costs**
- **Providing transparency** and increasing confidence in the market for how the government selects PFIs

The following sections provide additional details regarding both the qualitative and quantitative tools used to conduct VfM analysis in the UK.

6.4.1 Qualitative Assessment

In the UK, the qualitative assessment is a key component of the VfM analysis. As the process for developing and analyzing VfM has evolved in the UK, the qualitative assessment has become increasingly important. According to the latest version of VfM Assessment Guidance, **the results of the qualitative and quantitative assessments are considered equally**, except in some circumstances when the results of the qualitative assessment are weighted more heavily than the results of the quantitative assessment⁶¹. This may occur when:

- The difference in the quantitative results for the conventional procurement option and the PFI option are marginal
- There is a high level of uncertainty around the quantitative input variables
- The quantitative outputs are highly sensitive to any variation in the input variables⁶²

The VfM Assessment Guidance identifies standard questions and considerations to be addressed as part of the qualitative assessment for all PFI projects.

During Stage 1, these questions are designed to assess factors affecting⁶³:

- **Viability** – The project has clearly defined output specifications and appropriate risk transfer to be effectively structured as a PPP.
- **Desirability** – The project has benefits, such as incentives and risk transfer that make it attractive for both the public and private sector.
- **Achievability** – There is an appropriate level of market interest and the private sector has the skills and capabilities to manage the project complexities.

The qualitative assessment helps the procuring authority **assess the clarity of the output specifications, assess the possibility for risk transfer, and identify the market capacity and interest to invest** in a program. It also allows the public sector to identify potential issues or constraints that may prohibit the project from being procured as a PFI. Due to the uncertainty of many considerations during Stage 1, the procuring authority typically uses a **high degree of estimation to conduct the qualitative assessment** during this stage⁶⁴. The table below provides a high-level overview of the some of the key issues and questions considered during the Stage 1 qualitative assessment. A more detailed list of questions answered during the qualitative assessment is included in Appendix C.

Stage 1 - Program Level Qualitative Assessment ⁶⁵		
Viability	Desirability	Achievability
<ul style="list-style-type: none"> • Program Level Outputs and Objectives <ul style="list-style-type: none"> – Can the quality of the service be objectively and independently assessed? • Soft Services <ul style="list-style-type: none"> – Are there good strategic reasons to retain soft service provision in-house (e.g. longer-term implications of skill transfer)? • Operational Flexibility <ul style="list-style-type: none"> – What is the likelihood of large contract variations being necessary during the life of the contract? • Equity, Efficiency, and Accountability <ul style="list-style-type: none"> – Are there public equity, efficiency or accountability reasons for providing the service directly, rather than through a PFI contract? 	<ul style="list-style-type: none"> • Risk Management <ul style="list-style-type: none"> – Is the private sector likely to be able to manage the generic risks associated with the program more effectively than the procuring authority? • Innovation <ul style="list-style-type: none"> – Is there scope for innovation in either the design of the solution or in the provision of the services? • Contract Duration and Residual Value <ul style="list-style-type: none"> – How far into the future can service demand be reasonably predicted? • Incentives and Monitoring <ul style="list-style-type: none"> – Can the service be assessed independently against an agreed standard? • Lifecycle Costs <ul style="list-style-type: none"> – Is it possible to integrate the design, build and operation of the projects in the program? 	<ul style="list-style-type: none"> • Market Interest <ul style="list-style-type: none"> – Is there evidence that the private sector is capable of delivering the required outcome? – Does a significant market with sufficient capacity for these services exist in the private sector? • Other Issues <ul style="list-style-type: none"> – Is the procurement feasible within the required timescale? Is there sufficient time for resolution of key procuring authority issues? – Is the overall value of the contract significant (sufficient for the public and private sector to justify their transaction costs?)

During Stage 2, the procuring authority updates and reanalyzes the qualitative assessment conducted in Stage 1 to assess if the potential for PFI delivery still exists. The following table provides a high-level overview of some of the issues and questions considered during the Stage 2 qualitative assessment. **Market sounding activities conducted during this stage assist in addressing some of these issues⁶⁶**. A more detailed list of questions answered during the qualitative assessment is included in Appendix C.

Stage 2 - Project Level Qualitative Assessment ⁶⁷		
Viability	Desirability	Achievability
<ul style="list-style-type: none"> • Project Level Outputs <ul style="list-style-type: none"> – Is the project delivery team satisfied that a long term contract can be constructed for this project? Can the contractual outputs be framed so that they can be objectively measured? • Soft Services <ul style="list-style-type: none"> – How will the soft facilities management providers be bought into the design process? How early will this happen? What mechanisms can be used to ensure this? • Operational Flexibility <ul style="list-style-type: none"> – What is the likelihood of large contract variations being necessary during the life of the contract? • Equity, Efficiency, and Accountability <ul style="list-style-type: none"> – Are there public equity, efficiency or accountability reasons for providing the service directly, rather than through a PFI contract? 	<ul style="list-style-type: none"> • Risk Management <ul style="list-style-type: none"> – Can the payment mechanism and contract terms incentivize efficient risk management? • Innovation <ul style="list-style-type: none"> – Is there scope for innovation in either the design of the solution or in the provision of the services? • Contract Duration and Residual Value <ul style="list-style-type: none"> – How far into the future can service demand be reasonably predicted? What is the expected life of the assets? What are the disadvantages of a long contract length? • Incentives and Monitoring <ul style="list-style-type: none"> – Can the service be assessed independently against an agreed standard? • Lifecycle Costs <ul style="list-style-type: none"> – Is it possible to integrate the design, build and operation elements of the project? 	<ul style="list-style-type: none"> • Market Interest <ul style="list-style-type: none"> – Is there evidence that the private sector is capable of delivering the required outcome? – Does a significant market with sufficient capacity and understanding for these services exist in the private sector? – Does the nature of the project suggest that it will be seen by the market as a profitable venture? • Other Issues <ul style="list-style-type: none"> – Is the procurement feasible within the required timescale? Is there sufficient time for: resolution of key Authority issues; production/ approval of procurement documentation; staged down-selection and evaluation of bidders, negotiation, approvals and due diligence? – Is the overall value of the project significant and proportionate to justify the transaction costs?

During Stage 3, the qualitative assessment is conducted on a continuous basis to assess if **the market conditions, the appetite for risk transfer, and the efficiency of the procurement process continue to support the delivery of a project as a PFI.**

The stability of costs and affordability as it relates to contract pricing between the public and private sector, the need for funding competition once a preferred bidder has been selected, and the overall affordability of the transaction costs for the private sector is also assessed⁶⁸.

The following table provides a high-level overview of the some of the issues and questions considered during the Stage 3 qualitative assessment. A more detailed list of questions answered during the qualitative assessment is included in Appendix C.

Stage 3 - Procurement Level Qualitative Assessment ⁶⁹		
Viability	Desirability	Achievability
<ul style="list-style-type: none"> • Market Abuse or Failure <ul style="list-style-type: none"> – Is there any evidence from similar projects (in scope or location) to suggest that there will be a shortage of good quality financially robust bidders? – Is there any evidence of market abuse? • Procurement Issues <ul style="list-style-type: none"> – Was there a good response to the solicitation? – How many potential bidders met the necessary criteria? Are the financial robustness and capacity of the bidders sufficient? – Is there evidence of good competitive tension in pricing of risks etc? 	<ul style="list-style-type: none"> • Efficient Procurement <ul style="list-style-type: none"> – Is there a realistic project plan, and has this been adhered to without undue delays? – Are bid costs likely to be proportionate to the contract value? – Will any aspect of the procurement impact adversely on market interest? (e.g. restrictions imposed by Competitive Dialogue procedure) – Are there any problems emerging with the way the procurement is structured? • Authority Resources <ul style="list-style-type: none"> – Does the procuring authority have the necessary resources to conduct a good procurement? – Are sound project governance arrangements in place? 	<ul style="list-style-type: none"> • Wider Issues <ul style="list-style-type: none"> – Is the competition delivering the proposed risk transfer? – Does the Authority confirm that the nature of the deal and/or the strategic importance of the work still make it suitable for delivery through PFI? – Is there still confidence that all the key VfM drivers will be preserved?

6.4.2 Consideration of Livability and Sustainability Objectives

In recent years, issues related to livability and sustainability, specifically in regards to transportation projects have become increasingly important in project evaluation and selection in the UK. Social and environmental factors are first considered during project selection as part of the investment decision, and may be reassessed during the VfM analysis to assess if various potential approaches may be used under different procurement methods or bidders.⁷⁰

In the UK, sector-specific **VfM guidance may incorporate additional considerations in the qualitative VfM assessment that address environmental and safety concerns.** The UK Department for Transport requires all potential projects to be assessed against 5 qualitative VfM objectives: environmental impact, safety, economy, accessibility, and integration⁷¹.

In March 2010, the Department for Transport released the Transport Carbon Reduction Delivery Plan, which establishes three five-year cycle targets to reduce greenhouse gas emissions. Regulations such as these must be met by all potential projects and can influence the government's investment decision⁷².

In some cases, these regulations also introduce important considerations in selecting the procurement method, which may be addressed during the VfM analysis for a potential PPP project. In general, **if there is opportunity for innovation by the private sector that may result in more efficiently meeting carbon reduction, environmental, and sustainability goals, this may be considered in the qualitative VfM assessment.** Additionally, the private sector's appetite for risk may be affected by the

introduction of new or changing regulations⁷³. Examples of specific factors that may be considered during the qualitative VfM assessment for transport projects include⁷⁴:

- Project environmental emissions and the potential for design innovation
- Potential purchase and use of more fuel efficient and electric vehicles
- Impact of overall planning and integration of rail transit with pedestrian, bicycle, and bus access
- Impact of availability on transport services and ability to meet expected transport demand

Livability and sustainability in transportation projects is also an important focus for the selection criteria for the U.S. DOT Transportation Investment Generating Economic Recovery (TIGER) Discretionary Grant Program. Examples of selection criteria include⁷⁵:

- Contributing to the long-term economic competitiveness of the nation
- Improving the condition of existing transportation facilities and systems
- Improving energy efficiency and reducing greenhouse gas emissions
- Improving the safety of U.S. transportation facilities
- Improving the quality of living and working environments of communities through increased transportation choices and connections
- Contributing to quickly creating and preserving jobs and stimulating rapid increases in economic activity

In addition to the TIGER program, programs such as the Federal Transit Administration (FTA) New Starts program have also incorporated qualitative considerations into the evaluation criteria. In January 2010, the New Starts process was updated to incorporate criteria that impact livability issues for transit projects, such as economic development and environmental benefits⁷⁶.

The selection criteria specified by the TIGER Discretionary Grant Program and New Starts are primarily used in project selection. A VfM analysis that incorporates a qualitative assessment may help procuring authorities assess how different procurement methods can assist in meeting the program selection criteria. It can also assist the procuring authorities in determining how different private sector bidders can offer innovations in meeting the livability and sustainability objectives.

