

Determining Value for Money

The argument against weighting price

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Introduction

At Lange Consulting & Software, much of our work is focused on helping organisations make defensible decisions on the selection of suppliers of goods and services.

This article describes models for evaluating proposals for best Value for Money (VFM), including the Marginal Utility / Marginal Cost (MU:MC) Model and demonstrates why weighting price alongside qualitative criteria is not appropriate for contemporary tender evaluation.

It is the underpinning principle of most Australian Governments and buyers that procurement decisions are based on 'Value for Money'. (see Bibliography) By definition, VFM is a 'quotient' mathematical relationship rather than a 'sum' relationship; otherwise it would state 'Value and Money'. We should be able to rest our case against weighting price here, but read on if you are still not convinced.

Background

MU:MC was the method used by Purchasing Australia to assist in determining value for money. The method is founded upon economic principles developed further in the 1950s.

Before then, we did not have a need to undertake qualitative evaluation. We specified the required goods and services and then asked for a price. So determining value for money was quite straightforward as all options have the same utility.

This approach is still valid for low value, low complexity goods and where you have appropriate legal controls.

As we approached the 60s things got more complicated with the space age, nuclear submarines (kicking off complex project management) and increasing intervention by governments with legislative requirements. As products became more complex and organisations more innovative, we needed to start specifying products by what they could do rather than what they were. The world starting moving towards performance-based specifications (hopefully you are too!) and taking other issues into consideration such as quality, risk, governance, integration, reliability, efficiency, viability, the environment, social or local support and labor practices. We also started to get more creative about how we would contract with a supplier and all of these issues brought risk into the equation (but we will deal with risk in detail in a separate paper).

"You know we're sitting on four million pounds of fuel, one nuclear weapon and a thing that has

270,000 moving parts built by the lowest bidder. Makes you feel good, doesn't it?" (Rockhound 1998 in the movie, Armageddon)

The evaluation of value for money now became far more complex than just comparing price. We now had a number of qualitative attributes of each proposal to consider and compare as well as compliance, risk and the cost.

We could compare the weighted technical element of each proposal against others on merit and work out which one we like the best, but this is very subjective. So we turned to specifying a set of evaluation criteria that we would assess against and allocate a quantitative score based on the quality of responses. Some of these are more important than others so we weight them, usually only by importance (*which is insufficient!* -See our next paper on weighting evaluation criteria)

So firstly, we need to state clearly what the product or services MUST do and we put an assessment process in place to exclude any proposals that are non-compliant. This applies also to any non-technical attributes in the Conditions of Tendering such as insurance, compliance with legislation, completeness, form, being a legal entity, viability, WH&S, etc. It is important to only flag in the Approach to the Market (ATM) those attributes that MUST be complied with as mandatory. Most buyers don't want a biker gang or terrorist organisation as a supplier, and a chart of accounts is a mandatory requirement for a FMIS. It is critical that these mandatory requirements are CLEARLY set out and are RIGOROUSLY evaluated for compliance. Otherwise you risk having your ATM thrown out by a legal challenge!

We then need to evaluate the qualitative elements of the remaining responses to determine their value (Utility) and consider that against the cost of the goods or services (you'll note that I didn't say price) in light of any identified risks. Of critical importance is that you do not apply any 'value' (score) to 'Gold Plating'. If you did not specify it, it is poor practice to start allocating points for it now!

It is easy to only look at the Price of goods or services and not consider the Cost. It might be ok for paper clips, but not so for equipment or software that needs to be integrated into a business or a service that replaces the encumberent. So we prefer to use the term Cost and ensure that it fairly and consistently includes any associated common

and unique costs. This also means coming up with a Cost Model prior to going to market and sharing that with the market.

What about Risk? Risk is by far the most contentious and poorly evaluated aspect of procurement. Risk should be considered independently to price and technical merit (Utility). From our experience, we have observed and documented seven different techniques to evaluating risk in procurement, but recommend that you either:

1. Weight risk as an independent qualitative criteria and establish a Risk Factor for each offer.
2. Cost the treatments to effectively reduce risk to an acceptable level and add to the cost.

The examples in this paper assume that method 1 for including risk in the VFM has been applied and that the prices include the cost (if any) of mitigating risk to an acceptable level.

We now have an evaluation framework sorted out. We exclude all non-conforming responses, estimate and add any support, integration, transition and risk mitigation costs; and undertake a qualitative evaluation.

