Calculating Procurement’s Value

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Introduction

In today’s global economy, outsourcing, mergers, right-sizing, partnerships, diversity, sustainability, Internet auctions, e-settlement and e-procurement are common themes. Measurable standards, value propositions, cost containment strategies, streamlined transaction processing and return-on-investment are topics which engage organizational leadership’s interest. It is critical that, as procurement professionals we have the ability to quantify and logically explain the various measures used in defining the value that Procurement brings to an organization.

Procurement has embraced change and adapted over the years. The bottom line however is that achieving measurable savings is the principal method by which Procurement can demonstrate its value in supporting the institution’s educational mission. A significant obstacle in quantifying the value of Procurement is the lack of standardization among schools in measuring cost savings and other benefits gained through the actions of Procurement.

The purpose of this article is to propose a universally-accepted definition of cost savings and to identify the tools to use in developing a successful cost savings and benefits program.

Cost Savings and Benefits: What are They?

There are many definitions for cost savings and they can vary greatly among peer institutions. However, one area of common agreement is that Procurement can provide cost savings and benefits to an institution.

The most fundamental way is through the competition process. The most common form of savings achieved is the reduction in the purchase price of goods
and services. Competition results in direct savings through the difference in bid pricing, and often includes specific supplier discounts, as well as the identification of alternate sources of supply.

Another commonly used process is direct negotiations with suppliers. Skilled procurement professionals are able to negotiate long-term contracts, establish firm pricing and limit price increases throughout the life of the contract. Other negotiable benefits are signing, volume and/or rebate incentives.

Strategic supplier partnerships have become popular over the past few years, where Procurement is able to document savings and achieve process efficiencies. Electronic summary invoicing and other procure-to-pay process efficiencies can be implemented to leverage spend with strategic business partners and achieve prompt payment discounts and volume rebate incentives. Suppliers are often willing to extend a variety of value-added services in an effort to gain market share. Value improvements such as discounted payment terms, signing bonuses and other value-added services are now standard in today's marketplace.

The convergence of strategic Procurement initiatives, campus departmental needs, vendor relationships and distributed purchasing tools, such as electronic purchase orders, p-cards and e-commerce applications, create many synergies that result in cost savings and benefits opportunities for the campus community. The resultant savings and benefits opportunities are the “bull’s eye” of Procurement.

![Cost Savings & Benefits: The “Bull's Eye”](image_url)

*Figure 1. Cost savings and benefits are the “bull’s eye” of Procurement.*
For the sake of simplicity, we will use a general definition of cost savings that encompasses many areas, such as cost avoidance, competitive bidding and value-added services. As a result, the procurement sourcing savings and benefits tool kit contained herein is segmented into four categories:

1. Sourcing
2. Consumption / Usage / Inventory
3. Supplier Incentives
4. Process Efficiency / Compliance / Risk Reduction

These categories vary. both in their specific definitions of savings/benefits (i.e., direct savings / "hard savings" vs. cost avoidance / "soft savings"), as well as in their contribution to the bottom line. For the particular focus of this article, we are not concerned with making a strict distinction between cost savings and cost avoidance. The focus instead is on identifying the savings opportunities. The synergy among these elements enhances the overall value Procurement can deliver.

1. Sourcing Savings
When savings numbers are reported, often they are impressive in their size or scope. Having a set of generally-accepted definitions that can be applied to different campus environments is helpful in validating the efforts of Procurement, and adding credibility to the profession. For example, some schools report savings in relationship to list price, while other schools base savings strictly on the last purchase price, while still others report multiple year savings, and yet others do not report any formal savings at all. The calculations included in this article are provided as tools to use in developing a cost savings and benefits program that can be tailored to fit the institution's specific needs.

Multiple Bid Scenarios
The role of the competitive market is essential to balancing supply and demand and achieving sourcing savings. Competitive bidding helps to ensure that a reasonable price is established for a specific good or service. Furthermore, competitive bidding provides a benchmark and serves as a snapshot of the current state of the market economy for a specific commodity at a specific time.
For the purposes of a multiple bid scenario, the moment competitive bids are obtained; the “last buy” price no longer applies since the economic elements of a perfect market are in play. Thus, sourcing savings are calculated as the difference between the awarded bid (what you will pay) and the average of the non-awarded bids (what you would have paid elsewhere in the market with other suppliers), rather than a comparison with the price previously paid.