6.4.3 Quantitative Assessment

The UK has adopted a standardized approach for quantitative VfM assessment. Currently, HM Treasury maintains a standard quantitative VfM spreadsheet (as well as a detailed user guide), which are completed and included as part of the business case for any potential PFI project. As discussed in Section 5.1, this spreadsheet contains several standard inputs, and is completed in lieu of developing a PSC and SBM during the VfM analysis.

The quantitative VfM spreadsheet allows the procuring authority **to compare the estimated net present values of the costs associated with a public sector delivery, or conventional procurement (CP) option, to the costs associated with a PFI option**⁷⁷. The quantitative spreadsheet:

- Is completed using standard inputs and flexibility factors⁷⁸
- Allows for a simplified approach to conducting VfM, as compared to the development of a detailed PSC (e.g., the spreadsheet provides a standardized, highly simplified model that includes set inputs and formulas for calculating outputs such as net present value and internal rates of return)⁷⁹

- Utilizes a fixed discount rate, which is the social time preference rate set by HM Treasury in the UK's Green Book⁸⁰

During Stages 1 and 2 of the VfM analysis, the procuring authority is responsible for completing the quantitative VfM spreadsheet by developing and refining cost estimates for the project.

During Stage 3, the project team analyzes the actual costs of the bids received. If the bids indicate a significantly higher cost as compared to the costs calculated in the PFI option during Stage 2, the project team can revisit the quantitative assessment from Stage 2 and reassess to make sure VfM is still achieved through a PFI⁸¹.

The quantitative VfM spreadsheet is the basis for the quantitative assessment in the UK. The following diagram provides a high-level snapshot of the inputs and outputs contained in the quantitative VfM spreadsheet⁸².

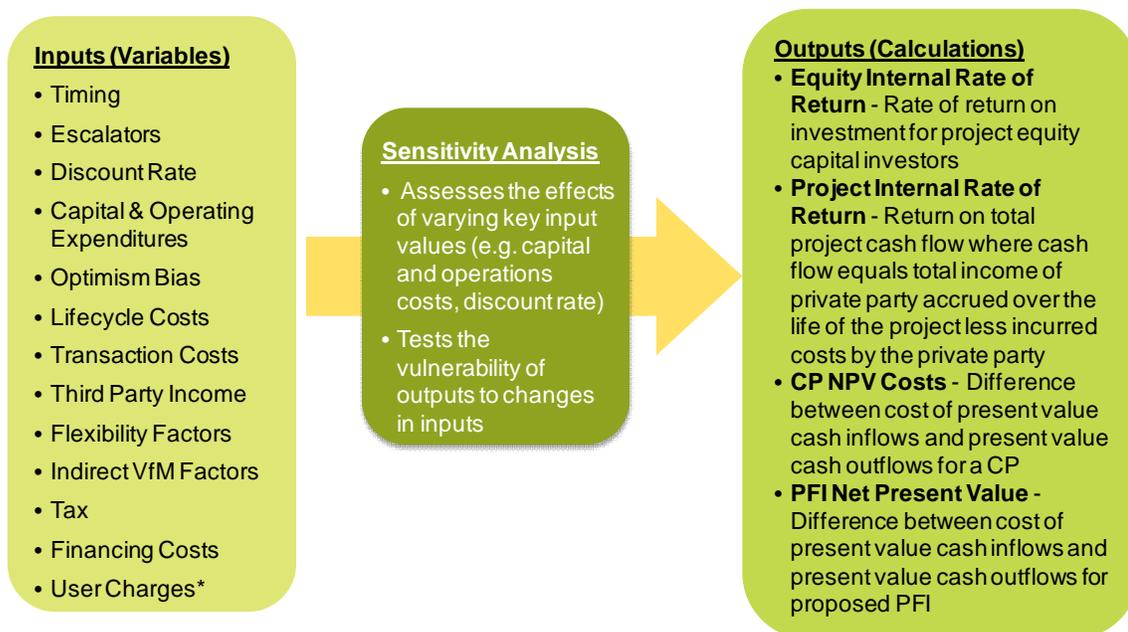


Figure 6: Inputs and Outputs in the UK Quantitative VfM Spreadsheet

To complete the VfM spreadsheet, procuring authorities need to **estimate many costs and revenues associated with delivering a project over the whole of its life**. As the costs and revenues can be difficult to estimate and data accuracy is crucial in developing a robust analysis, HM Treasury provides indicative values and guidance for departmental consideration when completing the VfM spreadsheet. The guidance provided by HM Treasury is reflective of a significant volume of project delivery data collected by the UK government⁸³.

The figure below shows how the inputs are organized in the quantitative VfM spreadsheet for all PFI projects⁸⁴.

General					
Timings	(Yrs)	Rates - Escalators & Discount		Rates (%)	Base Year
Contract period	29	CapEx escalator		4.5%	0
Initial CapEx period	4	OpEx (non employment) escalator		2.5%	0
Year when OpEx is first incurred	5	OpEx (employment) escalator		3.5%	0
Proportion of UC in initial CapEx period payment	50%	Unitary charge escalator		50%	0
		Nominal discount rate		6.03%	NA

Costs					
Whole Life	CP	OB Pre (%)	OB Post (%)	PFI	OB Pre (%)
Initial CapEx (£'000)	65,250	10%	30%	71,775	10%
Lifecycle costs at each LC date (£'000)	6,535	10%	30%	1,076	10%
Lifecycle intervals (yrs)	10	NA	NA	1	NA
OpEx (non employment) (p.a.) (£'000)	1,075	10%	20%	1,183	10%
OpEx (employment per person) (p.a.) (£'000)	20	NA	NA	20	NA
OpEx (employee number)	25	NA	NA	25	NA

Transaction					
	CP	OB Pre (%)	OB Post (%)	PFI	OB Pre (%)
Public sector (£'000)	1,958	10%	10%	1,453	10%
Private sector (£'000)	0	0%	0%	1,077	10%

Third Party Income					
	CP	OB Pre (%)	OB Post (%)	PFI	OB Pre (%)
Income (p.a.) (£'000)	475	10%	10%	575	10%

Flexibility		
	CP	PFI
Scope change year	10	10
Probability factor (%)	50%	50%
Level of scope change (%)	50%	50%
Premium flexibility factor (%)	0	10%

Indirect VfM Factors		
	CP	PFI
Amount (Npv) (£'000)	0	2,000

Tax		
	CP	PFI
CP adjustment factor (%)	6%	NA

Lifecycle Related Adjustments		
	CP	PFI
Lifecycle / residual cost benchmark		50%
CP lifecycle VfM adjustment if lower than benchmark		40%
CP lifecycle VfM adjustment if higher than benchmark		40%
CP residual cost factor if lower than benchmark		70%
CP residual cost factor if higher than benchmark		35%

PFI Funding	
Gearing (%)	90%
Sterling swap rate (%)	6.15%
Credit spread (bps)	12
Bank margin (bps)	100
Tail for bank debt (yrs)	2
Commitment fee (bps)	50
Upfront fee (bps)	90
Grace period (yrs)	1

Pre Tax IRR Targets	
High	18%
Medium	15%
Low	13%

bps

CapEx

LC

NA

OB Pre

OB Post

OpEx

CP

Basis Points

Capital Expenditure

Lifecycle Costs

Not Applicable - *no input required*

Pre-FBC Optimism Bias

Post-FBC Optimism Bias (for CP only)

Operational Expenditure

Conventional Procurement

Input required (can link from previous sheet)

Hard-wired Assumption - *no input required*

Figure 7: UK Quantitative VfM Spreadsheet - Inputs

The quantitative VfM spreadsheet requires the procuring authority to enter the estimated costs for both a CP option and a PFI option. The following table provides a detailed description of each input that is required for the model, and describes the specific assumptions for each input, as identified by HM Treasury in the spreadsheet template and guidance⁸⁵.

Input Category	Input	Description	Assumption
General - Timings	Timings	Contract period between the public sector and private parties	Time period is limited to intervals between 6 and 40 years; model allows for scenarios where service begins prior to the end of major capital expenditures
General - Rates	Escalators	Index annual rate of increase applied to Capital Expenditures, Operating Expenditures (non-wage operating, lifecycle costs, third party income), and Unitary Charge (availability payment made to concessionaire)	Estimated values may continue to increase over time at different rates
General - Rates	Nominal Discount Rate	If cash flows are in real terms, then the discount rate of 3.5% is applied. If cash flows are in nominal terms, then the GDP Deflator of 2.5% is applied based on the UK's Green Book.	Rates are based on a maximum contract length of 30 years, as noted in UK's Green Book

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Input Category	Input	Description	Assumption
Costs	Initial Capital Costs	Costs incurred to design and construct an asset	All initial capital costs have a quantifiable monetary value
Costs	Lifecycle Costs	Costs incurred on an ongoing and/or periodic basis over the course of the contract period to maintain the asset up to a contract pre-defined fitness level	Lifecycle Costs can be based on similar historic costs and trends
Costs	Operating Costs	Costs incurred by the authority in operating the asset and/or running the services included within the scope for personnel and related costs	A cost per person calculation may be sufficient to develop an overall Operating cost
Costs	Transaction Costs	Costs incurred by the public and private sectors to reach/achieve contractual agreement. PFI's include a minimum transaction cost of £750K (2006, nominal = US\$1.16M) in the spreadsheet model.	Total Transaction Costs for a PFI are higher than the Conventional Procurement Option Transaction Costs.
Costs / Third Party Income	Optimism Bias	Pre- and post- contract signature adjustment factor to account for overstated benefits, understated project schedules, and understated capital/operating costs based on data from historically similar projects	There is a tendency for project appraisers to be optimistic about a particular project, rendering estimates and projections inaccurate
Third Party Income	Third Party Income	Any income stream that may result from the procurement and reduces the Unitary Charge (e.g., fare box revenue, advertising revenue)	Any Third Party income to be accounted for is generated from the first year following the end of construction.
Flexibility	Flexibility Factors	Factors include year of likely scope change, event probability and impact, level of impact of scope change, and PFI premium comparing estimated impact of scope change to a PFI vs. a conventional procurement.	Typically based on the most likely events that would lead to a scope change for a particular project.
Indirect VfM Factors	Indirect VfM Factors	UK Green Book requires public bodies to identify both costs and benefits that arise from public investment and to valueate, where possible, intangible benefits identified by the procuring authority	The Procurement Authority is the party that has the most information available to provide the Indirect VfM Factors.
Tax	Tax	Estimate made to reflect the additional tax revenue that accrues to the government under the PFI option in line with the UK Green Book	Tax rates and status remain predictable and consistent over the life of the project

Input Category	Input	Description	Assumption
Lifecycle Related Adjustments	Lifecycle costs at each Lifecycle date, Life cycle intervals	The investment incurred, on an ongoing and/or periodic basis during the course of the contract period, to maintain the asset so that it remains fit for its intended purpose. The lifecycle interval for the PFI option is hard-wired as an annual cost.	
PFI Funding	Gearing	Share of total financing requirement that is funded by debt	Spreadsheet model assumes that finance required to fund a PFI project is introduced in the proportions of 90% debt to 10% equity
PFI Funding	Sterling Swap Rate	Cost, in percentage points, of converting floating rate debt into fixed rate	The Swap Rate is a financial markets variable that is assumed to be the same across all projects
PFI Funding	Credit Spread	Credit strength of the project company	A Credit Spread of 10-12 basis points is assumed
PFI Funding	Bank Margin	Difference between the reference rate and rate charged by senior lenders for providing variable rate senior debt	Margin should be based on sector-specific experience by procuring authority

After the inputs have been entered into the spreadsheet, the procuring authority may run the model to view the outputs. The outputs are displayed in a separate tab in the quantitative VfM spreadsheet, and provide the user with the high-level data needed for the Outline Business Case. The output page also includes several switches, which allow the user to view different scenarios for the project by easily changing the internal rate of return. The figure below provides an example of a completed output page for the quantitative VfM spreadsheet⁸⁶.

