# Affordability in a Performance-Based World

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**Today, the Office of Management and Budget measures each program to determine if it will get funded. A higher rating will be received if a performance-based approach has been chosen.**

**"GIVE ME LIBERTY OR GIVE ME DEATH!"** Patrick Henry had a very clear statement of objectives. He didn't have any idea how to achieve the objective, but he figured it would include "taking up arms". Liberty was achieved within the next few years.

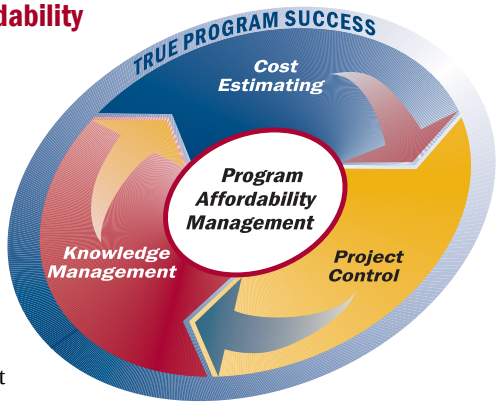
Most of us won't have to put our lives on the line as we define distinct Statements of Objectives for government procurements. However, as Performance-Based Acquisitions become more common, it will become increasingly difficult to execute a successful procurement. Many of the tools for success in a performance-based world are still evolving or, in some cases, not developed yet. Surprisingly, some tools are available and are being applied successfully. This paper will describe the successful methodologies used by many performance-based acquisitions throughout the commercial and government procurement processes.

## The Performance-based Acquisition Impact

As more and more government contracts become performance based, it is harder for acquisition professionals to assess, evaluate, and award contracts. At first glance, this difficulty may seem to be a minor item, but anybody who has been through the process knows there are significant challenges associated with performance-based acquisitions. Performance-based acquisitions require more pre-planning and discipline than the typical acquisition approach. In this paper, we discuss the Seven Steps to Performance Based Contracting that are taught to government employees. We will discuss methods for reducing risk early in the process and new innovative approaches to monitor contractor performance to assure the acquisition is proceeding well.

Today, the Office of Management and Budget (OMB) measures each program on a certain set of criteria to determine if a program will get funded. Although OMB does not have specific direction to insist on performance-based acquisitions, the program gets a higher rating if the program manager has chosen a performance-based approach. Guerra, Kiviat, Flyzik & Associates, Inc. teach courses on the impact on performance-based acquisitions, and show that OMB rates each program on a scale of 1 to 5. A program that receives a rating of "1" is considered too risky and will not be funded. A program that receives a "5" is well planned, well documented, and considered manageable. No program will be rated higher than "3" unless it is a performance-based acquisition. Although there will always be exceptions to the rule, most program managers don't want to go before OMB and ask for an exception. Historically, Department of Defense programs have not been subject to the OMB oversight rules as strictly as other programs. However, in this case, even the Department of Defense leadership has agreed with the strict approach to oversight of programs. This OMB oversight causes government managers to focus on issues early and define risks before receiving funding. Programs with added risk are reviewed yearly or more often if necessary.

## Program Affordability




Program Affordability is a concept that has been used for over a decade, driven by the Federal Acquisition Regulation (FAR) requirement for Affordability Management on major programs. As the Office of Management and Budget has developed higher expectations for all programs, disciplined Affordability Management™ has become critical. OMB has implemented measures that require programs to perform Affordability Management. Without these activities in place, programs will not get funded or will be funded at risk.

Program Affordability Management contains three primary elements to be successful: accurate cost estimates, structured project control, and knowledge management. These elements can be implemented at any time in a program, but all three must be present at some level to assure program success. All of these elements are disciplines that any program manager would require upon to assure success. However, typically each element is performed in isolation of the other two. Truly successful pro-

grams master the three disciplines and ensure information gained from the project control process feeds back into the cost estimates, and project information is stored, normalized and then reused for more accurate cost estimates in the future. Program Affordability Management dictates these three elements work together to continually refine the program manager's picture of the program at any given time in the program life cycle.