*Formula: (Average of Non-Awarded Bids - Awarded Bid) = Savings*

**Single Bid Scenario**

It is not always possible to obtain multiple bids for every procurement need. A sole source is generally one where there is only one supplier capable of providing an item or service, and therefore it is not possible to obtain competitive bids. A single source is generally one where there are multiple sources of supply, but for specific reasons the item or service must be purchased from a specified supplier. For the particular focus of this article, we do not distinguish between single source and sole source. The only determining factor is that one bid offering is in play.

In this case, the “last buy” price becomes the most reasonable reference point to determine sourcing savings. The use of list price in these situations can dramatically inflate savings, so in order to bring the “last buy” price current (as its name implies, it is an outdated price), the Consumer Price Index (CPI) can be used as a generally accepted index measure to account for inflation and/or new market conditions in specific geographic areas (www.bls.gov/cpi/). For some commodities, such as electronic components, the Producer Price Index (PPI) may be the fairer measure of commodity-specific inflation (www.bls.gov/ppi/). Accordingly, the “last buy” price must be brought “forward” using the appropriate index. In situations where a contract is several years old, this calculation must be performed for each year, using the specific index value for each year (if the contract is two years old, it must be brought forward twice).

*Formula: [ Last Buy Price x (1 + % ∆ CPI) ] - Awarded Price = Savings*

**Calculating Total Sourcing Savings**

Total sourcing savings calculations are often used as a performance benchmark for Procurement and as a metric for senior management. Total sourcing savings
reports can be time-consuming to compile, but they are a valuable tool. For the purpose of calculating total savings, the following four steps project the estimated annualized total cost savings for each active contract (Note: We use the example of calculating contract savings; however, the same methodology can be applied to individual transactions).

1. **Days Active:** For each contract or sourcing transaction, the date range must be compared against the range of the reporting period (typically a fiscal year or a calendar year) to determine the proportion of time within the reporting period that the contract or sourcing transaction was active. Some measurements may contain two entries, indicating that a contract expired and was renewed within the specified reporting period. The savings associated with each entry will likely be different, which reflects both the previous and renegotiated contract savings.

### Exhibit 1 - Calculating Sourcing Savings

#### Multiple Bid Scenario

Bid results obtained for a widget were: $1.57, $1.15 and $0.87 respectively. The contract was awarded to the $0.87 bidder.

**Calculation:**
The cost savings would be calculated as:

\[
\left( \frac{($1.57 + $1.15)}{2} \right) - $0.87 = $0.49
\]

\[
\text{[Average of Non-Awarded Bids]} - \text{[Awarded Bid]} = \text{Savings}
\]

The percentage cost savings would be calculated as:

\[
\frac{$0.49}{$1.36} = 36\%
\]

\[
\text{Savings / Average of Non-Awarded Bids} = \text{Percentage}
\]

#### Sole/Single Source Scenario

The new bid price is $1.53. The last buy price for this product was $1.40. The percent change in CPI is 3.5%.

**Calculation:**
The cost savings would be calculated as:

\[
\left[ 1.40 \times 1.035\% \right] - $1.53 = -$0.08 \leftarrow \text{Loss!}
\]

\[
\text{[Last Buy Price} \times 1 \% \Delta \text{CPI]} - \text{[Awarded Bid]} = \text{Savings}
\]

The percentage cost savings would be calculated as:

\[
\frac{-$0.08}{$1.45} = -5.52\% \leftarrow \text{Loss!}
\]

\[
\text{Savings} / \text{[Last Buy Price} \times 1 \% \Delta \text{CPI]} = \text{Percentage}
\]
2. **Total Spend**: Total supplier spend reports are run for all contracts or sourcing transactions that were active at any time within the reporting period to calculate the total discounted spend with each supplier.

3. **Cost Savings**: The individual contract or sourcing transaction savings percentages are calculated as outlined previously and repeated below for reference.