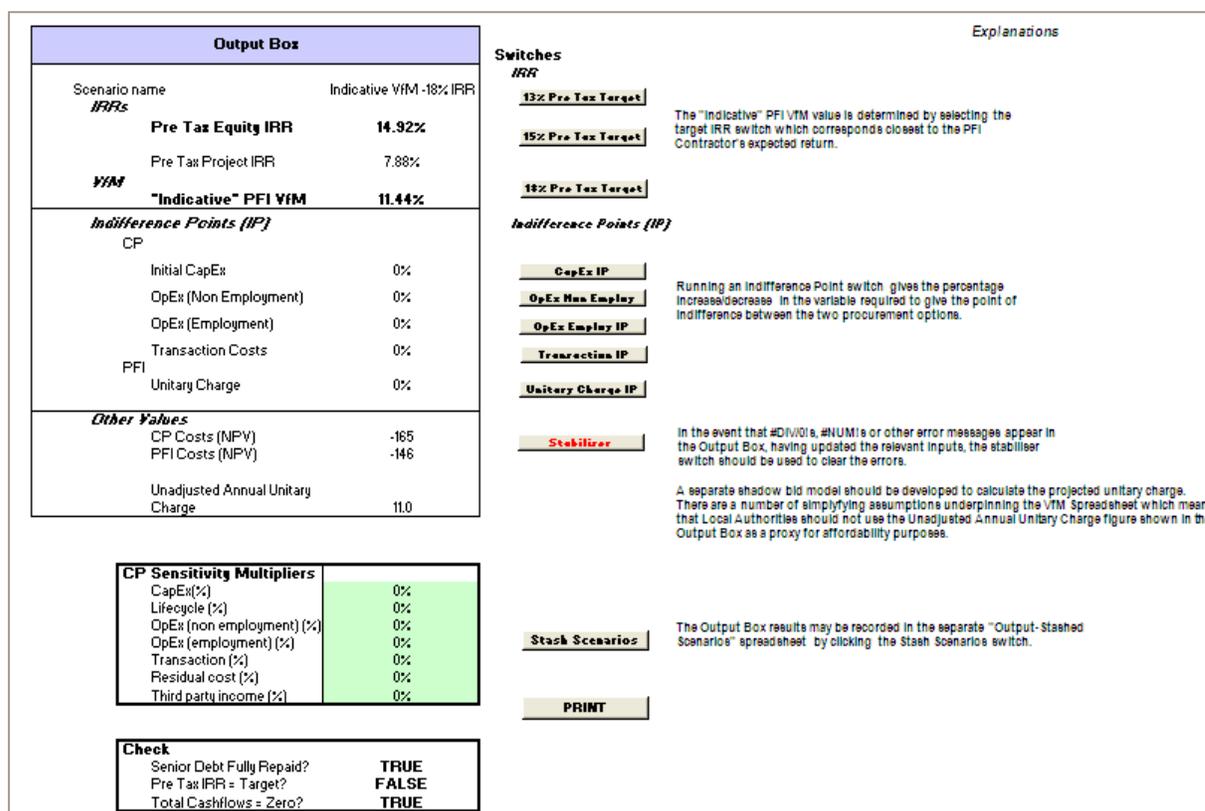


Figure 8: UK Quantitative VfM Spreadsheet - Outputs

The output box in the quantitative VfM spreadsheet contains several calculations. The following table defines the outputs that are calculated by the quantitative VfM spreadsheet for all PFI projects⁸⁷.

Output Category	Calculation	Definition
IRR's	Pre-Tax Equity Internal Rate of Return (IRR)	Rate of return on the investment for project equity capital investors
IRR's	Pre-Tax Project Internal Rate of Return (IRR)	Rate of return on total project cash flows, where the cash flows equal the total income of the private party accrued over the life of the project less incurred costs by the private party
VfM	Indicative PFI VfM	Percent difference between the NPV of CP option and the NPV of the PFI option - if the value is greater than 0, then the PFI option is more likely to provide quantitative VfM than the CP option
Other Values	Conventional Procurement Net Present Value Costs	Difference between the cost of the present value cash inflows and the cost of the present value cash outflows over the life of the project for a Conventional Procurement
Other Values	PFI Net Present Value	Difference between the cost of the present value cash inflows and the cost of the present value cash outflows over the life of the project for a Private Finance Initiative
Other Values	Unadjusted Annual Unitary Charge	Expected annual payment that the public sector must pay the private contractor during the operations phase of the PFI

The spreadsheet model also calculates Indifference Points, which are the estimated percentage increases or decreases of a particular input variable that result in the difference between the net present value (NPV) of the CP option and the PFI option reaching zero. At this point, there is little or no difference in the modes of procurement. Sponsoring departments work with the procuring authorities to establish benchmark tolerances for Indifference Points which, if relatively easily breached, might suggest that further analytical support should be provided to the Indicative PFI VfM value. In the UK, the default benchmark tolerances for the capital expenditure and the unitary charge, in the absence of sector-specific guidance, are shown in the following table⁸⁸.

Value Driver	Default Benchmark Tolerance
Capital Expenditure	-5%
Unitary Charge	+3%

Using these defaults, the public sector may complete additional analysis on the underlying assumptions used in the quantitative VfM spreadsheet if the Indifference Point for the capital expenditure is calculated as being between 0 and -4%, or if the Indifference Point for the unitary charge is between 0 and 3%. In both of these cases, the results of the quantitative VfM assessment show a minimal difference between procurement options, and the results are placed in the context of the qualitative assessment⁸⁹.

In order to increase the confidence of the outputs calculated by the quantitative VfM spreadsheet, the model is typically run several times using different input assumptions and sensitivities. The sensitivity analysis included in the quantitative VfM spreadsheet assesses the effects of varying key input values (e.g. capital and operations costs), and tests the degree to which the outputs may vary given future uncertainties and assumptions about the costs and expected benefits of the project⁹⁰.

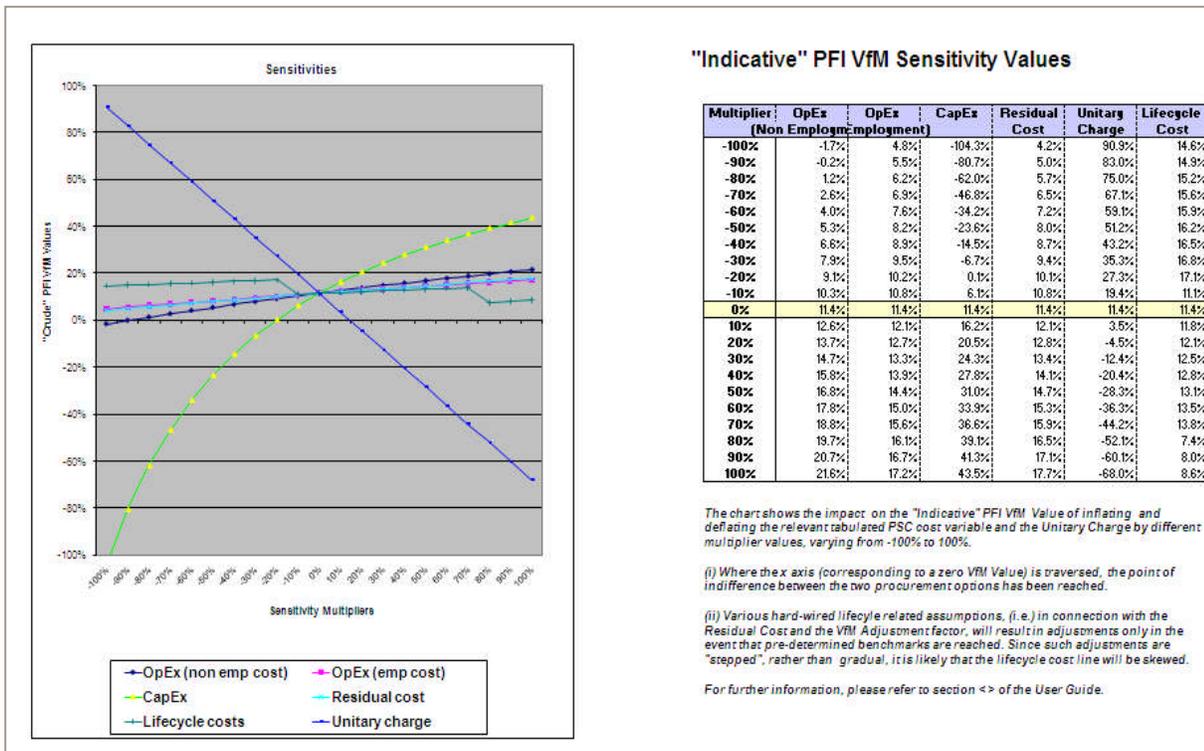


Figure 9 provides an example sensitivity analysis calculated by the quantitative VfM spreadsheet. As shown, the model calculates the sensitivity of the outputs based on changes to the operations costs,

capital costs, residual costs, lifecycle costs, and the unitary payment. The Indifference Point for each sensitivity value is shown on the graph where the line crosses '0%'⁹¹.