We find that the responses from the market can often be grouped into the five classes (Fig 1).

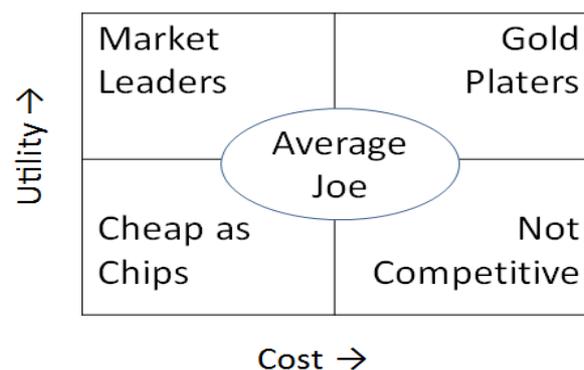


Figure 1

A value for money evaluation should result in the selection of the 'Market Leader' as determined by a MU:MC approach. This means that all non-price criteria (Utility) are assessed against the price items (Cost). In order to compare the responses, each tenderer's scores for utility is normalized. That is, that the highest score is taken as unity (1), and the lesser scores calculated as a percentage of the highest, thus the rest of the scores are represented by values of less than 1. In a similar manner, the

highest cost is taken as unity and the lesser costs calculated as a percentage of the highest. Thus the rest of the costs are represented by values of less than 1.

So let's take the example of where we have 5 tenders with the following results (assuming risk is incorporated into the cost)

	Vendor	Utility	Cost
V1	Market Leader	64	\$150.00
V2	Gold Plater	74	\$200.00
V3	Average Joe	54	\$140.00
V4	Cheap n Nasty	40	\$100.00
V5	Uncompetitive	40	\$150.00

Table 1

The principal of the MU:MC model states that the greatest value for money is achieved by the point that is furthest above a line drawn on the Marginal cost/utility graph through the zero point at an angle of 45° with each axis. This value can also be calculated by determining the quotient of MU:MC as shown in table 2, where the Market Leader wins.

Vendor	MU	MC	MU:MC
V1 Market Leader	0.86	0.75	1.15
V2 Gold Plater	1.00	1.00	1.00
V3 Average Joe	0.73	0.70	1.04
V4 Cheap 'n Nasty	0.54	0.50	1.08
V5 Uncompetitive	0.54	0.75	0.72

Table 2

These values can be plotted on a graph where the X axis represents Utility and the Y axis represents Cost as shown at Figure 2.

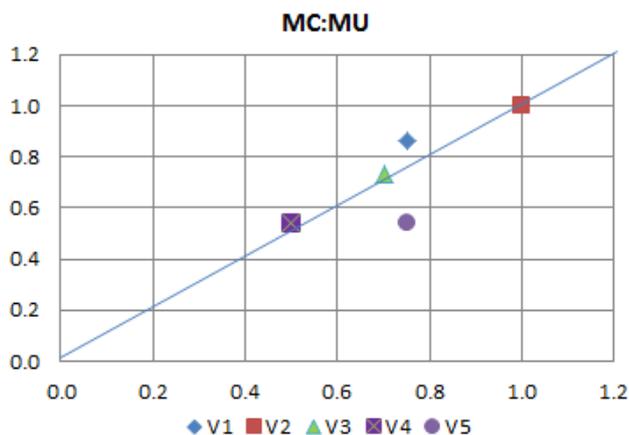


Figure 2

MU:MC is an accurate reflection of the relationship between the Utility and Cost of each proposal, but the normalised scales tend to lose the context of the evaluation results.

Another option is to model the raw scores as shown below.

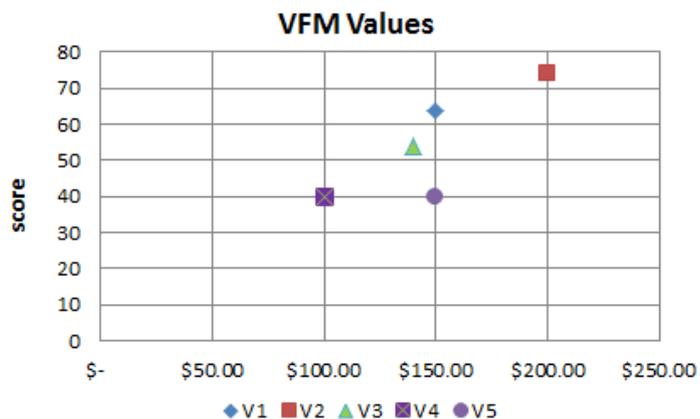


Figure 3

The resulting value can also be calculated by determining the quotient of Score:Cost (Value for Money) as shown in table 3. When the values are normalized by the Lowest Cost, the VFM scores are far more easily 'digestible' by executive decision-makers and Probity Auditors.

