# INCREASED TRANSPARENCY IN BASES OF SELECTION AND AWARD DECISIONS

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**ABSTRACT.** At the International Public Procurement Conference 2010 in Seoul, Bergman and Lundberg examined various methods of bid evaluation, with the contention that price to quality scoring is "non-transparent, making accurate representation of the procurer's preference difficult," while recommending that "quality-to-price scoring should be preferred over price-to-quality scoring" (Bergman and Lundberg, 2011).

In the Canadian context, quality-to-price combinations are uncommon. In the spirit of Berman and Lundberg, the author proposes a further method, termed 'Financial Weighted' to offer an alternative solution to their stated concern with price to quality scoring. The Financial Weighted method is a viable, flexible methodology for determining the 'best' Bidder as a result of an open bid solicitation. Further, by increasing the degree of certainty for suppliers, it offers significant improvements in the overall quality of supplier bids for public contracts.

Data analysis comparing the approach to three (3) common evaluation techniques used by the Canadian federal government demonstrates that it affords both increased flexibility and transparency, as well as adding a degree of certainty for suppliers in potential results.

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## INTRODUCTION

Canadian Federal Government procurement practices reflect a complex network of procurement rules, regulations and guidelines. Beyond federal legislation and common law jurisprudence, most policies, rules and regulation are created by the Treasury Board (TB) Secretariat, the designated 'management board for the Government of Canada,' and the Department of Public Works and Government Services Canada (PWGSC), the government's common service procurement organization, that deals with larger procurements as well as the majority of those for goods and construction.

On top of Federal Government rules, regulations and guidelines, Canada has an internal trade agreement, signed by all 10 provinces and two of three territories, called the Agreement on Internal Trade (AIT). Canada is also a signatory to a number of bilateral and multilateral trade agreements, most notably the North American Free Trade Agreement (NAFTA) between Canada, the United States and Mexico, and the World Trade Organization Agreement on Government Procurement (WTO-AGP) (PWGSC, 2011; TB, 2011).

In addition, there is an ever-growing number of bilateral trade agreements that contain similar provisions on Government Procurement. One of the most significant agreements currently in negotiation is with the European Union, which will have important implications for Canadian public sector purchasing.

All of these agreements have provisions for Government Procurement. Added to this are the guidelines issued by each department and agency for their procurements, and this leads to quite a complex mix of regulation and direction by which procurement professionals must abide.

This complex framework of law, internal and external trade agreements and policy commit the government procurement community to ensure openness, fairness and transparency—both actual and perceived—in all procurement activities. Procurement professionals in Canada are called upon to create competitive solicitation documents that ensure these obligations are met. The resultant solicitation documents must also be designed to achieve operational results. This can be a fine balancing act, especially given

the complexity of the legislative, regulatory and policy regime in Canada. Procurement professionals here work hard to meet these sometimes competing demands.

Resulting from this context and framework, there are three (3) commonly used methodologies for combining technical and price scoring in Bases of Selection for Canadian solicitations. Developed to be compliant within the above complex network of policy, regulation, and law, they are: Lowest Cost Compliant, Price-per-point, and "Best Value" (PWGSC, 2011).

While all three can and have been used for procurements across all types of commodities, each is more frequently used in specific cases; Lowest Cost Compliant being more frequently used for goods or construction, Price-per-Point for commodity-type goods or highly defined services, and Best Value for complex goods or generally for services.

The lowest cost compliant methodology does not allow much in-depth consideration or differentiation on the technical merits of a bid. The price-per-point methodology, on the other hand, while providing a clear outcome that is easily reproducible and verifiable, is quite rigid; there is no flexibility to allow for different weight on technical (quality) scores.

Best Value can allow much greater flexibility to weight technical scores more heavily. However, given its method of application, it provides less certainty of application and potential outcome to the supplier community.

Using data from a number of competitive Canadian procurement processes, this paper discusses the application, strengths, and weaknesses of these three approaches in detail. It then analyzes the new proposed "Financial Weighted."[1] in the same manner. The analysis demonstrates that the Financial Weighted methodology can easily and clearly transform price to quality scores, while maintaining a high level of transparency (through independent verifiability), yet also being a flexible basis of selection option.

## THE NEED FOR FINANCIAL WEIGHTED

Prompted by the challenge implicit in Bergman and Lundberg, Financial Weighted sought initially to overcome the various limitations on each of the three (3) standard Canadian methodologies.

It derived further inspiration from the need for disclosure within government procurement processes required by trade agreements ratified by Canada (Worthington, 2004). Since the ratification process for these agreements requires the consent of Parliament as expressed by formal implementation statutes, this effectively makes the agreements legislation, that has been further expanded upon through Canadian common (court-established) law.

To address this, it is practice in Canadian federal procurement to offer debriefs at the conclusion of the bidding process, during which bidders are informed of their scores, that of the winning bidder, and the rationale for their evaluation result and consequence ranking).[2]

Debriefing provides clarity when the technical evaluation is being explained, because the technical scores are based on objective assessments against objective criteria that were clearly specified and known to bidders in advance. It is less effective on the issue of price – particularly in the Best Value approach, where the price rating is a combination of a known factor (the bidder's price) against a completely unknown one – at least to the bidder when it prepared its bid – the prices proposed by the other bidders.

Replacing that unknown dimension with a known one, thereby giving a greater degree of clarity and certainty of outcome to bidders, should also increase bid quality. That is, if bidders know exactly how points are awarded *in all respects*—price as well as technical—they should know how best to achieve those points.

Finally, many existing methodologies have limited means, if any, to mitigate against unreasonably low prices; that is, where bidders deliberately bid a price lower than might otherwise be expected, to win a contract, or a spot on a multi-vendor mechanism, but are then unable to deliver goods or services for those prices.[3] This real problem has, at present, few practical solutions that can clearly be

understood and applied by both procurement professionals and potential Bidders.

## DESIGNING THE ANALYTICAL FRAMEWORK

In addition to the Bases of Selection mentioned here and addressed in the current study, there are others used within the Canadian context. However, Lowest Cost Compliant, Best Value and Price-Per-Point were chosen as comparisons because they are the most frequently used and easily understood by both procurement and program professionals. We turn now to the description required as the foundation for analysis.

## LOWEST COST COMPLIANT

This method is frequently used in Canada, particularly for construction or goods procurements where any bid that meets the mandatory minimum requirements would be acceptable to the owner.

### How it Works

This method is applied in two (2) stages. In the first stage, potential suppliers must either meet all stated minimum technical requirements, and/or meet a mandatory minimum passmark in a technical evaluation against point-rated criteria.

By setting a passmark on point-rated criteria, it makes them *de facto* mandatory: If you do not receive 70% when the evaluation team rates past experience, for example, the bid fails. The point-rated option is chosen in cases in which it is determined that there may be more than one way to meet a minimum requirement.

Whether or not point-rated criteria are used, at the second stage, the bidder that meets the requirements and that has the lowest overall cost is then chosen for contract award.

### When it is Used

As discussed above, this approach is most often used for procurements in which there is a defined minimum standard that the

owner requires of the supplier, but no further technical differentiation is considered of value. Frequently, this is chosen for procurements in well defined, highly competitive markets, in which potential suppliers all offer very similar products, and there is little to no risk of choosing a poor quality supplier.

### Benefits

This methodology has some potential flexibility: the owner can either choose to set defined minimum technical requirements which all bidders must meet in order to be considered on price; or they might set a mandatory minimum passmark on the basis of point-rated technical criteria (i.e. the 'nice to have' elements).

This latter approach creates some latitude to allow bidders to structure their own proposals to meet the passmark as they feel best highlights their offering. For example, if there is a requirement for an IT infrastructure, the owner might equally consider having standard desktop computers on every desk with a requisite degree of computer power, or having 'thin clients,' with no real computing power, on each desk, all connected to a central server that does the work. Depending on the requirement, this latitude could be beneficial to the owner.