Program offices implement the Program Affordability Management elements in many different ways. For example, project control can be done through a rigorous earned value management system or through quarterly program reviews where financials are discussed. The degree of implementation will vary with each program depending on the risk and the visibility of the program. That level of implementation is not discussed in this paper. Rather, the idea that some level of implementation is a basic assumption.

Program Affordability Management can be implemented at any time in procurement. The most effective time is at the very beginning, as outlined in the following paragraphs. However, even program managers that have implemented affordability methodologies after award have seen immediate major impacts on their programs. The methodologies described here for Program Affordability Management are only an executive-level description of the tools and techniques program offices use. As with any methodology, it will need to be tailored for the specific program and further analysis on the value should be researched before the methodology is blindly accepted. It is critical that a program manager use the program affordability methodology that has been successful in other similar programs. It is also important that the professionals chosen to implement the methodology are seasoned professionals that understand the process, understand acquisition, and have an appreciation for the uncertainties and challenges surrounding the government acquisition cycle.

## Program Affordability Management in a Performance-Based Acquisition

Throughout the federal government, procurement and acquisition professionals as well as program offices are taking classes to learn the details of the performance-based acquisition approaches. Most of the training follows a seven-step process defined as **"The Seven Steps of Performance-Based Acquisitions".** These Seven Steps map well to different activities within Program Affordability Management. In this paper, we will discuss each activity as it applies to the Seven Steps. Each of the Seven Steps will briefly be discussed followed by a discussion of the Affordability activity related to that step.

| Step | 7 Steps of Performance-Based Acquisition | Program Affordability Activity |
|---|---|---|
| 1 | Establish integrated solutions team | Include a cost advisor to assess alternative approaches |
| 2 | Decrible the problem | Document problem in cost drivers |
| 3 | Examine Private and Public sector solutions | Perform Analysis of Alternatives (AOA) as solutions are presented |
| 4 | Develop Performance Work Statement (PWS) or Statement of Objectives (SOO) | Determine realistic objectives using CAIV |
| 5 | Determine performance metrics | Identitfy cost measurement metrics for baseline and updated |
| 6 | Select the right contractor | Cost analysis based on a defined baseline |
| 7 | Manage performance | Gather cost metrics and update projections through predictive Earned Value Management (EVM) processes |

## Step 1: Establish Integrated Solutions Team

This is the initial step for starting any procurement action—especially a performance-based procurement. This step contains several actions for the new program manager and team.

- Ensure Senior Management involvement and support
- Tap multi-disciplinary Expertise
- Define Roles and Responsibilities
- Develop rules of Conduct
- Empower team members
- Identify stakeholders
- Develop and Maintain a Knowledge Base over the project life
- Incentivize the team

### PROGRAM AFFORDABILITY ACTIVITY

A critical member of the team is someone who can understand the cost aspects of the procurement. This is not always a CFO or financial expert, but it can be. The cost expert must be someone proficient in cost estimating techniques. One of the best techniques for performance-based acquisitions is one called “parametrics”. Simply stated, parametric cost estimating takes historical data, combines several data points together mathematically in a way that is useful, then allows the user to leverage the historical data for new estimates that are different, but similar. Most people do this to some degree in their daily activities without realizing it.

For example, when preparing to buy a house, there is a certain dollar amount per square foot that people are willing to pay. This dollar amount is based on a historical database of people within a certain wage bracket, interest rates, and local housing market. That one parameter can help a person plan their home purchase significantly before they even decide what style of home they want or the number of rooms. Their final solution possibilities can vary wildly, but the same parameters still apply.

In performance-based contracting, the solutions proposed are sometimes wildly different, too. However, as with the house example, these solutions have similar functions yielding similar results. Therefore, identifying the key parameters early, defining how those parameters drive the solution, and preparing an accurate parametric cost model in the beginning is very valuable. These items can be used throughout the acquisition and the program, as we will discuss later.