   - **Competitive Bids**:
     \[(\text{Average of Non-Awarded Bids} - \text{Awarded Bid}) = \text{Savings}\]

   - **Sole Source**:
     \[
     [\text{Last Buy Price} \times (1 + \% \Delta \text{CPI})] - \text{Awarded Price} = \text{Savings}
     \]

4. **Total Savings**: A weighted-average is then used to approximate the total savings associated with each active contract or sourcing transaction for the reporting period. This approach provides a reasonable approximation of the total savings for all active contracts or transactions within the period. For multiple year contracts, this concept accounts for the fact that pricing was held firm for the entire term, or may include price increases, each of which are recorded for specified date ranges over the life of the contract.

   Since the total spend reports identified in step #2 above reflect the discounted amounts that were actually paid to suppliers, it is necessary to approximate the undiscounted spend in order to estimate the savings. The following calculation can be used to approximate the pre-discounted spend within the period, which is then multiplied by the contract savings percentage to get a weighted-average measurement of total savings for each contract.

   
   \[
   \text{Pre-Discounted Spend for Period} = \left(\frac{\text{Total Savings}}{(\text{Days Active} / 360) \times \text{Total Spend}} - \text{Cost Savings} \% \right) \times \text{Cost Savings} \%
   \]

   The individual contract or sourcing transaction savings are then added together to arrive at an estimate of the savings achieved for all active contracts or sourcing transactions within the period.
2. Consumption/Usage/Inventory Savings

An often overlooked cost savings measurement is linked to consumption or usage. This area has often the most potential for cost avoidance. In short, the greatest savings one can realize is not needing to buy in the first place. Close coordination with the institution’s overall supply chain can result in standardization of items, pooling or sharing of inventories (i.e., stockrooms), reductions in inventories, and/or the use of lower cost items or services.

A simple way to address this measurement category is through inventory analysis. There are several attributes that can be examined:

1. **Item Specification Savings** – These savings result from specification changes, or conversions to technically equivalent items with lower costs. Savings is calculated by taking the cost of the previously used item in comparison to the new item.

2. **Consumption/Usage Savings** - An examination of the use of the item throughout the supply chain may reveal areas of over-consumption or misuse. For example, discarding an item in the trash rather than reusing it is costly. Also, ordering products which go unused and expire on stockroom shelves is a waste. In these cases, savings can be calculated by taking the historic costs in comparison to the revised inventory costs.

3. **Inventory Draw-Down Savings** – Inventorizing smaller quantities and taking advantage of supplier just-in-time deliveries can result in lower inventory and carrying costs. The savings in this case can be calculated by a one-time value of avoided purchases through the use of excess inventory.

### Exhibit 2 - Calculating Total Sourcing Savings

The following three contracts were renegotiated during the fiscal year beginning on July 1 and ending on June 30. You are asked to provide data on the total savings achieved for this period:

<table>
<thead>
<tr>
<th>Contract</th>
<th>Date Range</th>
<th>(days active)</th>
<th>Savings</th>
<th>FY Spend</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contract A</td>
<td>Aug 1 – Dec 31</td>
<td>(152)</td>
<td>10%</td>
<td>$100,000</td>
</tr>
<tr>
<td>Contract B</td>
<td>Jan 1 – Dec 31</td>
<td>(181)</td>
<td>5%</td>
<td>$250,000</td>
</tr>
<tr>
<td>Contract C</td>
<td>Jul 1 – Jun 30</td>
<td>(365)</td>
<td>-3%</td>
<td>$125,000</td>
</tr>
</tbody>
</table>

Using the total savings calculation outlined in this article, the individual weighted-average total savings are calculated for each contract and added together, which estimates the total savings achieved for the period:

<table>
<thead>
<tr>
<th>Contract</th>
<th>Calculation</th>
<th>Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contract A:</td>
<td>$100,000 / (1 - .10) * .10 = $4,627.09</td>
<td></td>
</tr>
<tr>
<td>Contract B:</td>
<td>$250,000 / (1 - .05) * .05 = $6,524.87</td>
<td></td>
</tr>
<tr>
<td>Contract C:</td>
<td>$125,000 / (1 + .03) * -.03 = $3,640.78</td>
<td></td>
</tr>
<tr>
<td>Total Savings for Period</td>
<td>$7,511.18</td>
<td></td>
</tr>
</tbody>
</table>
In its simplest form, it is the value of the amount that can be avoided. Care must be taken not to double-count these savings.