It has practical benefits for highly defined requirements, where there is no appreciable differentiation on technical quality. Evaluations can be conducted on a 'yes/no' basis, which is quick and easily verifiable. Price evaluations are also reasonably simple, as the compliant bid (whether it is compliant against all mandatory requirements, or compliant by meeting the minimum mandatory pass mark) with lowest price, however determined, is always successful.

In addition, in particular where there are only mandatory requirements, potential bidders can gain certainty in the evaluation of their technical response, and insofar as this affects bid quality, may result in a reasonably high technical bid quality.

### Limitations

This method is particularly prescriptive, and there is an inability to weight technical quality of a bid as greater than price. If the owner includes only mandatory minimums, the result could be a supplier that merely the 'lowest common denominator.' A bidder that can add

value is undistinguished from one that can meet only the minimum standard.

On the other hand, in the event the mandatory minimums are not so prescriptive, but instead a passmark on rated criteria is used, the winning supplier might then be deficient in certain areas of expertise or specifications, having met the passmark by excelling in other areas. This could also increase the risk of a supplier being offered a contract in accordance with the prescribed basis of selection, when in fact the supplier's offering does not fully meet the needs of the owner.

While this is clearly a concern in its application rather than in its design, given a high volume of procurements that use this methodology, it becomes a real risk.

## PRICE PER POINT

This methodology is quite common in Canada for competitive procurement of a number of goods and services. Within the past few years, it has been encouraged for increased use in evaluation within services solicitations. It is clear, concise, and well understood by Canadian suppliers.

### How it Works

Bids are evaluated on technical quality based on predetermined criteria. Once completed, the bidder's overall price is calculated based on a calculation determined by the responsible procurement professional and given in the solicitation.

The Price per Point is then calculated using the following equation:

*Bidder's Score = Overall Price ÷ Technical Score*

The equation is as one might have expected: simple, easy to apply and understand. It tends to equate to a weighting of about 50% of the total score for each of the technical score and price.

The bidder with the lowest price per point is recommended for contract award.

### When it is Used

This method is often chosen by owners that wish to emphasize the importance of Price, while retaining the ability to evaluate and score technical proposals.

### Benefits

The most obvious benefit of Price per Point is its simplicity. It is easy and quick to calculate, so those responsible for the Financial Evaluation can quickly conduct their analysis, leading to more efficient award processes. This is of great help to the procurement specialists 'in the trenches,' doing these evaluations every day, by giving them a quick to conduct and easily verifiable set of calculations.

In addition, bidders can be more sure as to their score as a result of a Price per Point calculation. Given clear and well written technical evaluation criteria, most suppliers are able to make a relatively fair determination of how they will score technically. Given that they of course know their price, it is a simple matter to determine their likely final score.

This, then, allows for a greater degree of certainty on the part of bidders. They know exactly in what way they are evaluated in all aspects—price as well as technical. This should assist in leading towards an increased overall bid quality—technical as well as price—over situations where that degree of certainty does not exist.

This methodology is also easily verifiable by an independent third party, which is beneficial to mitigating bid disputes and legal challenges.

### Limitations

As stated earlier, the emphasis of Price per Point, as the name implies, is price per degree of quality. In the Comparative Analysis below, while limited in scope, it is seen that those bidders that had the lowest price, almost regardless of their technical score, frequently find themselves at the top of the pack using this methodology. On the face of it, then, the outcome from this methodology can produce similar results as lowest cost compliant.

This limitation, then, leads to this methodology being best used for lower complexity procurements, where technical quality is important, but not more than price.

## BEST VALUE

This method of calculating results is common in Canadian Government procurement, particularly in professional services and complex goods solicitations. Canadian and larger North American suppliers are quite familiar with how it works and what it might mean for their Bid. It clearly indicates to all potential bidders the owner's view of the importance of their technical capabilities versus their price.

### How it Works

Bidders technical proposals are given a score using a clearly defined methodology in the selection and evaluation criteria of the solicitation document. If required (that is, when the total possible points does not equal the defined weight), this technical score is weighted using standard mathematical techniques. The three (3) most frequent weightings for this are 80% for Technical Scores and 20% for Financial, 70% technical and 30% financial, or 60% and 40%.[4]

The above splits are not the only ones used: On occasion, a federal government owner will use 75/25 or 65/35. The intermediate weightings are not as frequently used in procurements in Canada.

Given the high frequency of use of the preceding three (3) weightings, the number of possible weights that could be analyzed, and basic analysis that shows little significant change in numbers between those weightings, the author has decided to focus on just these few for the purposes of this analysis.

In calculating technical scores, the owner might either simply derive a rating scale in which the total number of points matches the weight in the split (for example, where the split is 70/30, the total number of possible technical points would be 70), or where this is determined to be impractical or undesirable, the score is weighted down using standard math, as follows:

$$\frac{\text{Bidder's Technical Score}}{\text{Total Possible Score}} \times [\text{Weight}]$$

In calculating the Financial Scores, prices given by each bidder that meets the mandatory criteria and any given passmark in the point-rated criteria (as given in the solicitation documents) are compared using the following calculation:

$$\frac{\text{Lowest Price}}{\text{Bidder's Price}} \times [\text{Weight}]$$

Where [Weight] equals the applicable financial weighting against the technical score (for example, 30 in a 70/30 split).

Total Scores are then created by summing the two (2) scores (technical and financial, weighted appropriately) to arrive at a single score out of 100, so the entire calculation is:

$$\frac{\text{Bidder's Technical Score}}{\text{Total Possible Score}} \times [\text{Weight}]$$

$$+ \frac{\text{Lowest Price}}{\text{Bidder's Price}} \times [\text{Weight}] = \text{Total Score (out of 100)}$$

### When it is used

This methodology provides for a clear statement from the owner of how important they feel the technical quality is in relation to price. For example, a scoring of 80/20 indicates clearly that the owner considers technical capabilities as preeminent, whereas 60/40 indicates that while technical capability is somewhat important, price is also an extremely important factor.

This method, then, is often chosen by owners who wish to emphasize technical expertise or quality over price. This is particularly useful in procurements involving complex goods such as software, or specialized professional services where technical quality has

significant importance to the operational result, or where quality is a strong differentiator in the market.

In practice, owners in the Canadian Government wishing to use this methodology are often held to a relatively low technical vs. financial split by contracting groups concerned about increasing supplier prices, frequently with a maximum technical/financial weighting of 70/30 allowed.

### Benefits

This method is the most flexible of the three (3) methods yet discussed. Relative weightings can be adjusted as required/desired by the owner, and it measures both quality, in more or less detail as needed, and price. This method is also well understood by both Canadian government procurement professionals and the suppliers with which it does business.

### Limitations

One concern with this methodology is that bidders responding to a solicitation using this approach can never be completely clear at the time of proposal submission as to how they will fare in the results. Its calculations require that bid prices are compared with each other. As such, bidders cannot know with any certainty what their price score will be.[5] The 'lowest price' bid required for the calculations is an unknown until all technical scores have been tabulated. Further, bid prices are frequently confidential in the Canadian context, and so cannot be disclosed by the procuring entity with much ease.

It should be emphasized that the method by which these calculations are made are clear in the solicitation, which meets the requirements of Canadian law, government policy and trade agreements. However, it does not lead to easy disclosure, and increases the degree of uncertainty with regard to scores on the part of bidders, or potential bidders.

## FINANCIAL WEIGHTED

This method was conceptually developed that there might be a way to achieve practical results, as do the established methods, while

increasing flexibility in general, as well as increasing clarity of results for suppliers and ease of verification within the general process.

