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EXPERT IMPACT

Insights from Peter Marshall

Methods for scoring cost and implications of relative scoring

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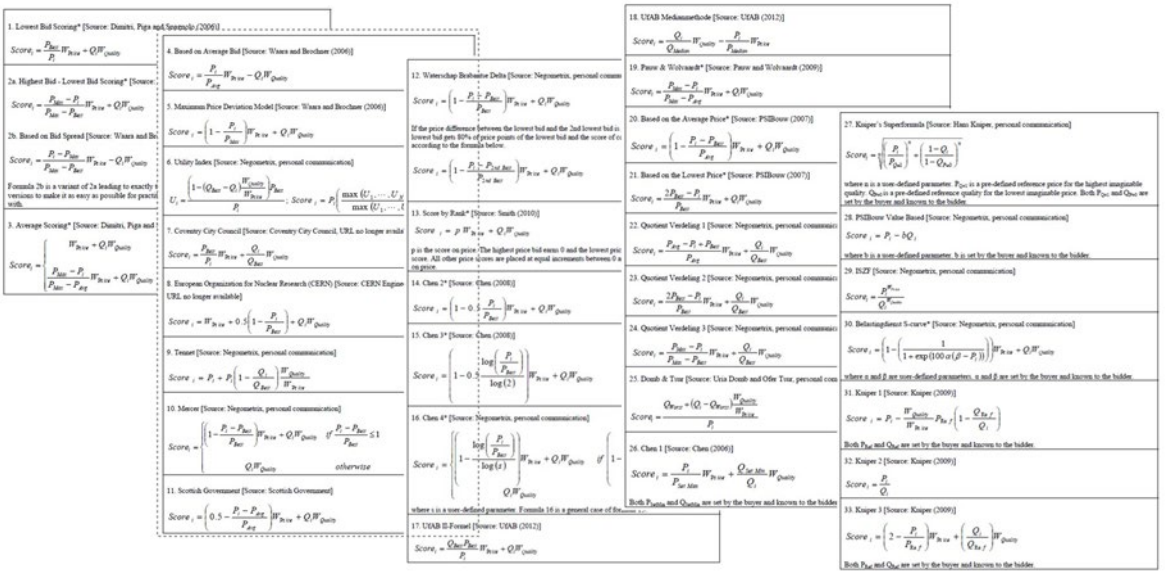
Methods for scoring cost and implications of relative scoring

My last blog showed that if we combine the financial and non-financial elements of a bid evaluation using a Cost criterion with a weight, we need to carefully consider how we will prevent unaffordable solutions from winning the competition. This is because if we don't allocate sufficient weight to Cost - ensuring that an extremely expensive solution loses sufficient points such that it cannot catch up even if it performs very strongly in the non-financial evaluation, we first need to define a maximum acceptable cost, and this can be problematic for various reasons.

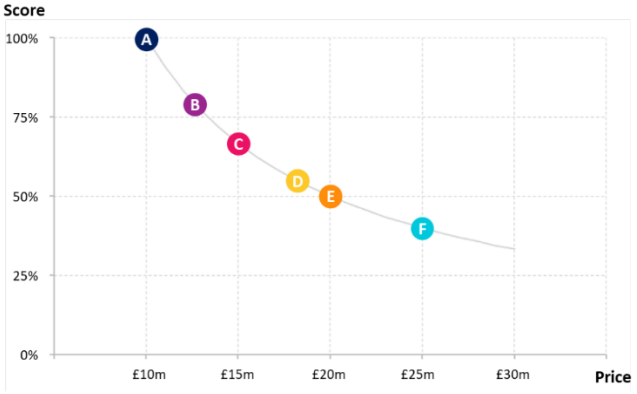
Another implication of using a weighted Cost criterion is that it requires a mechanism for converting the costs of each bid - which will be measured in currency - to scores which can be combined with the non-financial scores (after the weights have been applied) to arrive at an overall score. This blog will start to explore some different options for the scoring of Cost and their implications.

There are a great many methods that can be used to convert Costs (in currency) into scores. Stilger, Siderius and Van Raaij identified 38 distinct methods for combining financial and non-financial factors and a number of different ways of scoring Cost in their paper published by the Journal of Public Procurement (Spring 2017, Volume 17; http://www.ippa.org/images/JOPP/vol17/issue-1/Article_4_Stilger-et-al.pdf). This list was by no means exhaustive, but it did include most of the methods that we've seen being used by our clients. Given the range and variety of possible approaches, it wouldn't be practical or useful to try and explore all of them. But it will be useful to look at the broad categories of approaches and some of their characteristics and implications.