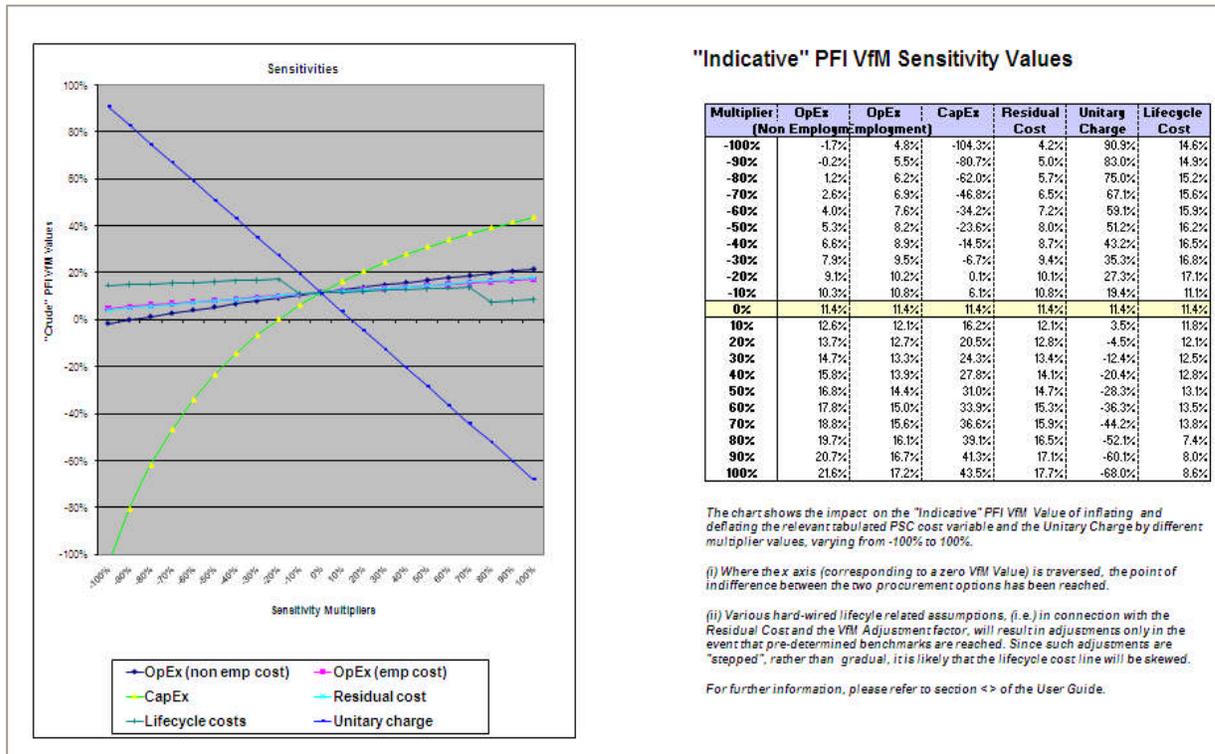


Figure 9: UK Quantitative VfM Spreadsheet - Sensitivity Analysis

In general, the procuring authority reviews the sensitivity analysis to assess how reliable the results of the quantitative VfM assessment are in informing the overall VfM analysis. If the results of the quantitative assessment are highly sensitive to changes in the inputs, additional emphasis may be placed on the results of the qualitative assessment⁹².

During Stages 1 and 2 of the VfM analysis, the procuring authority updates the inputs in the standard VfM spreadsheet, and evaluates the quantitative results. The procuring authority reviews the estimated equity and project internal rates of return, as well as the estimated net present values of both the CP and PFI options. The Indicative PFI VfM calculates the difference between the estimated NPVs of the PFI and CP options. If the VfM spreadsheet calculates that the Indicative PFI VfM value is greater than 0, then a PFI is more likely to provide quantitative VfM than conventional procurement⁹³.

Figure 10 shows the actual results of a quantitative VfM assessment for a PFI project completed in the UK. As shown, the Indicative PFI VfM value was positive for this project. In this case, the results of the quantitative assessment indicated that a PFI achieved better VfM for the government. The public sector used these results, in conjunction with the results of the qualitative assessment, to inform the development of this project as a PFI⁹⁴.

	PSC NPC £M's	PFI NPC £M's
Base Case Scenario (15% pre-tax IRR)	314	235
Indicative PFI value for money %		25.11

Figure 10: Example of quantitative assessment results from an Outline Business Case for a UK PFI project - South Tyne & Wear Waste Management Partnership

The results of the quantitative assessment are evaluated with the results of the qualitative assessment to make a determination regarding the final procurement decision⁹⁵.

In the U.S., financial estimates and data that are already collected for existing analyses may inform a quantitative VfM-type assessment for transportation projects, such as the Standard Cost Categories (SCC) workbook utilized for the New Starts process⁹⁶. A VfM assessment extends this approach and requires project teams to estimate whole lifecycle costs associated with a project, which would require additional input from the state and local procuring authorities.

Additionally, a VfM-type quantitative analysis may assist procuring authorities in developing a cost baseline which can be built over time. As VfM analysis is a continuous analysis, the quantitative data may be refined throughout the investment and procurement processes to provide accurate estimates. As this data is refined, it may contribute to the development of more accurate cost estimates, which can ultimately inform decisions in existing processes, such as New Starts.

6.4.4 Risk Assessment

For a PPP, the assessment of whole-life risks and the allocation of risks is linked to the VfM offered by this procurement method. The figure below describes the risk assessment process conducted in the UK for PFI projects⁹⁷.



Figure 11: Risk Assessment Process for PFI Projects in the UK

Step 1: Identify Risk⁹⁸. The procuring authority identifies potential risks for a project, and prioritizes those risks based on a standard assessment tool. The risk identification process begins during the early investment program planning phase, as part of the Stage 1 VfM analysis⁹⁹. Risks are then updated and refined as project specifications become clearer during subsequent stages of the VfM analysis. Internal experts, with the assistance of financial and technical advisors, are typically responsible for assisting the procuring authority with risk identification and assessment. A risk register or risk log is used to track and quantify the value and probability of risks incurred.

Step 2: Allocate Risk¹⁰⁰. The procuring authority analyzes how the risks may be allocated for a project. Under a PFI, the risks may be retained by the public sector, transferred to the private sector, or shared between both parties. It is important for the public sector to allocate risks to the party that is best able to manage them. In order to achieve this, the public sector typically conducts ongoing conversations with

the potential bidders beginning in Stage 2 of the VfM analysis¹⁰¹. In most situations, the allocation of all known risks should occur prior to the issuance of the RFP to the market.

Step 3: Manage Risk¹⁰². The procuring authority develops risk management and mitigation plans for the risks that are retained by the public sector. Throughout the life of the project, the procuring authority revisits and updates the risk register to account for any new or unforeseen risks, and manages issues as they arise.

Both the qualitative and quantitative assessments account for risk as part of the VfM analysis in the UK¹⁰³.

As part of the qualitative assessment, the procuring authority assesses:

- The private sector's appetite for risk transfer
- If the private sector has the capacity and ability to manage risks effectively
- If the payment mechanism and contract terms incentivize good risk management

As part of the quantitative assessment, the VfM spreadsheet accounts for several forms of risk. The spreadsheet:

- Incorporates optimism bias (OB), which accounts for tendency for project appraisers to be optimistic and less objective on certain risks
- Incorporates flexibility factors that account for unknown risks that may develop over the life of a project and occur due to unexpected events

To document its preferred approach to risk allocation, the UK has developed the Standardization of PFI Contracts (SoPC), which provides specific guidelines for the allocation and transfer of risk included in contracts for all PFI projects. The procuring authority is required to refer to the SoPC when developing and finalizing a PFI contract. Specific departments, including the Department for Transport, have also developed standard contracts, which incorporate the conditions of the SoPC and include more specific and detailed guidance for contracts developed in certain sectors¹⁰⁴.

In Australia and Canada, additional rigor may be placed on incorporating risks into the quantitative VfM assessment¹⁰⁵. For example, in these jurisdictions, risks are individually identified and prioritized. High and medium priority risks may be quantified based on the probability of occurrence and likelihood of impact. **Through a detailed risk assessment, these risks are assigned an actual dollar value, which takes into account the probability of occurrence, the likelihood of impact, and the estimated costs needed to mitigate the risk if it were to occur.** The evaluation and incorporation of risks in the quantitative assessment can help to provide a detailed understanding of specific project risks the whole-life project costs¹⁰⁶.

In the U.S., a risk register is typically developed to analyze construction or 'known' risks that are reflected in the engineers' cost estimate. Risk assessments in other countries consider **the risks over the life of the project (design, construction, operations, and end of contract) and the allocation of risks between the contract parties**, which are critical to the VfM analysis process for delivering a PPP¹⁰⁷.

6.5 Outcomes of VfM Analysis and Reporting Process

The procuring authority and sponsoring government department review the results of both the qualitative and quantitative assessments to identify the procurement option that provides the best value for money for the public sector, as well as the general public.

The outcomes of the VfM analysis inform decisions at each stage of the investment process¹⁰⁸.

- **Stage 1** – Informs the development of the investment program, by indicating the investments potentially suitable for PFI delivery
- **Stage 2** – Informs the selection of a project's preferred procurement method (conventional procurement or PFI), and the development of the Outline Business Case
- **Stage 3** – Informs whether delivering the project as a PPP with the preferred bidder provides VfM prior to reaching Financial Close

In the UK, the outcomes of the VfM analysis may be reported to the public in several different ways. Additionally, the outcomes are reported as part of the Outline Business Case, which may be made public by the procuring authority.

The National Audit Office (NAO) may also conduct an objective, independent assessment of the VfM analysis throughout the life of a project, and release the results in publically available reports. The NAO may assess whether the estimates and assumptions made during the VfM analysis were accurate, and assess whether VfM continues to be achieved under a PFI¹⁰⁹.

For example, NAO completed a report examining a VfM analysis developed by the Department for Transport and the Office of Rail Regulation in procuring rolling stock to accommodate increasing rail capacity to March 2014 for passengers in England and Wales¹¹⁰. NAO criticizes the Department's VfM analysis saying that although their initial demand forecasting and planning was robust, it did not take into account the sensitivity of rail demand, economic growth, and the current economic downturn. The report also concluded that it is too early to assess whether or not VfM will be achieved, and identified a number of weaknesses, including: 1) the Department assumed purchase of additional vehicles from incumbent train operators, limiting its pricing and cost estimation, 2) the Department did not consider the real possibility of exploring whether or not VfM could be achieved if the time horizon were pushed beyond the initial March 2010 deadline, and 3) the Department restricted itself to the data and costing of a single private rail operator, Network Rail. This case highlights the difficulty in creating a fully robust analysis, and conversely, the relative ease of criticising any analysis.¹¹¹

For more information on the outcomes of and reporting on VfM analysis, please refer to the Stage 2 Report: Survey and Analysis of the Use of Public Sector Comparator (PSC) and Value for Money (VfM) Analyses in Developed Countries with Mature PPP Programs.

Key Observations: VfM Analysis in the UK

- Detailed guidance outlining a standard approach for conducting VfM analysis may assist procuring authorities in selecting projects that deliver the best value.
- Such guidance can address the different VfM considerations that take place throughout the procurement process, from capital planning through contract completion.
- Specific tools can support the VfM analysis and contribute to a consistent approach. These tools can help procuring authorities evaluate qualitative and quantitative impacts of a project and assess potential project risks.
- Consistent VfM processes and principles can also provide insight into why the public sector chooses a certain type of procurement method over another. This can increase transparency in the procurement processes, enhance the public and political understanding of PPPs, promote continuous improvement and increase the confidence of potential project investors.

7.0 Differing Approaches to VfM Analysis

VfM processes and practices in each international jurisdiction differ, and offer the U.S. varying approaches to consider. The following table summarizes the key differences between the VfM approaches in the UK, Australia, and Canada¹¹².