This method matches the existing clarity of well-defined technical evaluation criteria and weightings with new equal clarity as to how a bidder's price will be assessed. This should thereby increase bid quality, while also increasing a given bidder's comprehension of the process taken to achieve actual results, and therefore the results themselves.

A supplier contemplating a bid is better able to gauge its chance of success, and craft its bid such that its technical and price components are truly competitive with the marketplace.

The method is simple:

1. detail the bid evaluation technical criteria and related weightings;

2. compare the bid prices to an amount <u>published by the owner</u> in the solicitation, which may essentially be the price that it wants to pay, or that it considers fair value for the purchase;

3. increase or decrease the technical points in proportion to the closeness of each bid price to that published price.

This type of method is alluded to in Bergman and Lundberg (2011), where they propose that "[i]f price scoring is made relative to a reference price… set by the procurer, the ranking will no longer depend on irrelevant alternatives and strategic manipulation will no longer be possible." However, they note that analysis if this idea is not included in their study.[6]

In addition, by adding clarity and being verifiable, this methodology should address a further concern of Bergman and Lundberg (2011) that "[t]he opaqueness of the rules has also hidden the fact that many versions of price-to-quality scoring do not treat bidders equally." Indeed, this method has been developed for use within Canada's complex network of laws, policy and trade agreements requiring all public procurements to treat bidders equally.

## How it works

In use, the owner would disclose an "Evaluation Price" against which all bids would be evaluated within the solicitation (as in step 2, above). The Evaluation Committee, upon completion of the technical evaluation, would calculate the bidder's Financial Weight using the methodology here, then multiply their technical score by that value, which then becomes the bidder's final score.

This method uses the bidder's submitted price in calculating a weight value for their technical score. The Financial Weight value is determined through the following calculation:

$$1 + (\textit{[weight]} - (\textit{Bidder's Price} \div \textit{Evaluation Price}))$$

The [weight] value is a number between 1 and 5 that represents the importance of technical quality to the Owner, with 5 being the most important and 1 being the least. The author has conducted numerical analysis to determine that the [weight] value weights the technical score against the financial as follows:

*Table 1:*

| [Weight] Value | Resultant Technical Weight as part of the total resultant score |
|:---:|:---:|
| 1 | 1/2 |
| 2 | 2/3 |
| 3 | 3/4 |
| 4 | 4/5 |
| 5 | 5/6 |

That is, where [weight]=1, then in the final equation, Bidder's Technical Score will be weighted at 50% of the resultant total score; where [weight]=2, the Bidder's Technical Score will be weighted at

66.67% of the resultant score, and so on to a maximum of 83.33% where [weight]=5 (see the Final Score calculation below).

As the value of [weight] increases beyond 5, the pattern for the technical weight continues, but the end result remains practically unchanged (see the section "Increasing Weight," below).

The "Evaluation Price" above is set by the owner and disclosed in the solicitation. This may be the budget for the project, the expected mean or median price, or another rate developed through market research and/or past experience of the owner. However developed, it is likely prudent that it be a reasonable estimate of the value of the procurement for optical reasons.

The number derived from the above calculation is then multiplied by the bidder's technical score to arrive at a final score, as follows:[7]

[1 + (*[Weight] – (Bidder's Price ÷ Evaluation Price)*)] x *Bidder's Technical Score = Bidder's* **Final Score**

The Bidder's Technical Score is its total score on all quality/technical criteria, which has no limitations as far as the application of this method is concerned.

Once a weight and an Evaluation Price have been developed, the bidder need only insert its price and anticipated Technical Score to reasonably and objectively anticipate its final score as a result of evaluation.

### Benefits

As with Price per Point, this method allows bidders to determine their approximate score[8] independently, as they will have all the information required to calculate their outcome. This increases clarity over the Best Value calculations, and can lead to a better competition in general. Suppliers will have a clearer picture as to their potential results, and therefore more may opt to submit bids. Alternatively, those Suppliers that clearly cannot do well will more likely opt to not submit bids, thereby saving evaluation time and effort on the part of the owner, as well as supplier time and costs in preparing a bid that will clearly not produce results.

In addition, this method is easily independently verifiable, such that in the event of any formal dispute it can easily be reproduced by a disinterested third party.

The Financial Weighted method differs from the Price per Point in that, where Price per Point is essentially weighted with 50% for both Technical and Financial scores, Financial Weighted provides a method to weight a bidder's technical response higher. Owners that wish to increase the importance of a bidder's technical qualifications can do so in the equation by increasing the value of the Weight, incorporating the appeal of the Best Value method.

In addition, the Evaluation Price can be set at a number that is most beneficial to the owner, and a range can be given beyond which the multiplier will not be increased. This range and associated methodology would be described within the financial evaluation methodology of the solicitation.

If, for example, the Evaluation Price is at $400, the owner could set the maximum Financial Weight multiplier allowed at 1.3, which would have the effect of putting a lower limit on prices of about $275. For example:

> Evaluation Price = $400;
>
> Bidder's Price = $270;
>
> [weight] = 1
>
> Therefore: Financial Weight $= 1 + ( 1 – 270/400)$
>
> $= \mathbf{1.325}$

This bidder, then, would have a multiplier beyond that which is acceptable (1.3), therefore their technical score will only be multiplied by 1.3. Contractually, however, in the event this bidder were to be awarded a contract, their originally submitted price would be accepted.

This has the advantage of being able to mitigate against bidders submitting unreasonably low prices during the solicitation stage for the sole reason of getting a contract, or placing higher in the rankings of a multi-supplier mechanism.

Further, this method mitigates unusually high bid prices, as the higher prices are over the Evaluation Price, the lower the bidder's technical score gets. However, bidders with strong technical scores and higher prices should still remain in the running. Continuing the example above:

*Table 2:*

Evaluation Price = $400

> [Weight] = 1

| | Bidder 1 | Bidder 2 |
|---|---|---|
| *Technical Score (/100)* | 98 | 50 |
| *Price* | $500 | $270 |
| *Resultant Financial Weight* | 1 + (1- 500/400) = 0.75 | 1 + (1 – 270/400) = 1.325 |
| *Resultant Score* | 98 x 0.75 = **73.5** | 50 x 1.325 = **66.25** |

In the case above, Bidder 1 has a price significantly higher than the Evaluation Price, but had a very strong technical score. Bidder 2 had a poor technical score, but also a lower price. After application of the Financial Weight equation, Bidder 1 still has a relatively good score, and depending on any other bidders involved could win a Contract.

### Drawbacks

In Canada, officials in various program groups, who are technical experts, are responsible for developing the selection and evaluation criteria, as well as the basis of selection—although this is sometimes a shared responsibility between program and contracting groups. Program officers often do not have significant training in procurement and the options available to them. As such, when faced with the math of Financial Weighted, it might quickly be cast aside as 'too complicated.'

On some scrutiny, however, the math is not as complicated as it might first appear. Suppliers in particular will find it easy to use, as all they have to do is plug in their price and their anticipated technical score into the formula to find their likely outcome.

This paper is meant to stimulate broader use of this methodology so that it may be practically tested and any further benefits or drawbacks may be better understood.

## FINANCIAL WEIGHTED IN DEPTH

As discussed above, this proposed methodology provides a high degree of flexibility to the owner. By changing the [weight] value in the equation, one can emphasize technical scores over price, while maintaining the ability of potential suppliers to fully understand their scores. This does not limit the potential supplier's ability to achieve the same or similar mathematical results independently from the evaluation team.

To analyze the effect of the "weight" value, we will use values from "Case A" (see Appendix A: Utilized Data for complete case details). This example was a solicitation for research professional services. It was scored out of a total of 70 possible points, and used per diem rates in the financial evaluation across multiple Resource Categories. The following are a few examples of how the various weightings effect practical results.