One major difference between cost scoring methods is whether they score a pre-determined range of costs (we call this *absolute* scoring because it doesn't depend on the costs of the bids that are submitted) or whether the range of costs they score is determined after the bids are received and is based on the costs of the bids (we call this *relative* scoring). A commonly used relative cost scoring function gives full marks to the cheapest bid and a proportional score to others that are more expensive - so a bid that is twice as expensive as the cheapest gets half the marks. Another relative cost scoring function gives full marks to the cheapest and zero marks to any bid that costs twice the cheapest or higher.

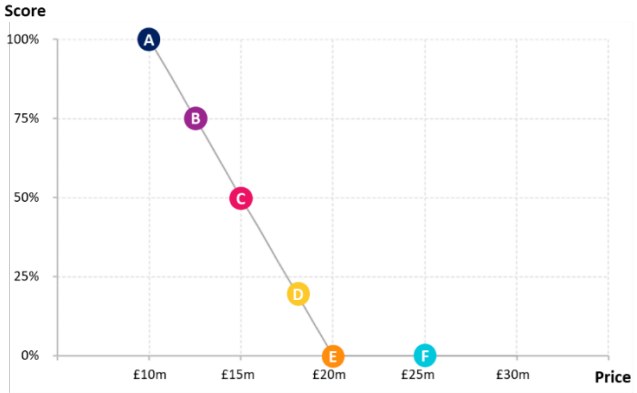
$$Score = \frac{Price\ of\ cheapest\ solution}{Price\ of\ solution\ being\ scored}$$



	Bid Price	Score
A	£10m	100%
B	£12.5m	80%
C	£15m	66.7%
D	£18m	55.6%
E	£20m	50%
F	£25m	40%

If the price of the solution being scored is less than or equal to twice the price of the cheapest then $Score = 2 - \frac{Price\ of\ solution\ being\ scored}{Price\ of\ cheapest}$

If the price of the solution being scored is greater than twice the price of the cheapest then $Score = 0$



	Bid Price	Score
A	£10m	100%
B	£12.5m	75%
C	£15m	50%
D	£18m	20%
E	£20m	0%
F	£25m	0%

The use of any type of relative scoring method comes with significant implications. If the cost scoring function is not going to be determined until after the bids are received, it stands to reason that the buyer will not know at the time they issue their invitation documentation how they will end up scoring (and therefore how much they value) differences in cost between bids. It also stands to reason that bidders cannot know at the

time they submit their tenders how much their customer will value cheaper or more expensive solutions they could put forward. The implication of this is that bidders may not be able to work out which of their options is the best to offer to their potential customer and the buyer may not be able to work out in advance which of two solutions is better that the other.

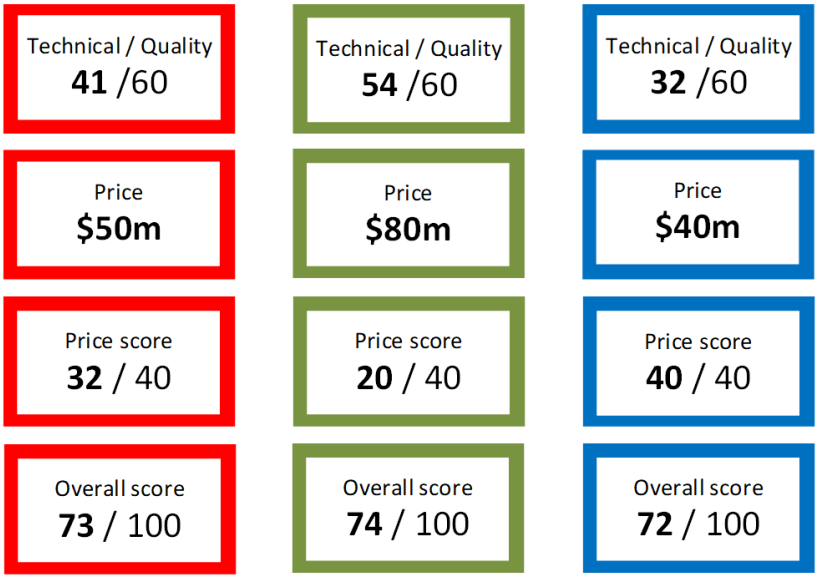
Let's look at an example to show this in action.