Part of building that parametric model is gathering cost knowledge. Although there are many elements of knowledge needed for procurement, cost knowledge is critical. Some commercial models have some knowledge bases built into them. Some of this knowledge may be helpful to the team. Other knowledge will have to be gathered as the procurement proceeds. Research into knowledge that is vital for good decision-making will make or break the procurement team. Excellent knowledge elements will allow the procurement team to make quality decisions and accurately assess alternatives. Without a good knowledge base, affordability items included, the contractor will always have the upper hand.

## Step 2: Describe the Problem

Once the correct team is built with all the roles and responsibilities defined, then the first action they take is to define the problem. This is difficult because many people want to define the solution. That is not the purpose here. When performance-based acquisition is taught to government employees they stress NOT to define the solution or to even assume you know what the solution is at this point. Concentrate on the problem. They encourage the team to link the problem all the way back to the President's Management Agenda. Also, they should link the problem directly to part of the agency or Department mission.

- Link the acquisition to the mission of the agency and the performance objectives
- Define the desired result
- Focus on strategic planning
- Decide what constitutes success
- Determine current levels of performance for benchmarking

### PROGRAM AFFORDABILITY ACTIVITY

Two things are critical here from an affordability perspective. First, the team needs to look at the desired result and determine the cost drivers. This is not easy, but if the research was done properly, then some basis for determining the cost drivers has been defined. Additionally, all the cost drivers don't need to be defined. What is important is to recognize that every problem has cost drivers that impact it. In our earlier example, we discussed the cost per square foot of a house. There are many cost drivers that impact the house cost—type of materials, location, type of grade on the lot, amount of complex fixtures, etc. Many may not apply to the final house solution. The idea in this step is to simply identify the drivers.

Second, once the team has an idea of what some of those cost drivers are, they will know what to measure for the benchmarking activity. Keep in mind that cost drivers are a great way to incentivize the contractor. If the program office knows what the cost drivers are, then they know what metrics to track to assure the contractor is performing. Also remember that the procurement team doesn't know the solution at this time, so the detailed cost drivers are still unknown. This is why a parametric approach is so helpful. To understand this, consider an example. You want to shelter a piece of equipment. You know this piece of equipment is a certain size. One of the major cost drivers is the building to shelter it in. If you need air conditioning, the cost of the air conditioning will depend on the size of the building. One parameter—building size — helps you define your overall cost at this early stage.

## Step 3: Examine Private and Public Sector Solutions

This is where the team does its market research. They gather information and add new information to any existing knowledge base. The team should see solutions that are working that might be similar. They are encouraged to invite companies to show solutions that might apply to their problem. This gives the team an opportunity to understand the risks, challenges, and options that might be associated with the procurement. It

also gives them an opportunity to refine their understanding of the problem, especially if other public sector groups have solved similar problems. Specifically, they are taught:

- Take a team approach to market research—everybody participates
- Spend time learning from public-sector counterparts
- Talk to private-sector companies before structuring the acquisition
- Consider one-on-one meetings with industry
- Look for existing contract vehicles
- Document the market research findings

**One activity that happens during this step is that the government often puts out a Sources Sought or Request For Information. As contractors respond, it gives the team an opportunity to understand a variety of solutions.**

### PROGRAM AFFORDABILITY ACTIVITY

During this step, the team will be assessing affordability issues. What have historically been the cost drivers of programs? What were the surprises? Is the historical knowledge base adequate to effectively model a given solution? Even with no specific solution defined, many of these questions can be answered. Many data sets exist such as PRICE tables, metrics, and cost estimating relationships (CERs) that can help find normalized metrics for similar projects in the public and private sectors. The team can then scale the information to the specific project size and complexity to get a 'should-cost' for the solution. As the contractors and other government agencies give insight into their programs, challenges, and issues, the team can start to lay the framework for what will become metrics that will be measured. Specific metrics will be defined later, but the framework for what those metrics are going to be will become more defined during this time.