### Example 1

To start, we will use an Evaluation Price of $400 and a Weight of 1. Weight=1 indicates, as per *Table 1*, above, that technical scores are 'less important,' and results in a score in which the Price score and Technical score are each valued at 50% of the total.

*Table 3*

| Bidder | Technical Score (/70) | Price | Weight calculation* | Result calculation | Rank |
|---|---|---|---|---|---|
| *Bidder A* | 57 | $608.88 | 1 + (1 – (608.88/400) = 0.4778 | 57 x 0.4778 = **27.24** | 5 |

| Bidder | Technical Score | Price | Weight calculation | Result calculation | Rank |
|---|---|---|---|---|---|
| *Bidder B* | 68.5 | $471.88 | 1 + (1 – (471.88/400) = 0.8203 | 68.5 x 0.8203 = **56.19** | 3 |
| *Bidder C* | 56 | $498.13 | 1 + (1 – (498.13/400) = 0.7547 | 56 x 0.7547 = **42.26** | 4 |
| *Bidder D* | 70 | $374.38 | 1 + (1 – (374.38/400) = 1.0641 | 70 x 1.0641 = **74.48** | 2 |
| *Bidder E* | 63.5 | $250.00 | 1 + (1 – 250/400) = 1.375 | 63.5 x 1.375 = **87.31** | 1 |

*\*NB To maintain accuracy, no numbers are rounded during calculation except the final result which is rounded to the nearest hundredth.*

In this example, the winner is Bidder E, which has an extremely low price but only a mediocre technical score. Bidder D, with the highest technical score and the second lowest price, comes in second; Bidder A, with the highest price, and a low technical score, is last.

### Example 2

To increase the weighting of the technical score, the same example can be repeated with a Weight of 5. This results in technical scores having a weight of 83.33% of the total resultant score, with Price thereby having a weight of 16.67%.

*Table 3*

| Bidder | Technical Score (/70) | Price | Weight calculation* | Result calculation | Rank |
|---|---|---|---|---|---|
| *Bidder A* | 57 | $608.88 | 1 + (5 – (608.88/400) = 4.4778 | 57 x 4.4778 = **255.24** | 5 |

| Bidder | | | | | |
|---|---|---|---|---|---|
| Bidder B | 68.5 | $471.88 | 1 + (5 – (471.88/400) = 4.8203 | 68.5 x 4.8203 = **330.19** | 3 |
| Bidder C | 56 | $498.13 | 1 + (5 – (498.13/400) = 4.7547 | 56 x 4.7547 = **266.26** | 4 |
| Bidder D | 70 | $374.38 | 1 + (5 – (374.38/400) = 5.0641 | 70 x 5.0641 = **354.48** | 1 |
| Bidder E | 63.5 | $250.00 | 1 + (5 – 250/400) = 5.375 | 63.5 x 5.375 = **341.31** | 2 |

In this example, Bidder D with a much stronger technical score moves to first, with E moving down one place to second, followed by B, C and A, as before.

## Example 3

The above example is repeated, but the evaluation price is modified. Above, $400 was chosen as it could be a reasonable expectation of what one might receive in an actual bid from potential suppliers. But instead, let us assume it is desired to keep prices lower, and decrease the evaluation price to $300, but keep the emphasis on technical by maintaining the weight at 5. The following would result:

*Table 4*

| Bidder | Technical Score (/70) | Price | Weight calculation* | Result calculation | Rank |
|---|---|---|---|---|---|
| Bidder A | 57 | $608.88 | 1 + (5 – (608.88/300) = 3.9704 | 57 x 3.9704 = **226.31** | 5 |
| Bidder B | 68.5 | $471.88 | 1 + (5 – (471.88/300) = 4.4271 | 68.5 x 4.4271 = **303.26** | 3 |

| Bidder C | 56 | $498.13 | 1 + (5 – (498.13/300) = 4.3396 | 56 x 4.3396 = **243.02** | 4 |
| Bidder D | 70 | $374.38 | 1 + (5 – (374.38/300) = 4.7521 | 70 x 4.7521 = **332.65** | 1 |
| Bidder E | 63.5 | $250.00 | 1 + (5 – 250/300) = 5.1667 | 63.5 x 5.1667 = **328.08** | 2 |

Here it is shown that the rankings remain the same. This is an indication that if only an approximate "educated guess" is used in determining the evaluation price using this methodology, results should remain stable.

### Increasing Weight

As discussed, changing the weight much beyond 5 has little practical effect. To demonstrate this, analysis has been done using data from Case A (described above). The formula for Financial Weighted was applied to each bidder using a weight of 1 to 10,000, and the change and subsequent rate of change between each score was calculated. Below is the rate of increase for the bidders' total scores from the dataset of Case A for Weight equaling 1 through 10. The Y-axis is the rate of change in bidder total score  and the X-axis is the [*Weight*] Value. Each line in the graph below represents one (1) bidder's results:

*Figure 1 – Rate of Increase of Bidders' Scores*
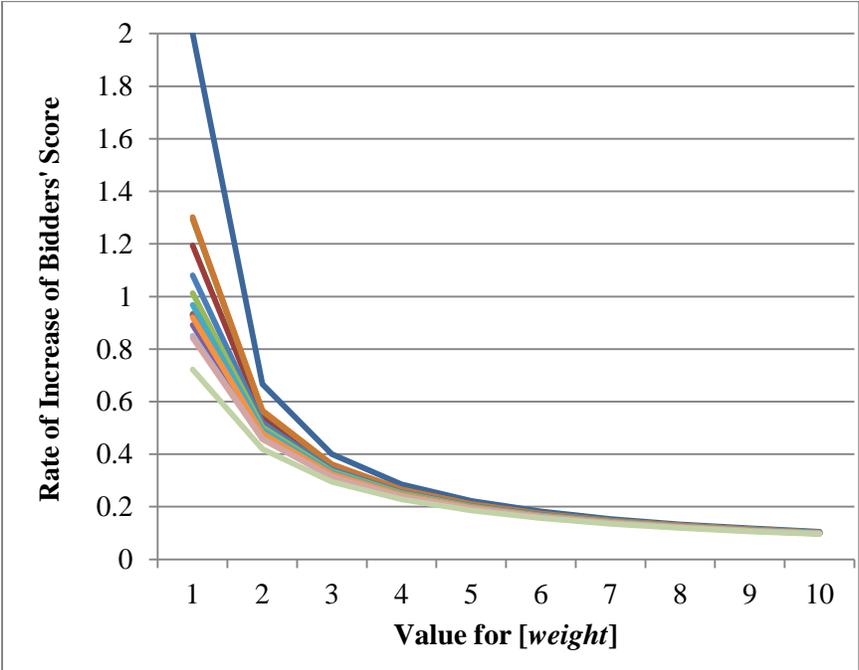


*y-Axis*

*Rate of Increase in Bidder's evaluated score as in:*

> *(a – b) ÷ b*

*Where:*

*b = 1 + ([weight at x-Axis] – (Bidder's Price / Evaluation Price)) x Bidder's Technical Score*

*a is as b with [weight] = ([weight] in a) +1*

*x-Axis*

*Value for **[weight]** in:*

*1 + (**[weight]** – (Bidder's Price / Evaluation Price)) x Bidder's Technical Score*

*Where each line in the figure represents one Bidder's evaluated scores.*

It then becomes clear that the change between the scores quickly becomes negligible.

### Comparing Weights

We see above how Financial Weighted is applied relative to the other major methods of selection. However, what happens when different weights are applied within Financial Weighted?

Again using the data from Case A, the following chart indicates how the rankings (Y-axis) changed, by bidder, based on the weight applied (X-axis). Only the 6 bidders that represent the most significant change are shown here in order to maintain clarity in the graphical representation (full results can be seen in Appendix A).

