PFI Value for Money Quantitative Assessment

What is this spreadsheet for?

This Excel model is designed to assist the evaluation of Value for Money for an individual project by comparing PFI against conventional procurement methods. The quantitatitive evaluation is only one pass of the assessment for VfM and should be supplemented by qualitative judgements.

This Excel model should be used in conjunction with the Quantitative Assessment User Guide. This may be accessed from the HMT website:

  http://www.hm-treasury.gov.uk/documents/public_private_partnerships/key_documents/ppp_keydocs_index.cfm

How do you use the spreadsheet?

This workbook displays an Input sheet (containing inputs which need to be provided by the user), and an Output sheet with "switches" which are used for running the Spreadsheet, as well as an "Output Box" and charts which display all relevant outputs.

Excel will need to be correctly configured to allow the running of macros. If the running of macros is denied, this may be on account of security settings. The user should check that the macro security setting in Tools/Options/Security/Macro-Security is set to either low or medium.

There are essentially 2 steps when using the Spreadsheet:-

Step 1.
The user should insert values for each of the aqua-marine coloured inputs in the Input sheet. With the exception of the "Indirect VfM Factors" all other inputs should be expressed in real terms. Guidelines are provided for filling in many of the inputs. An instruction box will appear when sitting on the relevant cell.***Those cells which are grey are hard-wired variables which should NOT be changed by the user.***

Step 2.
Having filled in all the amber and aqua marine input boxes with appropriate values, the Spreadsheet may be run and the outputs assessed. The Spreadsheet is run by clicking on the grey switches immediately to the left of the Output Box in the Output sheet. The user should first click on the relevant Pre Tax Target IRR Switch to determine the "Indicative" PFI VfM value. A positive value indicates that the PFI Option may be more likely to provide VfM than conventional procurement.

The Indifference Switches may then be clicked as part of the assessment. Each switch determines, based on the assumed IRR Target, the level of change required in each relevant variable to erode to zero the net present value difference between the PFI Option and the CP Option.

The line graphs in the Output-Indifference sheet show the effect on the "Indicative" VfM PFI value of increasing and decreasing each relevant cost variable under the conventional procurement (CP) Option, and the Unitary Charge under the PFI option. Combined scenarios may be run by changing the CP sensitivity multiplier values in the Output sheet.

What are on these sheets?

"Input - Assumptions":	Contains all inputs and a table which should be used to list the assumptions and sources which underlie the input values
"Input Summary":	Contains input values and hard-wired values required to run the model
"Output - Indifference":	Contains the main outputs, switches to test the effect of changing key inputs, and a graph showing how changing key inputs affects VfM
"Output - Stashed Scenarios":	Allows you to save several scenarios after changing key variables
"Print All":	Contains a print macro to allow you to print all the relevant tables and graphs

In case of error and problems…

The user should enter all input values before running the Spreadsheet. Failure to introduce sensible values for all inputs may cause the Spreadsheet to generate spurious outputs. In the event that #DIV/0!s, #NUM!s or other error messages are propogated in the the IRR section of the Output Box, revise the inputs and press the "IRR Stabiliser" switch to clear these. Similarly, in the event that there is non-convergence, giving rise to very large Indifference Point values, with ######### appearing in the Indifference Points section of the Output Box, then having revised the inputs, use the "IP Stabiliser" switch to clear these.

In the event that clarification with respect to Spreadsheet usage is required, please contact Sian Dunstan at Partnerships UK at the following e-mail address:
  sian.dunstan@partnershipsuk.org.uk

PFI Value for Money Quantitative Assessment

Input and Assumptions Sheet

Note: As per the "Value for Money Assessment Guidance", procuring authorities should provide a table listing the assumptions behind each of the inputs. This table can be used as a template for this.

Input	Values		Assumptions & Rationale	Source
Timings				
Contract period (years)	34			
Initial CapEx period (years)	5			
Year when OpEx is first incurred (years)	5			
Proportion of UC during initial CapEx period payment	50%			
Escalators	**Rates**	**Base Year**		
CapEx escalator	4.5%	0		
OpEx (non employment) escalator	2.5%	0		
OpEx (employment) escalator	3.5%	0		
Unitary charge escalator	50%	0		
COSTS AND REVENUES				
Whole Life Costs				
CP				
Initial CapEx (£'000)	65,250			
Lifecycle costs at each LC date (£'000)	6,525			
Lifecycle intervals (yrs)	10			
OpEx (non employment)(p.a.) (£'000)	1,075			
OpEx (employment per person) (p.a.) (£'000)	20			
OpEx (employee number)	20			
PFI				
Initial CapEx (£'000)	71,775			
Lifecycle costs at each LC date (£'000)	1,076			
OpEx (non employment)(p.a.) (£'000)	1,183			
OpEx (employee number)	15			
Transaction Costs				
CP	1,320			
PFI	750			
Third Party Income				
CP	475			
PFI	575			

PFI Value for Money Quantitative Assessment

Input and Assumptions Sheet

Note: As per the "Value for Money Assessment Guidance", procuring authorities should provide a table listing the assumptions behind each of the inputs. This table can be used as a template for this.

