



Insights from Peter Marshall

Introduction to VFM Methods: cost as a weighted
criterion?

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Introduction to VFM methods: cost as a weighted criterion?

In my first paper I introduced the "cost-quality diagrams" and showed how specific solutions, scores and "zones of acceptability" can be superimposed in order to understand how a proposed scoring method will work in practice.

This paper is the first of a few that will focus on the different methods for combining the financial and non-financial parts of an evaluation - and examine their differences and implications. For now, we'll ignore the details of how the non-financial and financial evaluations are being done and focus on how they join up. So, we'll assume that suitable evaluations have been done of both, resulting in a non-financial score (typically called "technical" or "quality") and a cost for each bid.

You may be wondering whether the method chosen to combine non-financial and financial considerations really matters. Don't they all do roughly the same thing, and operate in a similar way? Does it really make a big enough difference to be worth going to the trouble of understanding the methods and selecting the best one? Over the course of this series, I aim to show that it really does matter - the differences between the methods are hugely significant and likely to greatly affect the outcome of your competition.

And what's more, it could affect it in three significant ways. It's pretty obvious that the choice of method might determine which bid or solution you will choose as the winner. This in itself could be hugely significant - perhaps making the difference between you choosing a low-cost, low-capability or high-risk solution over a more expensive, higher-capability or lower-risk solution. But what's perhaps a bit less obvious is that your choice of method is also likely to influence what bids or solutions you are offered in the first place, as well as how many. Your bidders are likely to be paying close attention to the criteria you publish, including the method you are going to use to evaluate cost and combine the financial and non-financial parts of your evaluation - and they will bid accordingly. Your bidders will choose or design their solution with the maximisation of their overall score (as well as their profit) firmly in mind. In addition, your bidders will base their bid / no-bid decision on their perceived chance of winning, which can be hugely influenced by the method you choose, as we will see.

Now let's turn our attention to some of the methods and the major differences between them.

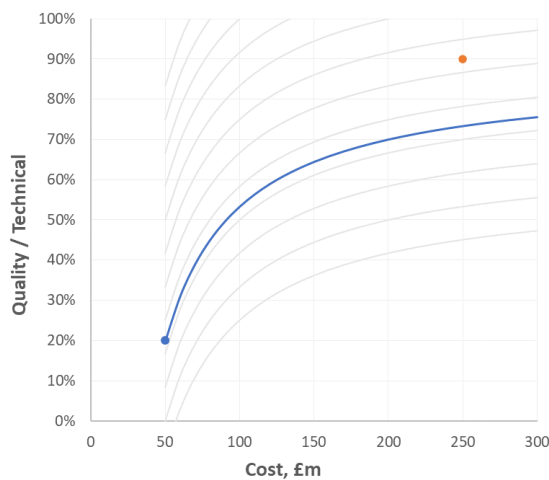
Cost as a weighted criterion?

There are many ways in which I could choose to categorise the various methods for combining the financial and non-financial factors, but two particular characteristics stand out to us at Commerce Decisions. One is whether or not the method is centred around giving the financial criterion (let's start calling this "Cost") a weight. The other is whether the Cost of each bid is scored against some sort of absolute scoring function, and without reference to the costs of other bids, or whether Costs are scored relative to a cheapest or average Cost. In this paper I'll explore some of the implications of having a weighted Cost criterion and I'll cover the implications of relative vs. absolute scoring in the next.

Many methods are based around having a Cost criterion with a defined weight. (It would normally sit at the highest tier of the evaluation criteria hierarchy, and in our experience will normally have a weight between 30% and 50%.) These methods all need a way for the cost of each bid, which is of course measured in currency, to be converted into a score so that it can be combined with the non-financial score after the weights have been applied. This conversion of cost-to-score can be done in many different ways – which I'll cover later in the series. But there is an alternative to having a weighted Cost criterion: there are many methods that combine Cost and non-financial factors without giving Cost a weight, and without ever converting the Cost (in currency) to a cost score.

There is a significant implication of Cost having a weight. A weight, by definition, defines the exact number of overall competition points that are influenced by Cost, and this places a limit on the influence that Cost can have on the competition. For example, if Cost is weighted 40% (and therefore non-financial factors are weighted 60%) we know that, regardless of the difference in Cost between two bids, there can only ever be a maximum difference in score, resulting from Cost, of 40%. There's a potential problem here. There are 60% of the points available for all the non-financial elements so, in theory at least, it is possible for one bid to draw ahead of another by more than 40% as a result of the non-financial considerations. This would mean that however expensive it is, it will still win the competition (because its lead of over 40% cannot be overcome by the Cost criterion which is only weighted 40%). This means we have no protection - at least within the scoring scheme - against an extremely expensive and perhaps unaffordable solution winning.

This effect is illustrated in the diagram below. (Refer back to the [first blog](#) if you need a reminder of how these diagrams work and what the lines mean.) The blue solution is very cheap (£50m) and has a low non-financial score (20%); its score is shown by the blue line. The Orange solution is much, much better on the non-financial things and scores 90% - but this places it so high on the diagram that no matter how expensive it is, it will always score higher than the blue solution. The problem in this case is caused by having a cost criterion with only 40% of the weight of the competition which means there are not enough points lost for being more expensive to overcome the lead its established from the non-financial part of the evaluation. The fact that cost has a limited effect is seen by the way the blue line becomes more and more horizontal as the cost increases – this is showing that as the cost increases you lose fewer and fewer points for being even more expensive.