*Figure 2 – (Selected) Bidder's Evaluated Rank calculated at given [weight] value*
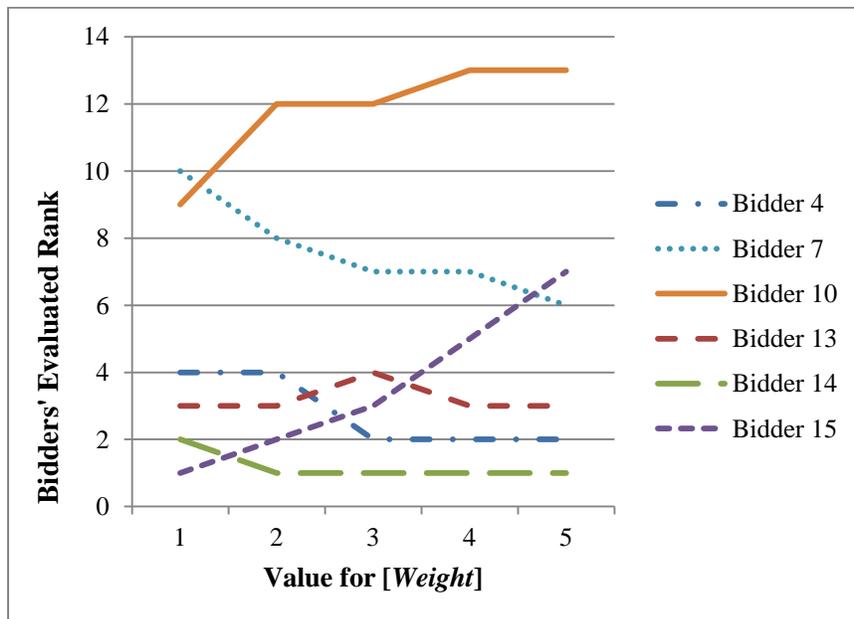
While some bidders maintained their ranking, the higher technical weighting very much benefited some bidders, particularly Bidder 10 moving from 4th to 2nd, and Bidder 7 moving from tenth to 6th. This also caused great effect on the results of others, particularly Bidder 15 who moved all the way from first with a low Weight, to seventh with a high weight.

This clearly illustrates the flexibility afforded by the Financial Weighted methodology (see Appendix A for similar tables for Cases B and C). Bidder 15, who has the highest ranked (lowest) price does well with a low weight, but once the weight is increased, its low price quickly become less important. On the other hand, Bidder 7, low ranked (number 11 of 15) pricewise but first technically, rapidly gains ground. This demonstrates that as the weight increases (the relative importance of the technical evaluation), the overall importance of price decreases.

It is important to note that while the effects of the weight are clear, heavily weighting one way or the other will not necessarily allow the lowest priced bid to win in all cases where weight=1, or the top technical bid to win if the opposite weight (weight=5) is selected. As always, this depends on bids submitted in response to the solicitation, and their resulting mix of technical score and price.

## COMPARATIVE ANALYSIS OF SCORING METHODOLOGIES

Data was taken from three (3) completed solicitations for professional services and construction. The results from each of these were analyzed against the following four (4) different methods of calculating results:

1. **Lowest Cost Compliant**

2. **Best Value**, using the following three (3) technical/financial point allocations:

a.  80/20

b.  70/30 and

c.  60/40

3. **Price Per Point**; and

4. **Financial Weighted**.

   Rankings resulting from the application of each of these methodologies are presented here. The purpose is to determine what practical effect these could have in every day procurement.

   ### Limitation

   Given different evaluation approaches for the same requirement, bidders would almost certainly have bid differently. Therefore, analysing specific bidding results against multiple evaluation approaches is artificial, but for the purposes of this analysis offers no apparent critical flaws.[9]

   ### Solicitations

   In all of the cases below, the Weight for the Financial Weighted calculations in all cases is 5. This number was chosen as it represents the greatest change in results as discussed above (see figure 2).

   ### Trends

   ### Case A

   Case A was for research professional services. It was scored out of a total of 70 possible points, and used per diem rates in the financial evaluation across multiple Resource Categories.

   In this case, the Evaluation Price for Financial Weighted is $400. The table presents the resultant rank each bidder holds after application of each of the methodologies, as named at each column.

   *Table 5*

|  | Financial Weighted | Price Per Point | 80/20 Split | 70/30 Split | 60/40 Split | Lowest Cost |
|---|---|---|---|---|---|---|
| *Bidder 1* | 15 | 15 | 15 | 15 | 15 | 15 |
| *Bidder 2* | 9 | 12 | 9 | 9 | 9 | 12 |
| *Bidder 3* | 14 | 14 | 14 | 14 | 14 | 13 |
| *Bidder 4* | **2** | 4 | **2** | **3** | 4 | 6 |

| | | | | | | |
|---|---|---|---|---|---|---|
| *Bidder 5* | 4 | 6 | 5 | 5 | 6 | 8 |
| *Bidder 6* | 12 | 13 | 12 | 13 | 13 | 14 |
| *Bidder 7* | 6 | 10 | 6 | 7 | 7 | 11 |
| *Bidder 8* | 10 | 8 | 10 | 10 | 10 | 7 |
| *Bidder 9* | 8 | 7 | 8 | 8 | 8 | 10 |
| *Bidder 10* | 13 | 9 | 13 | 12 | 12 | 4 |
| *Bidder 11* | 11 | 11 | 11 | 11 | 11 | 9 |
| *Bidder 12* | 5 | 5 | 7 | 6 | 5 | 5 |
| *Bidder 13* | 3 | 3 | 4 | 4 | 3 | 3 |
| *Bidder 14* | 1 | 2 | 1 | 2 | 2 | 2 |
| *Bidder 15* | 7 | 1 | 3 | 1 | 1 | 1 |

As we can see in the above ranking table, Bidders 13, 14 and 15 fairly consistently land in the top three, regardless of the methodology employed. The change in results of the ranking for these bidders can be seen more clearly here, where the effects of Financial Weighted are evident:

*Figure 3 – (Selected) Bidder Ranking as a function of selection methodology.*
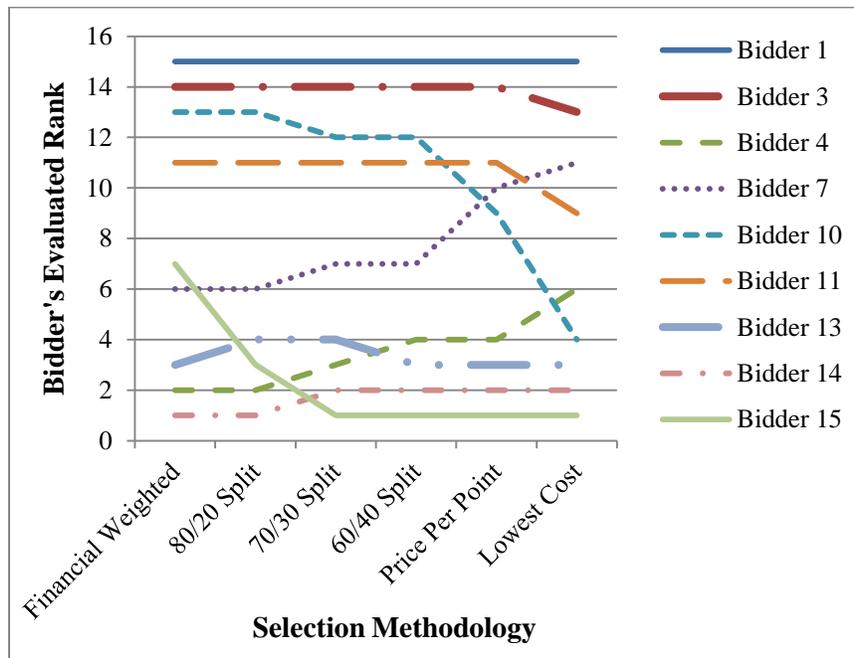


Overall, Bidder 1 maintains the most consistent ranking. As seen in Appendix A, this bidder has a poor technical score and the highest price. Other bidders that did consistently poorly were Bidders 3, 10 and 11 who all had relatively poor technical scores and high prices. This is most evident in Financial Weighted, and becomes least evident towards the Price per Point or Lowest Cost Compliant methods.