**Exhibit 3 - Consumption/Usage/Inventory Savings**

1. **Item Specification Savings.**  
The stockroom manager changes to a different brand of gloves. Each year 2000 cases of gloves are purchased and stocked for campus use. The old gloves cost $10.86 per case, while the new gloves cost $10.77 per case. The item specifications savings in this example would be the previously purchased price ($10.86 * 2000) less the cost of the new functionally equivalent item ($10.77 * 2000), or $180 for the period.

2. **Consumption/Usage Savings.**  
The stockroom manager decides to reevaluate the type of gloves maintained in the stockroom. In prior years, 2000 cases of Company A’s gloves were purchased and stocked for campus use. Each of Company A’s gloves had a failure rate of 5% (that is 5% of product would break upon initial use). Company B’s gloves, on the other hand, had only a 2.5% failure rate. The price for Company B’s gloves was only 1% higher than Company A’s. By switching to Company B’s product to get the same number of usable gloves (1900 cases), we only needed to purchase approximately 1950 cases. Therefore, the savings for this period would be the old cost of $21,720 to get 1900 usable gloves (2000 * $10.86), less the new cost of $21,391.50 to get 1900 usable pairs of gloves (1950 * $10.97), or $328.50.

3. **Inventory Draw-Down Savings.**  
The stockroom manager decides to reduce the inventory of gloves maintained in the stockroom in the future. In prior years, 2000 cases of gloves were purchased and stocked for campus use. Due to improvements in delivery, only 500 cases of gloves will be maintained on hand in the future. The inventory levels are subsequently drawn-down to 500 over the course of the next year. The price of the gloves was $10.86 per case. The inventory draw-down savings in this example would be calculated by the one-time value of avoided purchases (2000 – 500 = 1,500) through the use of excess inventory (1,500 * $10.86), or $16,290 for the period.

3. **Supplier Incentives**

Another important savings area deals with supplier incentives. This category can be especially important where cash for sourcing and procure-to-pay programs is in short supply. Additionally, these programs are generally restricted because of their funding models, through state appropriations or grants. This category can include a variety of incentives derived directly from suppliers.

- P-card rebates
- Catalog fees
- Electronic transaction fees (i.e. EDI)
- Prompt Payment Discounts (i.e. 2/10 net 30)
- Volume-based patronage/earned incentives
- Retroactive supplier payments
- Signing bonuses
The calculations in these areas are fairly straightforward, in the form of incremental revenues or generated credits. For example, a five-year office supplies contract is negotiated and the supplier offers a $20,000 signing bonus, plus 2% net 10 payment terms. In addition to the sourcing savings that may have been achieved on this contract, the signing bonus amount can be pro-rated across the life of the contract (in this example, $4,000 per year) and included in the total savings measurement. Also, if on average $250,000 is spent per year on office supplies, then an additional $5,000 (2% x $250,000) can be claimed. Be mindful, however, that some suppliers may merely increase their unit prices to cover the costs of these incentives. The best strategy is to negotiate prices first, then negotiate the terms and incentives.

Supplier incentives have often been used as a funding source to support an institution’s procure-to-pay (P2P) process and technology improvement program. This approach has been used by many institutions without challenge by their auditors. It is also consistent with funding models used for projects in other federally funded sectors, including military and aerospace. Before initiating such a supplier incentive program, it is best to develop the business case that outlines the P2P program and highlight why it is in the best interest of the suppliers to offer the related incentives.

4. Process Efficiency, Compliance and Risk Reduction

An electronic P2P system will greatly streamline procurement and payment processes, reduce errors, improve the capture of spend through on-line access to supplier catalogs, and significantly compress the payment cycle. These combine to reduce a supplier’s working capital requirements. Though traditionally considered “soft,” these categories of savings are nevertheless real, especially to end-users, auditors, and funding sources.