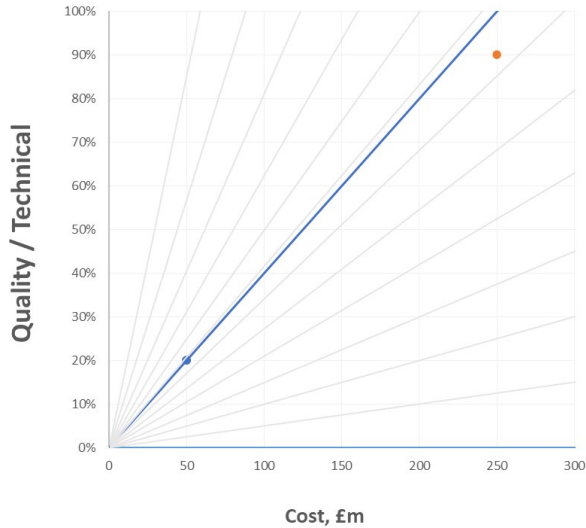
Cost criterion weighted at 40% and scored using proportional scoring

One way of preventing an unaffordable bid from winning is to define a mandatory upper limit to the cost of the solutions above which solutions are rejected as being non-compliant (i.e. too expensive). This can work very well on procurements where the buyer can determine an appropriate maximum cost at which they are confident bidders will be able to deliver the requirement and they are happy to publish this so that they can be sure bidders will only submit bids that are within the limit. But publishing a maximum allowable cost has its drawbacks as well: it comes with the risk that it's set at too low a cost and no bidders will be willing or able to submit technically compliant bids at the cost, jeopardising the competition. It also becomes difficult to implement any evaluation of Cost which is not as simple as taking the price offered by the bidders. It's particularly problematic on evaluations where costs are being risk-adjusted by the buyer or where the buyer is adding additional non-contractual costs associated with the adoption of each bidder's solution onto the bidder's costs before scoring. In these circumstances there is a risk that the bidder's solution becomes non-compliant as a result of the risk-adjustment or additional costs that are added by the buyer.

So there are good reasons why the buyer may not wish to publish and enforce a maximum allowable cost. If this is the case then they will need to rely on the scoring of cost to make it very unlikely, or impossible, for an unaffordable solution to win if they want to encourage bidders to submit affordable solutions and avoid the risk of an unaffordable solution winning the competition. This means choosing a method for combining the financial and non-financial aspects that does not limit the effect of Cost on the overall score - that is to say, avoids the use of a weighted Cost criterion - or alternatively giving the Cost criterion more than 50% of the weight of the competition so that an unaffordable solution can be rejected, regardless of other factors.

The good news is that there are many tried-and-tested methods that don't have a Cost criterion with a weight. For example, a simple and widespread method is to simply divide the non-financial score by the Cost – a method that is commonly called "bang per buck". It's easy to see how this doesn't require a weight to be set for Cost and also that it doesn't limit the effect that Cost can have on the competition score, because any increase in Cost will always reduce the overall score regardless of how high the Costs have already climbed. This method makes it very difficult for an extremely expensive solution to win, because it has to offer proportionally more non-financial benefits for its score to beat a much cheaper solution.

The chart below shows the same two solutions as earlier, scored using the “bang per buck” method. On this chart we can see that cost has an unlimited effect on the competition – because the blue line extends in a straight line until it hits the top of the diagram. In other words, it doesn’t matter how expensive a solution is, it will still lose points if it gets more expensive. We can see that using “bang per buck” the orange solution has lost against the blue solution. Using this method, we will find it much easier to prevent solutions in the top right-hand corner from winning.



'Bang per buck' method

This paper has introduced some of the issues around choosing a method for combining Cost and non-financial considerations that either does or doesn't use a weighted Cost criterion. Next time we'll explore the implications of using relative scoring of Cost, and then down the road we'll take a more in-depth look at some of the different methods that have been introduced here.

>>Find out more about RVfM on our [website](#) or get in touch with the team [here](#).

About Commerce Decisions

Commerce Decisions has been supporting strategic, high-risk procurements globally since 2001, and is at the forefront of best practice procurement. With a unique focus on complex evaluation, we have unrivalled experience in tender evaluation and are a trusted provider of procurement services to the public and private sectors. We deliver a robust and defensible procurement process to our clients, proven time and time again across many sectors including construction, transport, education, health, defence and facilities management – to date, we have supported over 17,000 strategic projects, collectively worth over \$500billion.

This enviable experience and in-depth knowledge have enabled us to develop proven methodologies, supporting clients to deliver the best possible outcome on strategic and complex procurement projects. Headquartered in Oxfordshire, UK, and with offices in Canberra, Australia, and Ottawa, Canada, Commerce Decisions provides software and services to support complex procurement processes for buyers. We improve the efficiency and effectiveness of the evaluation process to make the best buying decision based on all the relevant criteria, underpinned by our AWARD® software.

About Peter Marshall

Peter is an experienced Principal Consultant and Professional Services leader with 20 years' strategic public sector procurement experience and prior to that, 10 years' experience of training and consulting in the software process improvement and requirements management industries.