Input	Values		Assumptions & Rationale	Source
OPTIMISM BIAS	Optimism bias pre-FBC	Optimism bias post-FBC		
Whole Life Costs				
Initial CapEx	10%	30%		
Lifecycle costs at each LC date	10%	30%		
OpEx	10%	20%		
Transaction Costs (CP option)	10%	10%		
Third Party Income (CP option)	10%	10%		
Flexibility				
Scope change year		10		
Probability factor (%)		50%		
Level of scope change (%)		50%		
Premium Flexibility Factor (PFI option)		10%		
Indirect VfM Factors				
CP Amount NPV (£000s)		0		
PFI Amount NPV (£000s)		2,000		
Tax				
CP adjustment factor (%)		6%		
PFI Funding				
Gearing (%)		90%		
Sterling swap rate (%)		5.15%		
Credit spread (bps)		12		
Bank margin (bps)		100		

PFI Value for Money Quantitative Assessment
Input sheet

General

Timings	(Yrs)	Rates - Escalators & Discount	Rates (%)	Base Year
Contract period	34	CapEx escalator	4.5%	0
Initial CapEx period	5	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	6.09%	NA

PFI Funding

Gearing (%)	90%
Sterling swap rate (%)	5.15%
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

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)	6,525	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)	20	NA	NA		15	NA
Transaction						
Public sector (£'000)	1,320	10%	10%		750	10%
Private sector (£'000)	0	0%	0%		1,077	10%

Pre Tax IRR Targets

High	18%
Medium	15%
Low	13%

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

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%

bps	Basis Points
CapEx	Capital Expenditure
LC	Lifecycle Costs
NA	Not Applicable - *no input required*
OB Pre	Pre-FBC Optimism Bias
OB Post	Post-FBC Optimism Bias (for CP only)
OpEx	Operational Expenditure
CP	Conventional Procurement
	Input required (can link from previous sheet)
	Hard-wired Assumption - *no input required*

PFI Value for Money Quantitative Assessment
Output sheet - Indifference points (see User Guide paras A17-A37)

Output Box	
Scenario name	Indicative VfM -18% IRR
IRRs	
Pre Tax Equity IRR	**18.00%**
Pre Tax Project IRR	8.52%
VfM	
"Indicative" PFI VfM	**5.77%**
Indifference Points (IP)	
CP	
Initial CapEx	0%
OpEx (Non Employment)	0%
OpEx (Employment)	0%
Transaction Costs	0%
PFI	
Unitary Charge	0%
Other Values	
CP Costs (NPV)	-163
PFI Costs (NPV)	-153
Unadjusted Annual Unitary Charge	11.0

Switches
IRR

Indifference Points (IP)

Explanations

The "Indicative" PFI VfM value is determined by selecting the target IRR switch which corresponds closest to the PFI Contractor's expected return.

Running an Indifference Point switch gives the percentage increase/decrease in the variable required to give the point of indifference between the two procurement options.
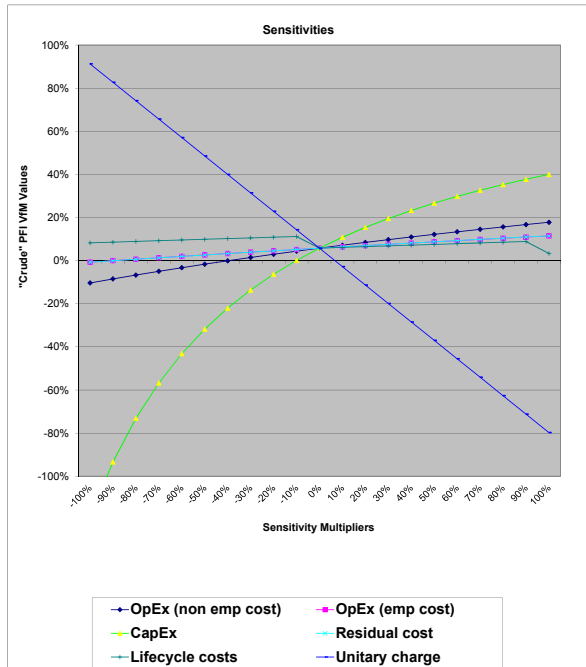
In the event that #DIV/0!s, #NUM!s or other error messages appear in the Output Box, having updated the relevant inputs, the stabiliser switch should be used to clear the errors.