By streamlining and automating the procurement, sourcing and payment functions, low-dollar/low value-added activity can be wrung out of the process. Examples include online catalogues, electronic requisitioning and receiving, and summary invoicing. In some instances, transactional reductions may lead to headcount reductions, which are “hard” and easily quantified. These process efficiencies can enable resources to be redeployed, such as for strategic
End-user time savings are harder to quantify, but they too are also real and may be included as a value-added benefit of an integrated procure-to-pay program. To estimate end-user process benefits, before-and-after timed activity sampling can be used, as well as before-and-after process mapping. Generally, unless headcount reductions are achieved, this is a benefit that is written about, but often not calculated.

In the carefully monitored arenas of education and research, procure-to-pay applications play a large role in ensuring compliance with regulations and funding requirements. Fraud or malfeasance can have a negative impact on an institution’s reputation and result in the loss of federal contracts and grants. Failure to meet grant and subcontract requirements (such as diverse/small business targets) can result in fines, the loss of grant monies, and even recoupment. Although avoided risk is not easily quantified, it is a benefit which should be claimed when assessing the value of an effective program.

Other types of risk avoidance enabled by a robust procure-to-pay program include employee fraud detection (through the separation of duties), double payment reduction (through invoice matching), receipt of goods assurance (through receipt matching), and the exclusion of unqualified/debarred suppliers (through comprehensive supplier tracking activities).

**Reporting Cost Savings and Benefits**

By using the methodologies outlined in this article, total savings can be fairly measured for the contracts or sourcing transactions during the reporting period in question.

In the absence of a market analysis (competitive bidding), existing active/valid contracts are included in the total measurements because they are still actively saving the institution money. There has been a great deal of discussion concerning whether savings should be reported for multiple year contracts. Some institutions have chosen to report cost savings in the first year only, while others have reported cost savings over the entire contract term. Regardless, any total savings calculation should be viewed as a tool for institutions to apply as
necessary and appropriate within their own environments.

Overall, this approach approximates the total savings and benefits associated with each active contract or sourcing transaction for their valid date ranges to arrive at a measurement of total savings for the reporting period in question. Electronic databases or spreadsheets can allow the total savings calculation to be adjusted for any date range at any point in time.

**Responding to the Campus Community**

In order for a cost savings and benefits program to have endorsement, the campus community must understand and agree with the methodology. Calculating savings and applying the principles to every-day scenarios can be complex, involving many variables.

It is important to keep in mind that from a campus community perspective, “savings” is generally viewed against the previously paid price. Often the campus community is not aware of current market conditions or other economic or industry factors that may have an effect on pricing.

Therefore, educational outreach efforts should be made within the campus community to emphasize that even though it may be paying more than previously, it is in fact saving money by utilizing a contract source or competitively bid supplier. End-users need to understand and acknowledge that, as a result, the price they are actually paying is less than the price they would have paid on their own, in the absence of Procurement’s involvement and assistance.

**Critical Success Factors**

A successful cost savings and benefits program must be both reasonable and thoroughly documented to demonstrate value and withstand audit and challenge. The following critical success factors should be considered.

1. **Documentation** - Measurements should be linked to specific Procurement contracts or sourcing transactions that are well documented. The contract or transaction file should contain the results of the competitive bid and/or other documentation necessary to document price reasonableness and justify the reported savings/benefits.
2. **Date-Driven** - Cost savings and benefits must be linked to actual supplier spend for the date ranges over which the savings are projected.

3. **Price Point of Comparison** - The use of competitive bidding or the “last buy” price adjusted for inflation are standard methods that provide process, analysis and details to substantiate price point comparisons.

4. **Report Losses and Savings** - The existence of a competitive market is helpful, but changing market conditions and the law of diminishing returns may eventually "dry up" the savings at some point. As a result, cost increases will sometimes be a fact of life. Therefore, both savings and losses should be reported.

5. **Be Conservative** - Given the choice between reporting a larger or smaller measurement, it is preferable to err on the side of the smaller number. The credibility of your entire Procurement program can be undermined if exaggerations, errors, or discrepancies are found.

**Conclusion**

A reasonable approach and a defined set of tools have been detailed in this article. Having a set of generally-accepted definitions that can be applied to different institutional procurement environments is critical. A structured program that provides relevant information to departments demonstrates the value provided by Procurement. When Procurement can adapt to changing environments, and identify trends that impact prices, the results will continue to validate Procurement’s efforts and will solidify its credibility and necessity within any organization.

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