Topic	UK	Canada	Australia
Terms Used	Private Finance Initiative (PFI)	Public Private Partnership (P3)	Public Private Partnership (PPP)
Owner of VfM Guidance	National Government provides guidance on VfM analysis	State Governments provide guidance on VfM analysis	National and State Governments provide guidance
Templates Provided and Discount Rate Methodology Used	Quantitative VfM template provided by the National Government, includes a set discount rate which is the social time preference rate developed by HM Treasury	No national template provided, although there is some federal guidance (e.g., with Public Works & Government Services Canada). Certain provinces (e.g., ON) have developed standard tools; models are generally developed for individual projects and the discount rate approach fluctuates	No template provided, models developed for individual projects and the discount rate is based on weighted average cost of capital
Guidance Provided on Quantitative VfM Assessment	Templates and guidance to develop the conventional procurement and PFI option	Guidance on developing a PSC and Shadow Bid (e.g., BC and ON)	Guidance on developing a PSC, PPP/Shadow Bid model not mandatory for analysis
Development of PSC	PSC no longer utilized in VfM analysis during the bid phase	PSC utilized in measuring VfM offered by bids	PSC utilized in measuring VfM offered by bids
Risk Assessment Process	Quantitative VfM spreadsheet accounts for optimism bias and incorporates flexibility factors which account for unknown risks	Quantitative VfM assessment incorporates the detailed quantification and allocation of risks, which are incorporated in the whole-life costs of the project	Quantitative VfM assessment incorporates the detailed quantification and allocation of risks, which are incorporated in the whole-life costs of the project
Reporting of VfM Outcomes	Public release of VfM analysis outcomes is through government audit processes	VfM analysis outcomes publicly reported after financial close	VfM analysis outcomes publicly reported after financial close
Use of Qualitative and Quantitative Assessments	Quantitative and qualitative VfM analysis is conducted, with a strong emphasis on qualitative VfM analysis	Quantitative and qualitative VfM analysis is conducted	Quantitative and qualitative VfM analysis is conducted

Key Observations: Differing Approaches to VfM Analysis

- Each jurisdiction has taken the concept of VfM analysis and tailored it based on the specific needs of their government. For example, the UK has strong national leadership on VfM, and has sought to simplify and streamline the VfM analysis process to the greatest extent possible. The UK also collects previous project data and maintains project databases, which are used to assist project teams in future assessments¹¹³.
- In Canada and Australia, leadership on VfM analysis is dominated by the states/provinces, and while guidance on the process has been provided at the national level, the governments have not simplified the process to the same extent as the UK. For example, while the UK maintains a standard VfM template that includes predetermined inputs for the quantitative analysis and standard questions for the qualitative assessment, both Australia and Canada generally require the development of customized tools for each project¹¹⁴.
- These differing practices illustrate the spectrum of potential options for the U.S. to consider in developing its own unique approach to VfM analysis that meets the federal/state interests and existing procurement practices of transportation projects.

8.0 Conclusion and Key Considerations for the U.S.

8.1 Conclusion

VfM is described as the optimum combination of whole lifecycle costs and quality needed to meet the public's requirement for a good or service. A VfM analysis is based on a comparison between options and is conducted throughout a project's lifecycle to support the:

- Identification, prioritization and selection of programs or projects for investment
- Selection of the preferred procurement method for an investment
- Determination to deliver the project as a PPP with the preferred bidder

VfM analysis is common practice in countries such as the UK, Australia, and Canada to complete a VfM analysis when determining if a project should be procured as a PPP. In these jurisdictions, it is used to assist the public sector in making an investment decision, selecting the appropriate procurement structure, and determining the preferred bidder for a potential project.

The UK has developed a three-stage approach to VfM analysis, which includes both a qualitative and quantitative assessment¹¹⁵:

- The quantitative assessment provides an evaluation of estimated, risk-adjusted net present costs (or net present revenue if the project is revenue positive)
- The qualitative assessment provides an evaluation of the key considerations that cannot be easily quantified such as environmental impact, safety considerations, use of innovative technology, and design quality

National VfM guidance, which is maintained by HM Treasury, provides sponsoring departments and procuring authorities with the required processes and tools needed to complete a sound and robust VfM analysis. This guidance includes:

- Conducting the quantitative and qualitative assessments used in the VfM Analysis
- Standardized PFI Contracts
- Evaluation and appraisal methods (The Green Book)

The tools provided by HM Treasury include a quantitative VfM template spreadsheet that provides indicative values and guidance for estimating a project's whole lifecycle costs and revenues. The spreadsheet uses the data inputs to calculate an Indicative PFI VfM that indicates the difference between the estimated costs of the PFI and the conventional procurement option¹¹⁶.

The results of the VfM analysis assist the public sector procuring authority in comparing the benefits and costs of procuring a project as a conventional procurement with a PFI.

Based on the experiences of the UK, Australia and Canada, VfM analysis can offer several benefits for the public sector; however, it also presents challenges, as summarized in the following table¹¹⁷.

Benefits of VfM Analysis	Challenges of VfM Analysis
<ul style="list-style-type: none"> • Focuses the public sector's evaluation on the whole lifecycle costs associated with a project, rather than on the costs of 	<ul style="list-style-type: none"> • Typically requires assistance from multiple external advisors, including financial and technical advisors

Benefits of VfM Analysis	Challenges of VfM Analysis
<p>individual project components</p> <ul style="list-style-type: none"> • Helps identify the drivers of a project that may provide value by assessing both qualitative and quantitative considerations • Assists the public sector in evaluating the long-term benefits and outputs of a project, rather than short-term costs • Informs the development of procurement and contractual documents, such as the RFP and concession agreement • Creates a focus on the risks of the project, which helps government management of the project, regardless of the eventual procurement method chosen 	<ul style="list-style-type: none"> • May be timely and costly to complete a detailed VfM analysis, especially during the early planning phases • Requires significant reviews and continuous assessment of VfM leading up through financial close • Results are subject to review by regulatory and oversight bodies

Each jurisdiction has tailored their approach to VfM analysis to reflect the specific needs of their government. Guidance is provided by the UK national government, while in Canada and Australia, leadership on VfM analysis is dominated by the states/provinces. Governments in these jurisdictions have not simplified the process to the same extent as the UK.

8.2 Key Considerations for the U.S.

Based on the research conducted for Stage 2, incorporating VfM analysis principles into the assessment and procurement of U.S. transportation projects may provide several benefits for both state/local procuring authorities as well as U.S. DOT. Research indicates that VfM analysis assists departments and procuring authorities in determining how to structure a procurement to provide the greatest value to the public.

State and Local Level Considerations

At the state and local level, VfM analysis has been utilized to select the preferred procurement option for US transportation projects such as the I-595 corridor in Florida and the Oakland Airport Connector in California¹¹⁸. VfM analysis can assist procuring authorities in evaluating potential procurement methods, including PPPs, based on the long-term benefits and value offered by each option. Because VfM analysis assesses both qualitative and quantitative considerations, it may provide state and local procuring authorities with greater clarity on the potential efficiencies and benefits of private sector delivery.

VfM analysis focuses the public sector's evaluation on the whole lifecycle costs, as well as the long-term outputs, for a project. Whole lifecycle costs for a project include capital costs, as well as long-term operations, maintenance, rehabilitation, and financing costs. Conducting a VfM analysis may assist state and local governments in understanding the true costs of delivering public services over the life of a project, beyond the initial capital cost. The importance of whole-life costing is that it illustrates the relationship between costs and benefits of project delivery in the long term, which may provide opportunities for state and local procuring authorities to generate efficiencies across the project lifecycle.

State and local procuring authorities may also benefit from an enhanced understanding of the key drivers of costs and benefits for a project, which can assist the public sector in structuring a procurement. For example, a VfM analysis includes the assessment and quantification of risks, which are incorporated as part of the qualitative and quantitative VfM assessments. By determining the costs of risks associated

with a project and determining how those risks may be allocated under different procurement methods, state and local procuring authorities may improve the quality of the estimated costs associated with a potential project, and better understand the potential role of the private sector in managing these risks.

In addition to providing increased clarity for the state and local procuring authorities, consistent VfM processes and principles can improve transparency in the public sector's selection of projects for PPP delivery. While states exhibit a high degree of transparency in government contracting, a VfM analysis process can assist in providing clarity on the contractual structure. This may help to clarify the role of the government and the private sector in the service delivery of PPP projects, and assist state and local procuring authorities in building public and political understanding of PPPs. VfM guidance and tools may also increase awareness of VfM principles at the state and local levels, and increase the confidence of potential project investors, as demonstrated in states such as Virginia, and Puerto Rico more recently¹¹⁹.

Considerations for U.S. DOT

At the federal level, DOT may contribute to the adoption of a consistent approach and principles for VfM analysis for transportation projects. This approach may be required for transportation projects applying for federal funding, and it may also serve as a general source of information for state and local procuring authorities that are considering the development of PPPs. Programs such as New Starts currently require applicants to consider alternate technical options and prepare detailed costings for the construction phase of a project¹²⁰. Extending this to whole lifecycle costing and consideration of procurement options may be one approach in incorporating VfM analysis principles into existing government programs.

Leading practices and lessons learned in international jurisdictions illustrate that a consistent approach to VfM analysis, whether developed nationally or at sub-national levels, can help to streamline VfM analysis across projects, establish a minimum standard of quality, and reduce transaction costs. U.S. DOT may realize several benefits by supporting a consistent approach to VfM analysis, including:

- Encourage consistency across the project assessment and procurement processes across state and local governments, particularly for projects seeking federal funding. Importantly, this may result in U.S. DOT receiving project applications that are based on similar practices, enabling effective assessments and comparisons between projects within a specific funding program. Supporting recommendations or guidance may also be developed to provide information on data sources, interpretation of analysis outcomes and use of analysis outcomes to prepare well-developed federal funding applications.
- Assist U.S. DOT in encouraging state and local procuring authorities to consider project and procurement alternatives and select the procurement option which provides the best value to the government and community when applying for federal funding. Additionally, the whole-life costs for the potential project provide U.S. DOT with a baseline against which future performance can be measured throughout the life of the project.
- Increased transparency on the U.S. DOT requirements for federal funds to be allocated to publicly or privately delivered projects, which may further increase the market's confidence in the U.S. PPP market.

Finally, key VfM analysis principles incorporated in the eligibility criteria for federal funding programs, U.S. DOT may encourage the adoption of consistent VfM principles as part of the state and local government's project assessment and procurement practices.

Addressing Some of the Key Challenges of VfM Analysis

International practices and lessons learned can be helpful when considering how VfM analysis can be useful in meeting the demands of the U.S. transportation market. For example, leading practices indicate that VfM analysis incorporates both qualitative and quantitative assessments¹²¹. As demonstrated in the UK, Australia, and Canada, many of the efficiencies, benefits, and negative impacts associated with developing PPPs are not easily quantifiable. By incorporating both qualitative and quantitative assessments, governments and procuring authorities can consider the costs associated with a potential project, as well as advantages and challenges such as the market's appetite for risk transfer, the opportunity for design innovation, and the ability of the private sector to meet output specifications.