Vendor	Utility	Cost	VFM
V1 Market Leader	64	\$150.00	42.7
V2 Gold Plater	74	\$200.00	37.0
V3 Average Joe	54	\$140.00	38.6
V4 Cheap 'n Nasty	40	\$100.00	40.0
V5 Uncompetitive	40	\$150.00	26.7

Table 3

We often state calculation for determining VFM in Tender Evaluation Plans as:

$$\text{VFM} = \frac{\text{Lowest Cost X Utility}}{\text{Tendered Cost}}$$

Weighting Price (Cost)

So let's see what happens when we start to apply weighting to the Cost instead of determining a quotient and see how the result is sensitive to variations in the weighting of Cost.

Firstly, we need to normalize the Costs. This is usually done with reference to the highest Cost. Next, we need to associate a weighting to the Cost

(and the Non Price items). This is the activity that is fraught with issues as this weighting value is often quite subjective and as we will see, may not result in the best outcome.

For a start, weighting Cost effectively discounts the value and weighting assigned to a criterion. This reduces the gap between suppliers when we are attempting to differentiate between their Utility.

Criterion 1 Capability	Utility	Weighted Utility	Discounted Utility when Cost is weighted
V1	6	12%	6%
V2	7	14%	7%
V3	5	10%	5%
V4	4	8%	4%
V5	4	8%	4%

Table 4

In the example at Table 4, an RFT has 4 weighted evaluation criteria with Criterion 1 (capability) weighted at 12%. When a weighting of 50% is applied to the Cost, the difference between the scores is halved, discounting the value of the criterion 1 to 6% and therefore, reducing the differentiation between the importance of the criteria and the individual scores.

Weighting Cost/Price has the effect of skewing the result either towards the 'Gold Plater' option or the 'Cheap n Nasty' option. In table 5, the five contenders from table 1 are listed with their Costs normalized and weighted to 20% and the Utility score discounted to 80%.

Vendor	Discounted Utility	weighted Cost score	Sum of weighted Scores
V1	51.2	13.3	64.5
V2	59.2	10.0	69.2
V3	43.2	14.3	57.5
V4	32.0	20.0	52.0
V5	32.0	13.3	45.3

Table 5

The above scenario shows that V2, the *Gold Plater* has the highest score when the Price Weighting is 20%. If we change the weighting to 40% the *Market Leader* wins, but this only occurs where Price is weighted between 38 – 41% **for this scenario only**. Below this value, the *'Gold Plated'* response (V2)

wins and above 41%, the *'Cheap n Nasty'* offer (V4) wins as shown in the results of the sensitivity analysis at Table 6 and displayed at Fig 4.

Vendor	20%	40%	50%	60%	80%
V1	64.5	65.1	65.3	65.6	66.1
V2	69.2	64.4	62.0	59.6	54.8
V3	57.5	61.0	62.7	64.5	67.9
V4	52.0	64.0	70.0	76.0	88.0
V5	45.3	50.7	53.3	56.0	61.3

Table 6 - sensitivity to weighting price

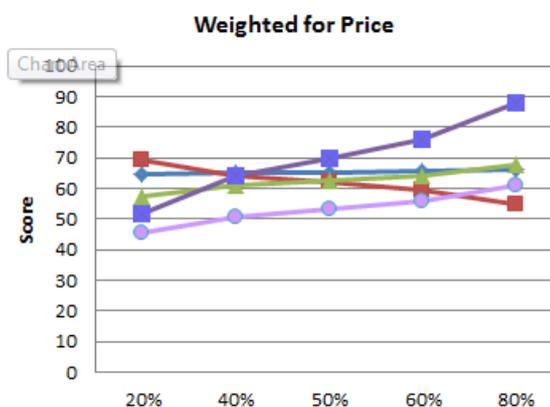


Figure 4

You might think that 40% is then a 'sweet spot' for weighting Cost/Price. This is not true. As the range of Utility or Cost scores change, so does the point at which the *Market leader* is preferred and in a number of cases, V1 only ranks second (or third!) even though it is still the highest value for money. McGuinness and Baud claim that a weighting of 70% to price makes it virtually impossible for the lowest price to lose, no matter how badly they score on function. Figure 4 indicates that, in many cases, this 'Tipping Point' value is much lower.