Let's suppose that we are running a competition where the technical criteria are weighted 60% and cost is weighted 40%. We receive three bids and evaluate them technically. The three bids with their technical scores (out of 60) and their prices are shown below.

Now let's suppose that we have chosen to use the relative cost scoring method using the formula below, that gives top marks to the cheapest and a proportional score to the rest.

$$\frac{Price\ of\ cheapest\ solution}{Price\ of\ solution\ being\ scored}$$

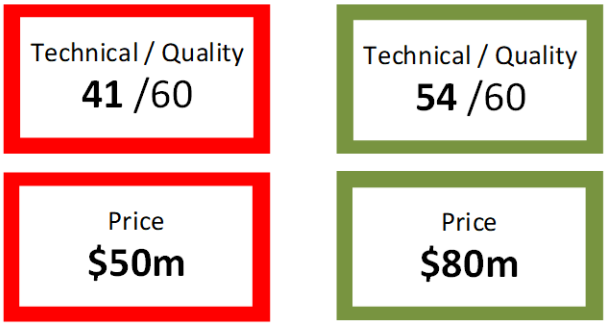
We can now score the prices of each solution (out of the 40 points that have been allocated to price) and calculate the overall scores.



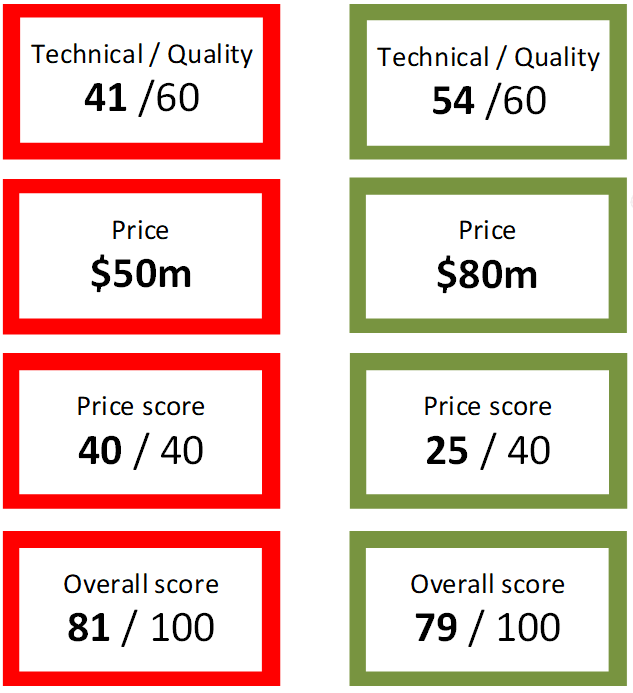
We find that our **green** bid has won the competition, beating both green and blue.

But now let's explore what happens if the blue bid was never submitted or is withdrawn. (This may appear academic or very unlikely, but bear with me for now and it'll become clear why this is an issue.)

Now we only have these two bids – and it's important to note they are exactly the same solutions as before.



Again, we can use our published cost scoring function to score the prices and calculate an overall score.



Now we find that the **red** bid has won the competition and has won against green!

Let's think about this for a moment.

From the buyer's perspective, at the time we published the invitation (including the scoring method) we could not know whether a red solution was better than a green solution, or a green solution was better than a red solution. It depends on whether we get offered a blue

solution – which was never going to win anyway! So, the winner of the competition is not determined by our preference for which of red and green is a better solution – it's determined by the solutions that bidders choose to offer.

Let's also consider the bidders' perspective. OK, they cannot know for sure how their solution will be scored, which doesn't sound too bad (from a buyer's perspective). But they also might not know which is their best solution to bid with. Imagine that the red and blue solutions where actually two different options that a single bidder was trying to choose between to offer to the buyer. They *cannot* know in advance which is better, and their choice will be informed by a combination of intelligence about their competitors and game theory analysis.

So, what the buyer ends up receiving from each bidder is a solution determined partly by guesswork and game theory that may not be their best solution to the buyer's requirement. Then the buyer chooses one of those as the winner in a way that means it's possible that under different circumstances red may beat green or green may beat red.

Although the example above is based on a particular relative cost scoring method, the same effect can be demonstrated in *any* relative scoring method, whether it's applied to cost or technical. So other relative cost scoring methods, such as comparing costs to an average, also come with the same implications.

In my next blog I'll continue to look at different types of cost scoring method and examine the difference between linear and non-linear methods.

>>Find out more 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.