Bidder 15 has a fascinating story, as with Financial Weighted it ranks poorly, but with Price per Point it jumps to first. The rates presented by this bidder are less than half of the most expensive, and about 60% of the average presented price, and it has a technical ranking of 9th.

With the higher emphasis on technical quality allowed in Financial Weighted and 80/20 and 70/30 Best Value splits, Bidder 4 comes in

to the top three (3). This is an important trend as Bidder 4 is actually the highest technically ranked bidder, and is in the middle of the pack at 6th for price.

The result then shows that in this case, Financial Weighted mitigates against a bidder who has both a high price and average to low technical score being among the top-ranked.

## Case B

Case B was for construction across multiple geographical regions. The solicitation was to award one contract each per region, and as such each region was evaluated independently. Technical scores were out of 75. Prices were given for work to be done in each region. For analytical purposes, different prices for different regions, which were independently evaluated in the procurement process, are compared, given the emphasis is on methodology.

In this case, Evaluation Price for Financial Weighted is $1,500,000.

*Table 6*

| | Financial Weighted | Price Per Point | 80/20 Split | 70/30 Split | 60/40 Split | Lowest Cost |
|---|---|---|---|---|---|---|
| Bidder 1 | 3 | 1 | 2 | 2 | 1 | 1 |
| Bidder 2 | 10 | 11 | 9 | 11 | 11 | 11 |
| Bidder 3 | 8 | 5 | 10 | 6 | 5 | 5 |
| Bidder 4 | 12 | 7 | 12 | 12 | 12 | 6 |
| Bidder 5 | 4 | 8 | 6 | 7 | 7 | 8 |
| Bidder 6 | 6 | 10 | 7 | 8 | 8 | 10 |
| Bidder 7 | 1 | 2 | 1 | 1 | 2 | 2 |
| Bidder 8 | 9 | 12 | 5 | 9 | 10 | 12 |
| Bidder 9 | 11 | 4 | 8 | 5 | 4 | 4 |
| Bidder 10 | 2 | 6 | 3 | 4 | 6 | 7 |
| Bidder 11 | 5 | 3 | 4 | 3 | 3 | 3 |
| Bidder 12 | 7 | 9 | 11 | 10 | 9 | 9 |

This case presents an interesting story as well. While the top bidders are fairly consistent, they tend to swap places regularly. Bidders 1 and 7 frequently alternate between 1 and 2, with Bidder 11 frequently coming in 3rd. Bidder 7, who is most frequently first, is technically ranked 7th and price ranked second. Bidder 1 is technically 8th but priced first, and Bidder 11, most consistently third placed, is technically 9th and priced third.

It is notable in this case that the top technical bidder, number 8, consistently does fairly poorly. However, it is also the lowest ranked by price by a fair margin.

Also of interest is the fact that the top-ranked bidder by price (Bidder 1) only drops in the ranking with any significance only with the Financial Weighted methodology, replaced by the second lowest priced (Bidder 7).

Only the second technically ranked bidder, number 10, manages to squeak in at number 2 or 3 with the higher technically weighted calculations. This is likely explained by it being ranked 7th in terms of price, and the other top two (2) technical bidders are ranked 11th and 12th by price. Given this type of spread, it is understandable how the more "middle of the road" responses, with fair prices and technical scores, though not both, rise to the top.

This is likely also explainable by the nature of the construction industry. To do a technically better job often means a higher price, and to do a low priced job may mean a lower quality.[10]

### Case C

Case C was for IT professional services in multiple resource categories. Technical scores were out of 110. Prices were given per resource category included for all possible contract years and were summed and averaged (per bidder).

In this case, Evaluation Price for Financial Weighted is $9,000.

*Table 7*

| | Financial Weighted | Price Per Point | 80/20 Split | 70/30 Split | 60/40 Split | Lowest Cost |
|---|---|---|---|---|---|---|
| *Bidder 1* | 1 | 5 | 2 | 2 | 2 | 5 |

| | | | | | |
|---|---|---|---|---|---|
| *Bidder 2* | 6 | **1** | **1** | **1** | **1** | **3** |
| *Bidder 3* | **1** | 5 | **2** | **2** | **2** | 5 |
| *Bidder 4* | 7 | **2** | 7 | 7 | 7 | **2** |
| *Bidder 5* | **1** | 5 | **2** | **2** | **2** | 5 |
| *Bidder 6* | 9 | **3** | 9 | 8 | 8 | **1** |
| *Bidder 7* | **1** | 5 | **2** | **2** | **2** | 5 |
| *Bidder 8* | 8 | 4 | 8 | 9 | 9 | 4 |
| *Bidder 9* | **1** | 5 | **2** | **2** | **2** | 5 |

This particular case presents an uncommon scenario. Many bidders came in with similar prices and technical scores. Most interesting is the difference between Price per Point and all of the other results, where everything appears to be turned on its head.

Bidders 1, 3, 5, 7 and 9 all achieved the same technical score and were highest ranked, where Bidder 6 had the lowest price. Bidder 2 is technically ranked fairly low, but holds the third ranking in price. And Bidder 4 is technically ranked low at 7 (or tied for third with 4 different technical scores) and priced very well with a rank of 2.

This case tells a different story from the first two, in that bidders which were technically high scoring, and also had high prices, were ranked high overall. The other most successful bidder (Bidder 2) is lower priced (thus better ranked in that regard) but is technically below those that are higher priced.

### Case Observations

Some important conclusions emerge in the initial comparison of results of these four (4) methodologies.

There is some indication that a Best Value weighting of 60/40 is of little practical difference from Price per Point. The notable exception in the cases used here is with Case C, where Price per Point provides drastically different results from the others. This likely occurs given the scenario of bids that tied technically, but with different pricing. Significant change in the order of ranking of bidders for this case only becomes obvious in the use of an 80/20 split.

In the Price per Point versus the Financial Weighted methods, a similar trend is found where the technical weight in the Financial

Weighted is 1. As the Weight increases, however, the difference between the two also increases, with lower price becoming less important. Given the analysis of relative weights in the discussions of these methodologies above, this trend is expected.

Lowest Cost Compliant, it seems, also frequently turns out to be similar to Price per Point in many of the results shown. In fact, in all three (3) cases the top three (3) bidders in Price per Point remained in the top three (3) in Lowest Cost Compliant, though in the Case C the order between Price per Point and Lowest Cost Compliant was flipped.

There are only two (2) clear ways, then, to emphasize technical quality over price that will have a significant practical effect. Either a Best Value calculation with an 80/20 technical/financial weighting, or a Financial Weighted calculation with a higher Weighted value.

This is important in terms of issues of clarity and verifiability. As discussed, Best Value calculations, while useful and often employed, do not appear to lead toward easily verifiable results by suppliers: a potential supplier would have great difficulty in determining its score without knowing its competitor's price.

Using the Financial Weighted method, however, a potential bidder can independently work out its likely score with relative ease. Again, this is given clear, fairly applied technical evaluation criteria. If they are applied clearly with sufficient rationale for scoring, then with the application of this method transparency is increased.