Additionally, developing a risk log or risk register is an important component when completing a VfM analysis for a potential PPP project. For current transportation projects in the U.S., the risk register is typically developed to analyze construction or 'known' risks that are reflected in the engineers' cost estimate. The U.S. may seek to implement a risk assessment that includes consideration of risks over the life of the project (i.e. construction and operations) and the allocation of risks between the contract parties, which are critical to the VfM analysis process and delivering a PFI projects in the UK.

The quality of the data is also extremely important in developing a sound and robust VfM analysis. The quality of the data used directly affects the outputs and the results of the VfM analysis, and this ultimately informs the decision to either invest in a project or procure the project as a PPP. In the U.S., financial estimates and data that are already collected for existing analyses could inform a quantitative VfM-type assessment for transportation projects requesting federal funding. For example, transit programs that apply for New Starts funding are required to complete the SCC workbook, which includes forecasting the capital costs for several different transit elements¹²². FTA also undertakes annual performance review of selected projects that have received funding. By utilizing existing data and focusing on data collection in the project assessment process, DOT may provide support to procuring agencies undertaking VfM assessments.

DOT may also leverage several existing sources of information, such as the Federal Highway Administration (FHWA) PPP User Guidebook¹²³ and GAO's 2008 Report on Highway PPPs (GAO-08-44)¹²⁴, as well as lessons learned from states such as Florida, Virginia, and Texas, where PPPs have previously been implemented for transportation projects. Existing guidance, previous examples, and international leading practices all provide a baseline against which DOT may begin to encourage a consistent approach to VfM for transportation projects.

Appendix A: Stage 2 Source List

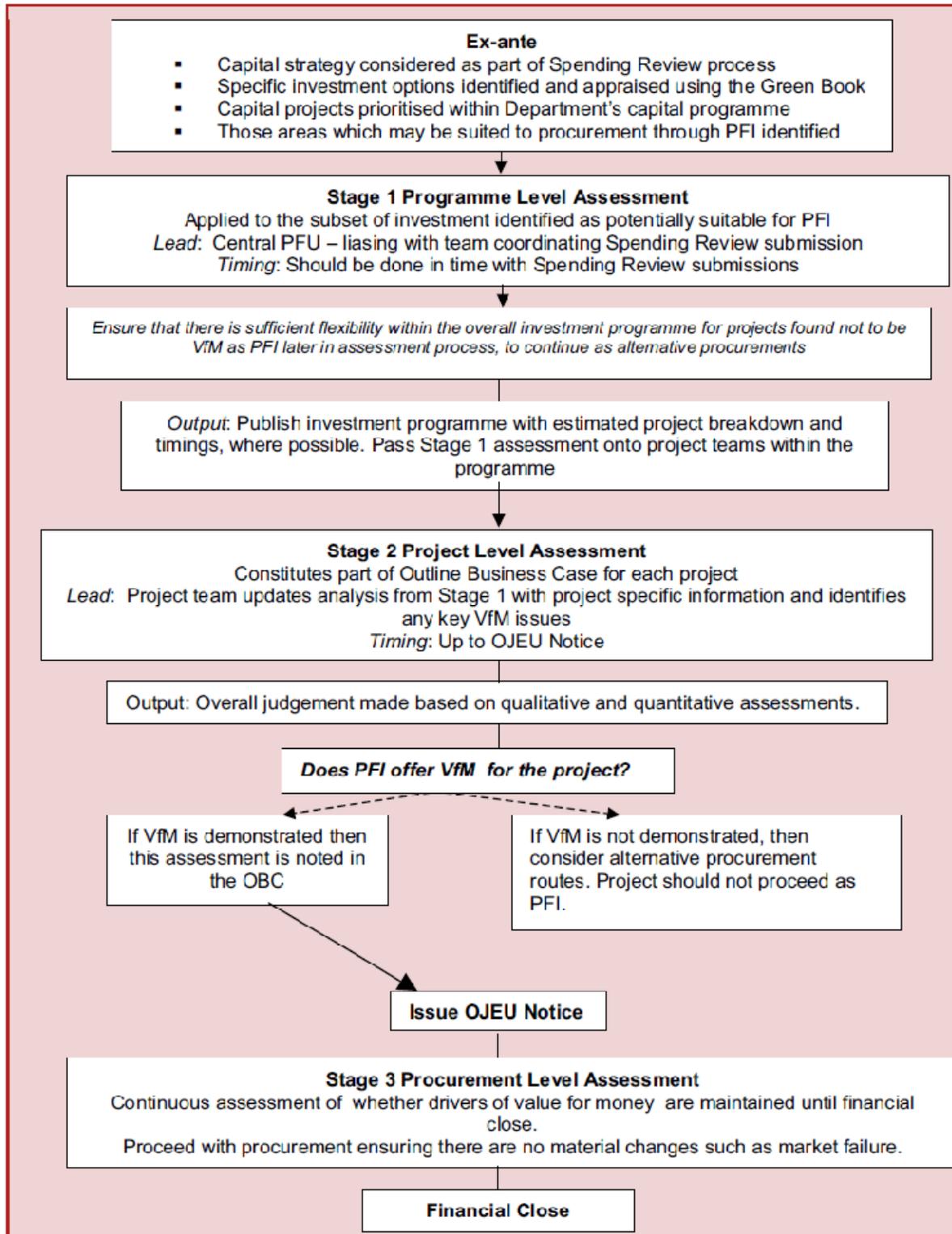
- 2.10 Partnerships UK, PPP Guidance, <http://www.partnershipsuk.org.uk/PUK-Guidance.aspx>, accessed 3/31/10.
- Provides links to HM Treasury guidance related to standardized contracts, change control principles, and value for money assessments.
- 2.11 HM Treasury, UK National Government. Value for Money Assessment Guidance. November 2006. http://www.hm-treasury.gov.uk/d/VfM_assessmentguidance061006opt.pdf, accessed 2/11/10. 54pgs.
- Describes the 3-stage process (program level assessment, project level assessment, and procurement level assessment) to develop a model for a VfM analysis in the UK
 - Advises at which points in time such an analysis should be undertaken and how to develop a project business case
- 2.12 HM Treasury, UK National Government: Value for Money Quantitative Assessment User Guide and Evaluation Template, March 2007. http://www.hm-treasury.gov.uk/d/VfM_qaguide0307.pdf, http://www.hm-treasury.gov.uk/d/VfM_qe_spreadsheet0307.xls, accessed 2/23/10
- This is a mandatory tool for all VfM assessments
- 2.13 HM Treasury. THE GREEN BOOK: Appraisal and Evaluation in Central Government. http://www.hm-treasury.gov.uk/d/green_book_complete.pdf, accessed 2/15/10.
- The 'Five Case Model' is the Office of Government Commerce's (OGC) recommended standard for the preparation of business cases and is used extensively within central government departments and their agencies. It is referenced by HM Treasury in the latest version of the Green Book
- 2.14 Flanagan, J. Public Sector Business Cases using the Five Case Model: a Toolkit. http://www.hm-treasury.gov.uk/d/greenbook_toolkitguide170707.pdf, accessed 2/15/10.
- The 'Five Case Model' is the Office of Government Commerce's (OGC) recommended standard for the preparation of business cases and is used extensively within central government departments and their agencies. It is referenced by HM Treasury in the latest version of the Green Book
- 2.15 National Audit Office (NAO), PFI and PPP Privatization Recommendations, Department of Transport: The Failure of Metronet (2009). <http://www.nao.org.uk/Recommendation/report.asp?repld=480>, accessed 3/31/10.
- Report discusses failure of the Metronet project, and identifies key factors the government must consider in future PPPs and primary lessons learned related to project management, private governance, and risk transfer.
- 2.16 National Audit Office (NAO), PFI and PPP Privatization Recommendations, Making Changes in Operational PFI Projects (2008). <http://www.nao.org.uk/Recommendation/report.asp?repld=458>, accessed 3/31/10.
- Report discusses how the public sector may incorporate flexibility into contracts by accounting for operational changes throughout the life of a PPP.
- 2.17 HM Treasury, Tendering and Benchmarking in PFI (2007). <http://www.publications.parliament.uk/pa/cm200607/cmselect/cmpubacc/754/754.pdf>, accessed 3/31/10.
- Report discusses the risks associated with maintaining competitive tension in tendering and value testing of PFI deals, and discusses the time and cost implications for tendering and negotiations.
- 2.18 National Audit Office (NAO), PFI and PPP Privatization Recommendations, Improving the PFI Tendering Process (2007). <http://www.nao.org.uk/Recommendation/report.asp?repld=454>, accessed 3/31/10.
- Report discusses the risk of PFI deals not receiving enough competitive bids for competitive bids, and discusses options for reducing the length and cost of the tendering process.

Survey and Analysis of Transportation Investment Models in Other Countries

- 2.19 National Audit Office (NAO), PFI and PPP Privatization Recommendations, Benchmarking and Market Testing the Ongoing Services Component of PFI Projects (2007).
<http://www.nao.org.uk/recommendation/report.asp?repld=455>, accessed 3/31/10.
- Report discusses the frequency and scope for completing value testing and benchmarking during the long-term execution of a PPP.
- 2.20 National Audit Office (NAO), PFI and PPP Privatization Recommendations, London Underground PPP: Were they good deals? <http://www.nao.org.uk/recommendation/report.asp?repld=436>, accessed 3/31/10.
- Report discusses the design, price, and management structures of 3 PPPs for the infrastructure of the London Underground.
- 2.21 National Audit Office (NAO), HM Treasury, Delivering Better Value for Money from the Private Finance Initiative, <http://www.nao.org.uk/recommendation/report.asp?repld=415>, accessed 3/31/10.
- Report discusses lessons learned and best practices for choosing whether to go ahead with a PFI option, negotiating a good deal, managing a contract, and safeguarding the taxpayer if the contractor fails to deliver.
- 2.22 Grout, P. Value-for-money measurements in public-private partnerships. July 2005. EIB Papers.
http://www.eib.org/attachments/efs/eibpapers/eibpapers_2005_v10_n02/eibpapers_2005_v10_n02_a02_en.pdf, accessed 2/11/10. 25pgs.
- Cautions at the over-reliance of PSC VfM analysis for determining PPP project potential
 - From UK the experience, most VfM analyses tend to produce results with significant errors
 - More developed the market is and the greater the number of quality bidders there are, the more likely the private sector can achieve VfM
- 2.23 Partnerships, UK
<http://www.partnershipsuk.org.uk/What-PUK-Do.aspx> , accessed 4/13/10.
- Provides link to Partnerships UK website and explains role of Partnerships UK
- 2.24 Programme for Government and Budget - <http://www.aasdni.gov.uk/pubs/DAOs/dao0207.doc>, accessed 4/14/10.
- Provides link to a letter (DAO (DFP) 02/07) from Department of Finance and Personnel dated 17th January, 2007, relating to **REVISED GUIDANCE ON PFI AND PPP VfM ASSESSMENT**
- 2.25 Department of Health, Investment Guidance RouteMap
http://www.dh.gov.uk/en/Aboutus/Procurementandproposals/Publicprivatepartnership/Privatefinanceinitiative/InvestmentGuidanceRouteMap/DH_4132888, <http://www.hm-treasury.gov.uk/d/ACFBEE.pdf> accessed 4/13/10
- Provides a link to Technical Note No. 4 which explains how to appoint and work with a preferred bidder
- 2.26 HM Treasury, PFI: strengthening long-term partnerships
http://www.hm-treasury.gov.uk/d/bud06_pfi_618.pdf
- Provides information on changes in PFI for strengthening long-term partnerships
- 2.27 Standardisation of PFI Contracts
http://www.hm-treasury.gov.uk/d/pfi_sopc4pu101_210307.pdf
- Provides information on standardisation of PFI Contracts
- 2.28 Letter on revised PFI standard tender documents
http://www.hm-treasury.gov.uk/d/pfi_sopcletter_210307.pdf
- Provides information on process to be followed with respect to revised standard documents
- 2.29 Background of Partnership UK
<http://www.partnershipsuk.org.uk/PUK-Background.aspx>
- Provides information on background of Partnership UK