A separate shadow bid model should be developed to calculate the projected unitary charge. There are a number of simplyfying assumptions underpinning the VfM Spreadsheet which means that Local Authorities should not use the Unadjusted Annual Unitary Charge figure shown in the Output Box as a proxy for affordability purposes.

The Output Box results may be recorded in the separate "Output-Stashed Scenarios" spreadsheet by clicking the Stash Scenarios switch.

CP Sensitivity Multipliers	
CapEx(%)	0%
Lifecycle (%)	0%
OpEx (non employment) (%)	0%
OpEx (employment) (%)	0%
Transaction (%)	0%
Residual cost (%)	0%
Third party income (%)	0%

Check	
Senior Debt Fully Repaid?	**TRUE**
Pre Tax IRR = Target?	**TRUE**
Total Cashflows = Zero?	**TRUE**

Sensitivities

Legend:
- OpEx (non emp cost)
- OpEx (emp cost)
- CapEx
- Residual cost
- Lifecycle costs
- Unitary charge

"Indicative" PFI VfM Sensitivity Values

Multiplier	OpEx (Non Employment)	OpEx (Employment)	CapEx	Residual Cost	Unitary Charge	Lifecycle Cost
-100%	-10.3%	-0.7%	-119.0%	-0.8%	91.3%	8.2%
-90%	-8.5%	0.0%	-93.4%	-0.1%	82.7%	8.6%
-80%	-6.7%	0.7%	-73.1%	0.6%	74.2%	8.9%
-70%	-5.0%	1.3%	-56.7%	1.3%	65.6%	9.2%
-60%	-3.3%	2.0%	-43.2%	2.0%	57.1%	9.6%
-50%	-1.7%	2.6%	-31.8%	2.6%	48.5%	9.9%
-40%	-0.1%	3.3%	-22.0%	3.3%	40.0%	10.2%
-30%	1.4%	3.9%	-13.7%	3.9%	31.4%	10.5%
-20%	2.9%	4.5%	-6.3%	4.5%	22.9%	10.9%
-10%	4.4%	5.2%	0.1%	5.2%	14.3%	11.2%
0%	5.8%	5.8%	5.8%	5.8%	5.8%	5.8%
10%	7.1%	6.4%	10.8%	6.4%	-2.8%	6.1%
20%	8.4%	7.0%	15.4%	7.0%	-11.3%	6.5%
30%	9.7%	7.5%	19.5%	7.6%	-19.9%	6.8%
40%	11.0%	8.1%	23.3%	8.1%	-28.4%	7.2%
50%	12.2%	8.7%	26.7%	8.7%	-37.0%	7.5%
60%	13.4%	9.3%	29.8%	9.3%	-45.5%	7.9%
70%	14.5%	9.8%	32.6%	9.8%	-54.1%	8.2%
80%	15.6%	10.4%	35.3%	10.4%	-62.6%	8.5%
90%	16.7%	10.9%	37.7%	11.0%	-71.2%	8.9%
100%	17.8%	11.5%	40.0%	11.5%	-79.7%	3.3%

The chart shows the impact on the "Indicative" PFI VfM Value of inflating and deflating the relevant tabulated PSC cost variable and the Unitary Charge by different multiplier values, varying from -100% to 100%.

(i) Where the x axis (corresponding to a zero VfM Value) is traversed, the point of indifference between the two procurement options has been reached.

(ii) Various hard-wired lifecyle related assumptions, (i.e.) in connection with the Residual Cost and the VfM Adjustment factor, will result in adjustments only in the event that pre-determined benchmarks are reached. Since such adjustments are "stepped", rather than gradual, it is likely that the lifecycle cost line will be skewed.

For further information, please refer to section < > of the User Guide.

PFI Value for Money Quantitative Assessment
Output sheet - Slashed Scenarios (see see "Quantitative Assessment User Guide" pp. 10-15)

Scenario name	
IRRs	
Pre Tax Equity IRR	
Pre Tax Project IRR	
VfM	
"Indicative" PFI VfM	
Indifference Points	
CP	
Initial CapEx	
OpEx (Non Employment)	
OpEx (Employment)	
Transaction Costs	
PFI	
Unitary Charge	
Other Values	
CP Costs (NPV)	
PFI Costs (NPV)	
Unadjusted Annual Unitary Charge	

CP Sensitivity Multipliers
CapEx
Lifecycle
OpEx (non employment)
OpEx (employment)
Transaction
Residual cost
Third party income

PFI Value for Money Quantitative Assessment

To print all the sheets, click this button

	Click here

To print individual sheets, click the individual buttons

Table	Sheet name
Assumptions page	"Input - Assumptions"
Inputs	"Input Summary"
Main output page	"Output - Indifference"
Scenarios page	"Output - Stashed Scenarios"