## OPTICS

It is important to note, though, that notwithstanding the practical analysis of each method, each choice sends a different message to potential suppliers, and thus may effect how they respond in their proposals. Even using the term "Best Value" in an RFP sends a message to suppliers and the public that the owner is specifically seeking to spend public monies wisely. Regardless of the fact that the mathematical difference in results from 70/30 to 60/40 appears negligible in the analysis presented here, the message of the importance of the technical remains.

Further, though a 70/30 weighting has, according to this study, apparently practically little difference in results from 60/40, the appearance of more emphasis on technical scores given in the 70/30 split versus 60/40 may encourage bidders to provide higher quality technical bids, though potentially with relatively increased rates.

As previously discussed, two (2) of the other methods (Price per Point and Financial Weighted) increase clarity of the RFP process such that all bidders can be equally sure of their own outcomes. Bidders that are not compliant or do not rank high enough to be awarded a multi-vendor mechanism can know in no uncertain terms exactly why that was the case.

Additionally, as stated earlier, because a bidder's score can be determined independently, it can easily be reproduced by a disinterested third party in the event of dispute. Whether or not there is potential for a bidder's proposed price being determined by its rivals given the winning bidder's technical score requires further study.

## CONCLUSIONS

The type of scoring methodology chosen by owners is dependent on the requirement, the market, and types of responses desired. Owners need to consider if the market is well defined, if there is a wide variety of technical quality available, the importance of technical quality versus price, etc. As well, owners must consider whether they require a technically detailed and complex response, one simply meeting a set of minimum requirements, or a compromise.

The required operational outcome of the procurement also plays a key role in this decision. To ensure the total desired outcome is achieved, the appropriate choice of selection methodology must be paired with strong technical evaluation criteria.[11]

Notwithstanding the limitations discussed above in terms of lack of verifiability, an excellent method for soliciting the highest quality proposal is the use of a Best Value calculation with a weighting of 80/20 technical/financial. Using any lower technical weighting may have little practical difference, and is only best as an intermediary

between Best Value and Price per Point in the event an 80/20 weighting is vetoed by the owner.

According to evidence presented here, the Financial Weighted method appears to be a successful choice for achieving the highest quality at the lowest price. Its flexibility to keep these qualities while allowing for greater importance of technical score over price can be highly beneficial. Its relative ease of verification may also decrease the risk within the procurement process, which should be welcomed by Contracting groups. Furthermore, its ease of use and comprehension by suppliers has potential to increase competition, while providing better results for owners.

However, it is as of yet uncertain as to the type of response it will solicit from the supplier community: whether they will see it as weighted towards technically higher quality proposals, weighted towards lower prices, or neither. The optics and psychology involved in these supplier decisions can only be discovered through ongoing practical application.

In using the Financial Weighted methodology, all potential suppliers can derive a reasonable facsimile of their scores on their own, and should not be surprised by their results. This will not only be welcome by suppliers who do not want to have to guess at their scores, but also by contracting groups who will, hopefully, have to deal with fewer formal disputes.

It would be a useful study to analyze the psychology of each of these methods in the supplier community proposal preparation process. Does one method encourage a more thorough and responsive proposal as a whole versus another? What are the effects on suppliers' decision on whether or not to bid? What happens to suppliers proposed prices?

The true results and actual benefits of the Financial Weighted method cannot be fully understood until it is more widely applied. Owners need to become more familiar with its benefits, and understand when it is best to be applied. Once suppliers also becomes more familiar with it, understands how it works, and understands how to develop proposals in response, then further analysis can be done.

Transparency in how results in public solicitations are arrived at is an important goal. This can sometimes be seen to take a back seat to achieving required operational outcomes. The proposed Financial Weighted method provides an approach aimed at allowing both goals of a procurement professional to be met, gaining the trust of the supplier community and leading towards mutually beneficial contractual relationships.

## NOTES

1. This methodology was conceptualized through analysis of discussions provided in Bergman and Lundberg (2011).

2. For more on debriefing, see Worthington, 2004.

3. Evidence of this practice in Canada can be seen through the Government's adoption of a clause within some of its RFPs that request Price Support—evidence that the bidder can conduct the work for the price quoted. One such example, as can be seen quoted in case PR-2010-093 at the Canadian International Trade Tribunal (http://www.citt.gc.ca/procure/determin/pr2k093_e.asp, see paragraph 8) says in part:

In Canada's experience, bidders will from time to time propose rates at the time of bidding for one or more categories of resources that they later refuse to honour, on the basis that these rates do not allow them to recover their own costs and/or make a profit.

4. Throughout, these weightings will be given as ratios of technical/financial weightings. For example, 80/20 will refer to a technical weight of 80% and a financial weight of 20% of the total score. Further, this ratio is frequently referred to as "the split" (that is, the division, or splitting, of scores between the two considerations).

5. It should be noted that bidders can never be sure of the lowest submitted bid without collusion—that is, bidders agreeing on pricing before submitting Bids. However, this is a) a criminal offence; b) against the spirit of openness and transparency; and c) much beyond

the scope here! For more information, see the Canadian Competition Bureau at http://www.competitionbureau.gc.ca/.

6. Note that Bergman and Lundberg note that a study by Anders Lunander and Arne Andersson that they reviewed also did not include this analysis. They note in their references that this article was written in Swedish, and can be found as follows:

Lunander, Andres and Arne Andersson (2004). "Metoder vid utvärdering av pris och kvalitet i offentlig upphandling. En inventering och analys av utvärderingsmodeller inom offentlig upphandling." *The Swedish Competition Authority, Commission Report:* 2004:1.

7. The 1+ at the front of this equation can be removed where the Weight is greater than 1, as it only mitigates the risk of a bidder providing a price exactly equal to the evaluation price, thereby leading to a 'weight' of 0.  For example, without the leading 1 (and the [weight]=1), an Evaluation Price of $500, and a bidder price of $500, the equation will be 1-(500/500) = 0. Given that this number is then multiplied with the bidder's Final Score, this would result in the score = 0. Where [Weight] is greater than 1, this is not a concern. Note that if that number is deleted, the weighting in the tables in the Table 1 become less accurate.

8. The score is only "approximate" as it does not account for proposal submission errors or omissions, or the interpretations of the Evaluation Team. This emphasizes the benefit of having evaluation criteria that are as precise and measurable possible.

9. See Appendix A: Utilized Data for complete details on each of the solicitations used in the trend analysis.

10. It is understood that the typical method of conducting construction procurements is through a tendering method, which typically uses a Lowest Cost Compliant methodology. However, in the preparation of responses, suppliers consider the same information as do services or goods suppliers—labour, costs to company, potential for profit or loss, and so on. As such, while it is understood these other methods might not typically be applied, for analytical purposes it is still of use.

11. See Bergman and Lundberg (2011) on this topic as well.

## REFERENCES

Lundberg, Sofia and Bergman, Mats A., "Tender Evaluation and Award Methodologies in Public Procurement" (May 4, 2011). Available at SSRN: http://ssrn.com/abstract=1831143 or http://dx.doi.org/10.2139/ssrn.1831143

Public Works and Government Services Canada (2011) *Supply Manual*. [On-line]. Available at https://buyandsell.gc.ca/policy-and-guidelines/supply-manual/ [Retrieved March 13, 2012]. *See Chapter 4, section 4.40 Evaluation Process and Method of Selection for standard bases of selection, as discussed in the Introduction.*

Swift, David (2006). "The 'Little White Lie' of Government Procurement: Comparing bidder proposals during an RFP bid evaluation – why many government managers do it, why no one should, and what to do about it." *FMI Journal*, 17(2): 10-11.

Treasury Board of Canada Secretariat (2011) *Contracting Policy Notice 2011-05 – Trade Agreements: Update of Thresholds*. [On-line]. Available at http://www.tbs-sct.gc.ca/pubs_pol/dcgpubs/ContPolNotices/2011/12-19-eng.asp [Retrieved December 19, 2011].