- 2.30 Performance of PFI construction
http://www.nao.org.uk/publications/0809/pfi_construction.aspx, accessed at 04/14/10
- Report examines how PFI, one of the procurement options available to public officials, performs to contracted timetable and to price
- 2.31 NAO report on PFI Tendering process
http://www.nao.org.uk/publications/0607/improving_pfi_tendering.aspx, accessed at 04/14/10
- Report examines how PFI tendering process can be improved
- 2.32 Guidance on Value for Money by Department for Transport
<http://www.dft.gov.uk/about/howthedftworks/vfm/guidanceonvalueformoney?page=1#a1010>
- Guidance on VfM from Department for Transport
- 2.33 Department of Finance & Personnel, Northern Ireland
http://www.dfpni.gov.uk/index/finance/eag/eag-ppp/eag_obc_and_fbc_requirements.htm
- Guidance on OBC (Outline Business Case) and FBC (Full Business Case) Requirements
- 2.34 South Tyne & Wear Waste Management Partnership, Outline Business Case
http://www.gateshead.gov.uk/DocumentLibrary/Environment/Strategies/joint_wastestrategy/obc.pdf
- Example of OBC completed for a PFI project in the UK
- 2.35 UK Department for Transport, Carbon Reduction Delivery Plan
<http://www.decc.gov.uk/assets/decc/what%20we%20do/a%20low%20carbon%20uk/carbon%20budgets/62-dft-crdp.pdf>
- Establishes three five-year cycle targets to reduce greenhouse gas emissions
- 2.36 National Audit Office Report, Increasing Passenger Rail Capacity
http://www.nao.org.uk/publications/1011/rail_capacity.aspx
- Report examining a VfM analysis developed by the Department for Transport and the Office of Rail Regulation in procuring rolling stock to accommodate increasing rail capacity to March 2014 for passengers in England and Wales

Appendix B: High-Level Snapshot of UK VfM Assessment Guidance¹²⁵



Appendix C: Qualitative Considerations for the UK¹²⁶

Stage 1 - Program Level Assessment		
Area	Issue	Question
Viability	<i>Program Level Objectives and Outputs</i>	<ul style="list-style-type: none"> • Is the department satisfied that long-term contracts could be constructed for projects falling in this area? Can the contractual outputs be framed so that they can be objectively measured? • Is the requirement deliverable as a service and as a long-term contractual agreement? Could the contracts describe service requirements in clear, objective, output-based terms? • Can the quality of the service be objectively and independently assessed? • Is there a good fit between needs and contractible outcomes? • Can the contracts be drafted to avoid perverse incentives and deliver quality services? • Will there be significant levels of investment in new capital assets? • Are there functional issues relating to staff transfer or other workforce issues • If there are interfaces with other projects, are they clear and manageable?
	<i>Soft Services (e.g., cleaning services, security)</i>	<ul style="list-style-type: none"> • Are there good strategic reasons to retain soft service provision in-house e.g. longer-term implications of skill transfer? • What are the relative advantages and disadvantages? Is optimal risk allocation achieved by transfer or not? • Is there a commitment that the assumed benefits can be delivered without eroding the overall terms and conditions for staff?
	<i>Operational Flexibility</i>	<ul style="list-style-type: none"> • Is there a practical balance between the degree of operational flexibility that is desired and long term contracting based on up-front capital investment? • What is the likelihood of large contract variations being necessary during the life of the contract? • Can the service be implemented without constraining unacceptably the flexibility of the department to deliver future operation objectives?
	<i>Equity, Efficiency, and Accountability</i>	<ul style="list-style-type: none"> • Are there public equity, efficiency or accountability reasons for providing the service directly, rather than through a PFI contact? • Does the scope of the service lend itself to providing the contractor with "end-to-end" control of the relevant functional processes? Does the service have clear boundaries? • Are there regulatory or legal restrictions that require services to be provided directly?

Stage 1 - Program Level Assessment		
Area	Issue	Question
	Overall Viability	Overall, in considering PFI, is the department that operates the program satisfied that suitable long term contracts with sufficient flexibility can be constructed, and that strategic and regulatory issues are appropriate for departments to proceed with PFI?
Desirability	<i>Risk Management</i>	<ul style="list-style-type: none"> • Is the private sector likely to be able to manage the generic risks associated with the program more effectively than the procuring authority? • Bearing in mind the relevant risks that need to be managed for the program (e.g., design risk, technology obsolescence), what is the ability of the private sector to price and manage these risks? • Can the payment mechanism and contract terms incentivize good risk management?
	<i>Innovation</i>	<ul style="list-style-type: none"> • Is there scope for innovation in either the design of the solution or in the provision of the services? • Does some degree of flexibility remain in the nature of the technical solution/service and/or scope of the projects? Is the solution adequately free from the constraints imposed by the procuring authority, legal requirements and/or technical standards? • Does a preliminary assessment indicate that there is likely to be scope for innovation in the program?
	<i>Contract Duration & Residual Value</i>	<ul style="list-style-type: none"> • How far into the future can service demand be reasonably predicted? • What is the expected life of the assets? What are the disadvantages of a long contract length? • Are there constraints on the status of the assets after the contracts end?
	<i>Incentives and Monitoring</i>	<ul style="list-style-type: none"> • Can the outcomes or outputs of the investment program be described in contractual terms, which would be objective, specific and measurable? • Can the service be assessed independently against an agreed standard? • Would incentives for delivery of service levels be enhanced through a PFI payment mechanism?
	<i>Lifecycle Costs</i>	<ul style="list-style-type: none"> • Is it possible to integrate the design, build and operation of the projects in the program? • Are there significant ongoing operating costs and maintenance requirements? Are these likely to be sensitive to the approach and type of construction?
	<i>Overall Desirability</i>	<ul style="list-style-type: none"> • Overall, is the accounting officer satisfied that PFI would bring sufficient benefits that would outweigh the expected higher cost of capital and any other disadvantages?

Stage 1 - Program Level Assessment		
Area	Issue	Question
Achievability	<i>Market Interest</i>	<ul style="list-style-type: none"> • Is there evidence that the private sector is capable of delivering the required outcome? • Does a significant market with sufficient capacity for those services exist in the private sector? • Is there likely to be sufficient market appetite for the projects in the program? Has this been tested robustly? Is there any evidence of market failure for similar projects? • Have any similar programs been tendered to market? Has the procuring authority's commitment to a PFI solution for projects of the type covered in this program been demonstrated?
	<i>Other Issues</i>	<ul style="list-style-type: none"> • Is the procurement feasible within the required timescale? Is there sufficient time for resolution of key procuring authority issues? • Is the overall value of the contract significant (sufficient for the public and private sector to justify their transaction costs)? • Does the nature of the deal and/or the strategic importance of the work and/or the prospect for further business suggest that it will be seen by the market as a potentially profitable venture? • Does the procuring authority have the skills and resources to define, deliver and support the service throughout the procurement and the subsequent delivery period?
	<i>Overall Achievability</i>	<ul style="list-style-type: none"> • Overall, is the accounting officer satisfied that a PFI procurement programme is achievable, given an assessment of the market, procuring authority resources and the attractiveness of the proposal to the market?

Stage 2 - Project Level Assessment		
Area	Issue	Question
Viability	<i>Project-level Outputs</i>	<ul style="list-style-type: none"> • Is the project delivery team satisfied that a long term contract can be constructed for this project? Can the contractual outputs be framed so that they can be objectively measured? • Is the requirement deliverable as a service and as a long term arrangement? Can the contract describe the requirements in clear, objective, output-based terms? • Can the quality of the service be objectively and independently assessed? • Is there a good fit between needs and contractible outcomes? • Can the contract be drafted to avoid perverse incentives and to deliver quality services?
	<i>Operational Flexibility</i>	<ul style="list-style-type: none"> • Is there a practical balance between the degree of operational flexibility that is desired and long term contracting based on up-front capital investment? • What is the likelihood of large contract variations being necessary during the life of the contract? • Can the service be implemented without constraining the delivery of future operational objectives? • Is there confidence that operational flexibility is likely to be maintained over the lifetime of the contract, at an acceptable cost?
	<i>Equity, Efficiency and Accountability</i>	<ul style="list-style-type: none"> • Are there public equity, efficiency or accountability reasons for providing the service directly, rather than through a PFI contract? • Does the scope of the service lend itself to providing the contractor with "end-to-end" control of the relevant functional processes? Does the service have clear boundaries? • Are there regulatory or legal restrictions that require services to be provided directly? • Is the private sector able to exploit economies of scale through the provision, operation or maintenance of other similar services to other customers (not necessarily utilizing the same assets)? • Does the private sector have greater experience/expertise than the procuring authority in the delivery of this service? Are the services non-core to the procuring authority? • Is a PFI procurement for this project likely to deliver improved VfM to the department as a whole, considering its impact on other projects?
	<i>Overall Viability</i>	<ul style="list-style-type: none"> • Overall, in considering PFI, is the department satisfied that suitable long term contracts can be constructed, and that strategic and regulatory issues can be overcome?