The Problem

Buyer management often prefer to weight price because they wish to control costs within budget and they are less responsible for quality/reliability/maintainability. Operational staff tend overstate risk and select *Gold Platers* because they see value in the gold plating, a desire to reduce risk and they are not responsible for funding capital expenditure.

In some cases, weighting price (lower) is appropriate, such as in the evaluation of panels where a range of providers is required.

The Solution

The primary outcome must be selection of a Value for Money solution to meet the needs of the organisation. The following is our recommendation on best way to achieve this and takes into consideration competing organizational priorities:

1. If you can specify your requirements fully without qualitative criteria, do so and compare solely on price.
2. If not, apply a robust and defensible VFM approach to evaluating qualitative options.
3. Specify your requirements as clearly as possible to exclude non-conforming proposals without reducing innovation or excluding viable alternatives.
4. Weight evaluation criteria by its importance AND by its ability to differentiate.
5. Develop a scoring matrix for evaluating qualitative criteria. (or engage us to do it)
6. Do not allow 'gold plating' to skew evaluation scores. If it meets the requirement, it's a 10. There is no higher score for exceeding requirements.
7. If you wish to consider 'gold plating' or 'value adds', you should assess them (and their price) as separate extras so that you can compare apples with apples.
8. When buying services on rates, use a scenario or similar to evaluate efficiency.
9. If you have a price ceiling, state it and exclude the Gold Platers.
10. Consider the through-life value and costs, not just the price to deter future price gouging.
11. Evaluate the risks for each offer and apply an appropriate risk assessment technique.
12. Allow yourself the flexibility to exclude options that fail qualitative criteria.

About us

David and Col are from Lange Consulting & Software (LC&S), a Canberra-based, independent consulting company with considerable experience since 1996 providing procurement consulting and training services. We also design and support and use our own software applications to manage procurement and contracts.

We provide services in all facets of complex procurement including business case development, request for tender preparation, project planning, evaluation strategies and systems, training, tender evaluations and contract negotiation. We specialise in facilitating tender evaluations to achieve successful outcomes.

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Lange Consulting & Software - Company profile

Highly experienced, we bring vast expertise, innovative tools and a focus on value for money to managing procurement projects

We provide the following services:

Procurement capability assessments
 Procurement planning
 Project Management
 Development of Specifications and Requirements
 Preparation of:

- RFTs and RFQs
- Evaluation Plans
- Draft Contracts
- Evaluation Reports

Industry Briefings
 Tender evaluation management and facilitation
 Tender evaluation training
 Risk assessment
 Referee interviews
 Contract negotiation
 Tenderer debriefing
 Contract Management
 Contract Performance Reviews
 Review and develop procurement policy & procedures
 Probity advice and audit
 Procurement fraud prevention reviews
 Decision support
 Knowledge and Intellectual Capital Management
 Systems design and development
 Post Implementation reviews
 Procurement and project management training
 Training, support and advice on responding to Tenders
 Bid Management and Reviews (Red Team)

Solid track-record of success in:

- providing expert services in all facets of complex procurement including developing business cases, specifications and Statements of Work. We prepare requests for tender, draft contracts, Procurement Plans and evaluation strategies.
- providing industry briefings, communicating with Tenderers, undertaking due diligence reviews, preparing evaluation reports and negotiating contracts.
- specialising in facilitating and/or conducting evaluations.
- debriefing tenderers

Productivity Tools

360Pro™	eRFx management portal
Plaza™	contract management
Zayton™	inspections and audits
ApetAdvanced™	complex evaluation
PanelMate™	panel management
3D VFM Cube™	decision support
ApetRapid™	quick decision support

Value for money

We commit to:

- providing fixed-price quotes
- delivering quality outcomes on time
- adding value by being innovative and cost effective
- focusing on productivity

We are members of DMOSS, Customs, DEEWR, DHS, RPDE (Defence) and NSW LGP's services panels.



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