Worthington, Robert, "The Public Purchasing Law Handbook," Lexis-Nexis Canada Inc, Markham, Ontario, 2004. *See pp117-120 for the concept of positive duty of disclosure by the owner, as discussed in the section Best Value, Room for Improvement.*

## APPENDIX A: UTILIZED DATA

The following is a list of technical and financial scores used in the above analysis.

### Case A

|  | *Average Price* | *Technical Score* |
|---|---|---|
| Bidder 1 | $608.88 | 57.00 |
| Bidder 2 | $471.88 | 68.50 |
| Bidder 3 | $498.13 | 56.00 |
| Bidder 4 | $374.38 | 70.00 |
| Bidder 5 | $377.50 | 68.50 |
| Bidder 6 | $500.00 | 63.50 |
| Bidder 7 | $436.25 | 70.00 |
| Bidder 8 | $375.00 | 61.50 |
| Bidder 9 | $411.25 | 68.00 |
| Bidder 10 | $356.88 | 57.50 |
| Bidder 11 | $392.50 | 61.50 |
| Bidder 12 | $371.25 | 68.00 |
| Bidder 13 | $334.55 | 67.50 |
| Bidder 14 | $330.00 | 70.00 |
| Bidder 15 | $250.00 | 63.50 |

### Solicitation

This particular solicitation was scored out of a total of 70 possible points, and used per diem rates in the financial evaluation across multiple Resource Categories. For analytical purposes, the bidder's average per diem rate is used.

### Financial Weight Comparison

This graph illustrates how rankings change as the Financial Weight increases using the Financial Weighted Methodology:

*Figure A-1: Case A - Bidder's Evaluated Rank calculated at given [weight] value (Complete)*
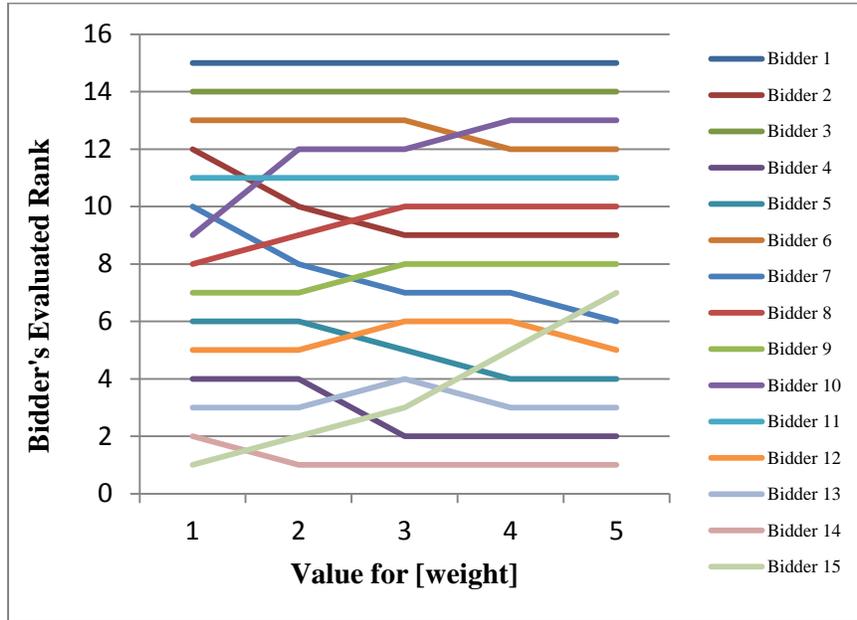


## Case B

|  | Price | Technical Scores |
|---|---|---|
| Bidder 1 | $839,212.69 | 56 |
| Bidder 2 | $2,016,367.49 | 62.33 |
| Bidder 3 | $1,055,280.11 | 55.16 |
| Bidder 4 | $1,404,340.74 | 52.26 |
| Bidder 5 | $1,677,468.38 | 61.92 |
| Bidder 6 | $1,852,054.88 | 62.32 |
| Bidder 7 | $926,891.63 | 60.29 |
| Bidder 8 | $2,247,543.38 | 64.54 |
| Bidder 9 | $975,981.60 | 54.03 |
| Bidder 10 | $1,449,434.25 | 63.21 |
| Bidder 11 | $939,417.19 | 55.98 |
| Bidder 12 | $1,765,926.94 | 61.15 |

## Solicitation

This particular solicitation was for construction across multiple regions. Technical scores were out of a total of 75 points. Prices were given for work in each region. For analytical purposes, different prices for different regions are compared, given the emphasis is on methodology.

## Financial Weight Comparison

This graph illustrates how rankings change as the Financial Weight increases using the Financial Weighted Methodology:

*Figure A-2: Case B - Bidder's Evaluated Rank calculated at given [weight] value (Complete)*
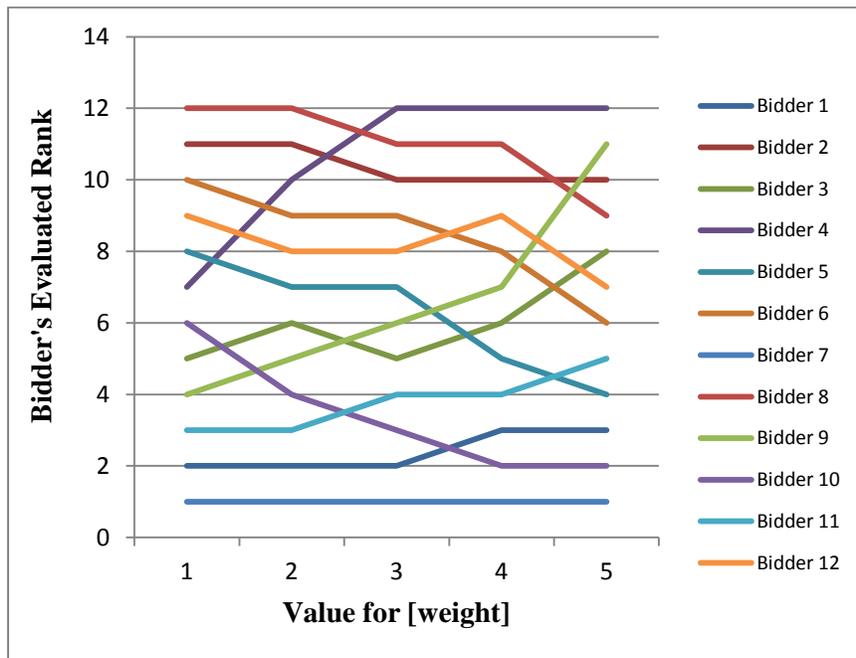


## Case C

| | Sum Average Price | Technical Scores |
|---|---|---|
| Bidder 1 | $8,008.90 | 106 |
| Bidder 2 | $6,355.00 | 102 |

| | | |
|---|---|---|
| Bidder 3 | $8,008.90 | 106 |
| Bidder 4 | $6,275.00 | 90 |
| Bidder 5 | $8,008.90 | 106 |
| Bidder 6 | $6,096.75 | 86 |
| Bidder 7 | $8,008.90 | 106 |
| Bidder 8 | $6,675.00 | 90 |
| Bidder 9 | $8,008.90 | 106 |

## Solicitation

This solicitation was for IT professional services in multiple resource categories. During the evaluation the rates per category across all possible contract years was summed and averaged, and the bid as a whole was given a total score out of 110.

## Financial Weight Comparison

This graph illustrates how rankings change as the Financial Weight increases using the Financial Weighted Methodology. Note that given the duplication of some technical scores and prices, there is some overlap in results which cannot be clearly be shown:

*Figure A-3: Case C - Bidder's Evaluated Rank calculated at given [weight] value (Complete)*