Stage 2 - Project Level Assessment		
Area	Issue	Question
Desirability	<i>Risk Management</i>	<ul style="list-style-type: none"> Bearing in mind the relevant risks that need to be managed for the program (e.g., design risk, technology obsolescence), what is the ability of the private sector to price and manage these risks? Can the payment mechanism and contract terms incentivize good risk management?
	<i>Innovation</i>	<ul style="list-style-type: none"> Is there scope for innovation in either the design of the solution or in the provision of the services? Does some degree of flexibility remain in the nature of the technical solution/service and/or the scope of the project? Is the solution sufficiently free from the constraints imposed by the Authority, legal requirements and/or technical standards? Does a preliminary assessment indicate that there is likely to be scope for innovation in the program? Could the private sector improve the level of utilization of the assets underpinning the project (e.g., through selling, licensing, commercially developing for third party usage etc.)?
	<i>Contract Duration and Residual Value</i>	<ul style="list-style-type: none"> How far into the future can service demand be reasonably predicted? What is the expected life of the assets? What are the disadvantages of a long contract length? Are there constraints on the status of the assets after the contracts end? Given the possibility of changes to the requirement, the assets and the operating environment, is it possible to sustain VfM over the life of the contract utilizing as appropriate, mechanisms such as benchmarking and technology re-refresh? Is it viable and cost effective to re-compete the contract regularly to maintain or improve performance? Does a contractor have the ability to accurately forecast its cost base using indexation or market-testing to demonstrate VfM for long term fixed price contracts?
	<i>Incentives and Monitoring</i>	<ul style="list-style-type: none"> Can the outcomes or outputs of the investment program be described in contractual terms, which could be objective and measurable? Can the service be assessed independently against an agreed standard? Would incentives for service delivery be enhanced through a PFI payment mechanism?
	<i>Lifecycle Costs</i>	<ul style="list-style-type: none"> Is it possible to integrate the design, build and operation elements of the project? Are there significant ongoing operating costs and maintenance requirements? Are these likely to be sensitive to the type of construction?

Stage 2 - Project Level Assessment		
Area	Issue	Question
	<i>Overall Desirability</i>	<ul style="list-style-type: none"> • Overall, is the accounting officer satisfied that PFI would bring sufficient benefits that would outweigh the expected higher cost of capital and any other disadvantages?
Achievability	<i>Market Interest</i>	<ul style="list-style-type: none"> • Is there evidence that the private sector is capable of delivering the required outcome? • Does a significant market with sufficient capacity for these services exist in the private sector? • Is there likely to be sufficient market appetite for the projects, in the program? Has this been tested robustly? Is there any evidence of market failure for similar projects? • Have any similar projects been tendered to market? Has the procuring authority's commitment to a PFI solution for this type of project been demonstrated? • Does the nature of the project suggest that it will be seen by the market as a profitable venture? • Are the risks associated with design, development and implementation manageable bearing in mind the likely solutions to the project?
	<i>Other Issues</i>	<ul style="list-style-type: none"> • Is the procurement feasible within the required timescale? Is there sufficient time for: resolution of key procuring authority issues; production/approval of procurement document; stage down-selection and evaluation of bidders, negotiation, approvals and due diligence? • Is the overall value of the project significant and proportionate to justify the transaction costs? • Does the nature of the deal and/or the strategic importance of the work and/or the prospect for further business suggest that it will be seen by the market as a potentially profitable venture? • Does the procuring authority have the skills and resources to define, deliver and support the service throughout the procurement and the subsequent delivery period?
	<i>Overall Achievability</i>	<ul style="list-style-type: none"> • Overall, is the accounting officer satisfied that a PFI procurement program is achievable, given an assessment of the market, procuring authority resources and the attractiveness of the proposal to the market?

Stage 3 - Procurement Level Assessment		
Area	Issue	Question
Market Failure	<i>Market Abuse or Failure</i>	<ul style="list-style-type: none"> Is there any evidence from similar projects (in scope or location) to suggest that there will be a shortage of good quality financially robust bidders? Is there any evidence of market abuse?
	<i>Procurement Issues</i>	<ul style="list-style-type: none"> Was there a good response to the solicitation¹? How many potential bidders passed the Pre-Qualification Questionnaire (PQQ) criteria? Are the financial robustness and capacity of the bidders sufficient? Is there evidence of good competitive tension in pricing of risks etc.?
	<i>Overall</i>	<ul style="list-style-type: none"> Overall, in considering this procurement, is the project team satisfied that there is a sound competition?
Efficient Procurement Process	<i>Efficient Procurement</i>	<ul style="list-style-type: none"> Is there a realistic project plan, and has this been adhered to without undue delays? Are bid costs likely to be proportionate to the contract value? Will any aspect of the procurement impact adversely on market interest? (e.g., restrictions imposed by a competitive dialogue procedure) Are there any problems emerging with the way the procurement is structured?
	<i>Procurement Authority Resources</i>	<ul style="list-style-type: none"> Does the procuring authority have the necessary resources to conduct a good procurement? Are sound project governance arrangements in place?
	<i>Overall</i>	<ul style="list-style-type: none"> Overall, is the way that the procurement process is proceeding likely to have an adverse impact on the delivery of VfM?
Risk Transfer	<i>Wider Issues</i>	<ul style="list-style-type: none"> Is the competition delivering the proposed risk transfer? Does the procuring authority confirm that the nature of the deal and/or strategic importance of the work still make it suitable for delivery through PFI? Is there still confidence that all the key VfM drivers will be preserved?
	<i>Overall</i>	<ul style="list-style-type: none"> Overall, is the risk transfer achievable, given an assessment of the competition, and the procuring authority's constraints?

¹ In the UK, solicitations are posted in the form of a Prior Information Notice (PIN), which is published in the UK by the local government at the start of a financial (fiscal) year to inform the general public of upcoming procurement opportunities, or as a notice in the Office Journal of the European Union (OJEU), which is the official procurement notice clearinghouse for the EU.

Appendix D: End Notes

- ¹ Based on Survey of PwC's Country Office Staff
- ² Based on Survey of PwC's Country Office Staff
- ³ Based on Survey of PwC's Country Office Staff
- ⁴ Based on Survey of PwC's Country Office Staff
- ⁵ HM Treasury, UK National Government, Value for Money Assessment Guidance
- ⁶ HM Treasury, UK National Government, Value for Money Assessment Guidance
- ⁷ Based on Survey of PwC's Country Office Staff
- ⁸ HM Treasury, UK National Government, Value for Money Assessment Guidance
- ⁹ HM Treasury, UK National Government, Value for Money Quantitative Assessment User Guide and Evaluation Template
- ¹⁰ Guidance on Value for Money by UK Department for Transport
- ¹¹ HM Treasury, UK National Government, Value for Money Assessment Guidance
- ¹² HM Treasury, The Green Book: Appraisal and Evaluation in Central Government
- ¹³ Based on Survey of PwC's Country Office Staff
- ¹⁴ HM Treasury, UK National Government, Value for Money Assessment Guidance
- ¹⁵ HM Treasury, UK National Government, Value for Money Assessment Guidance
- ¹⁶ Based on Survey of PwC's Country Office Staff
- ¹⁷ Definition for VFM analysis provided by UK Office of Government Commerce
- ¹⁸ Based on Survey of PwC's Country Office Staff
- ¹⁹ Based on Survey of PwC's Country Office Staff
- ²⁰ Based on Survey of PwC's Country Office Staff
- ²¹ Based on Survey of PwC's Country Office Staff
- ²² Based on Survey of PwC's Country Office Staff
- ²³ Based on Survey of PwC's Country Office Staff
- ²⁴ Based on Survey of PwC's Country Office Staff
- ²⁵ Based on Survey of PwC's Country Office Staff
- ²⁶ Based on Survey of PwC's Country Office Staff
- ²⁷ Based on Survey of PwC's Country Office Staff
- ²⁸ Based on Survey of PwC's Country Office Staff
- ²⁹ Based on Survey of PwC's Country Office Staff
- ³⁰ Based on Survey of PwC's Country Office Staff
- ³¹ Based on Survey of PwC's Country Office Staff
- ³² Based on Survey of PwC's Country Office Staff
- ³³ US Department of Transportation, Federal Highway Administration, Office of Innovative Program Delivery, <http://www.fhwa.dot.gov/ipd/>
- ³⁴ After considering the quantitative and qualitative results of the VFM analysis, and taking into account feedback received from potential bidders, FDOT decided to procure a DBFOM contract for the I-595 corridor project.
- ³⁵ US Department of Transportation, Federal Highway Administration, Office of Innovative Program Delivery, <http://www.fhwa.dot.gov/ipd/>
- ³⁶ HM Treasury, UK National Government, Value for Money Assessment Guidance
- ³⁷ Based on Survey of PwC's Country Office Staff
- ³⁸ HM Treasury, UK National Government, Value for Money Assessment Guidance
- ³⁹ Based on Survey of PwC's Country Office Staff
- ⁴⁰ HM Treasury, UK National Government, Value for Money Assessment Guidance
- ⁴¹ Based on Survey of PwC's Country Office Staff
- ⁴² HM Treasury, UK National Government, Value for Money Assessment Guidance
- ⁴³ HM Treasury, UK National Government, Value for Money Assessment Guidance
- ⁴⁴ HM Treasury, UK National Government, Value for Money Assessment Guidance
- ⁴⁵ Partnerships UK
- ⁴⁶ Based on Survey of PwC's Country Office Staff
- ⁴⁷ HM Treasury, UK National Government, Value for Money Assessment Guidance
- ⁴⁸ HM Treasury, UK National Government, Value for Money Assessment Guidance

- ⁴⁹ Based on Survey of PwC's Country Office Staff
- ⁵⁰ HM Treasury, UK National Government, Value for Money Assessment Guidance
- ⁵¹ HM Treasury, UK National Government, Value for Money Assessment Guidance and Standardisation of PFI Contracts
- ⁵² National Audit Office (NAO), <http://www.nao.org.uk/>
- ⁵³ HM Treasury, UK National Government, Value for Money Assessment Guidance
- ⁵⁴ Based on Survey of PwC's Country Office Staff
- ⁵⁵ HM Treasury, UK National Government, Value for Money Assessment Guidance
- ⁵⁶ Infrastructure Australia, <http://www.infrastructure.org.au/>
- ⁵⁷ Based on Survey of PwC's Country Office Staff
- ⁵⁸ Based on Survey of PwC's Country Office Staff
- ⁵⁹ Guidance on Value for Money by Department of Transport
- ⁶⁰ Based on Survey of PwC's Country Office Staff
- ⁶¹ HM Treasury, UK National Government, Value for Money Assessment Guidance
- ⁶² HM Treasury, UK National Government, Value for Money Assessment Guidance
- ⁶³ HM Treasury, UK National Government, Value for Money Assessment Guidance
- ⁶⁴ HM Treasury, UK National Government, Value for Money Assessment Guidance
- ⁶⁵ HM Treasury, UK National Government, Value for Money Assessment Guidance
- ⁶⁶ HM Treasury, UK National Government, Value for Money Assessment Guidance
- ⁶⁷ HM Treasury, UK National Government, Value for Money Assessment Guidance
- ⁶⁸ HM Treasury, UK National Government, Value for Money Assessment Guidance
- ⁶⁹ HM Treasury, UK National Government, Value for Money Assessment Guidance
- ⁷⁰ Based on Survey of PwC's Country Office Staff
- ⁷¹ Guidance on Value for Money by Department of Transport
- ⁷² UK Department for Transport, Carbon Reduction Delivery Plan
- ⁷³ HM Treasury, UK National Government, Value for Money Assessment Guidance
- ⁷⁴ Guidance on Value for Money by Department of Transport
- ⁷⁵ US Department of Transportation, American Recovery and Reinvestment Act, <http://www.dot.gov/recovery/>
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