In the shelter example above, the team may find out that square footage is not the only critical factor, but volume needs to be considered—which drives the size of the air conditioning system. A risk area might be location since a shelter in Florida needs to withstand hurricanes, but one in Alaska needs to withstand very cold temperatures. The knowledge base will continue to be refined as the research continues. More cost drivers will be understood and the ones that are understood can be refined. By the end of this step, the team should have a first cut at critical metrics they believe are necessary for successful performance. No specific solution is defined yet, but critical parameters are understood.

## Step 4: Develop a Performance Work Statement (PWS) or Statement of Objectives (SOO)

During this step, the team is taking all the information gathered in the previous steps and deciding what needs to be specifically communicated to the contractor for a successful bid. This requires the team to put all their information in a matrix and "map" the pros and cons of their findings to the original mission or problem. Then they write the Performance Work Statement (PWS) or Statement of Objectives (SOO) with clearly defined constraints. These are the elements of this step:

- Conduct analysis of requirements and outcomes
- Define measurable performance standards
- Capture results in a matrix for historical purposes
- Identify constraints
- Write the SOO or PWS

**This is a very critical step in the overall process because this lays the groundwork for everything after this point. It is the foundation of the whole acquisition. If this is done incorrectly or incompletely, the team will experience problems from this point forward.**

### PROGRAM AFFORDABILITY ACTIVITY

During this step the team will perform Analysis of Alternatives. Based on the model set up earlier, there will be several alternatives to address. Each will have different constraints imposed upon it and each will have different outcomes. It is very important to perform these trade-offs using Cost As an Independent Variable (CAIV) techniques. No alternative that is reasonable should be easily dismissed. The results of this analysis will feed directly into the matrix. If a high definition model is used, risk assessment can be performed on the cost drivers and constraints. Variations in the constraints can be worked through the model to show a relative cost impact.

By the end of this step, the team should have a good parametric model of the problem with several variations of solutions that are possible. The purpose of developing these variations at this time is not to choose a solution. It is to provide the team a basis from which to assess the contractor's responses. The contractor will respond with solutions that are unique and the model, if built properly, can be adjusted to allow for an adequate assessment of each contractor's proposal.

## Step 5: Determine Performance Metrics

During this step, the team is developing options for how they will oversee the procurement activity. This is when specific earned value requirements are developed and discussed with the contractors. In some cases, industry standards will drive the metrics. As discussed above, those pieces of the program that are considered cost drivers should help define the metrics. Managing these performance measures is also a challenge. There should be a process in place that allows both the contractor and the government team to work together and review the measures routinely. Sometimes the type of contract limits the type of performance measures that are possible, so the team must determine the best contract type for the government. Some items for consideration here are:

- Review success criteria
- Analyze contractor proposed metrics
- Select a limited number of metrics for measuring
- Identify the right type of contract
- Determine the right incentives—may be different for contractors

One key element is the type of incentive to be considered. For example, one contractor may be highly motivated because they need a good quality reference. In that case, the incentive may be a joint press release or an agreement to do some joint sessions at an annual conference. In

another case, the best incentive may be a noncompetitive follow-on contract. These incentives need to be addressed on a case-by-case basis.

### PROGRAM AFFORDABILITY ACTIVITY

During this step, the team is comparing different alternatives proposed by the bidders. The project baseline is being developed with variations for each bid that is presented. If the model was built properly in the previous steps, these variations can all be assessed and understood. Also, the team will assess the overall impact of the metrics identified. Are they truly performance items? Do they warrant being considered for evaluation? If they are not related to a cost driver or a risk item, then what is the reason for using it as a metric? There may be legitimate reasons for having metrics that are not related to cost drivers, but they need to be understood. Total Ownership Cost should always be one measure of success for the program. To assure Total Ownership Cost is measured, programs need to perform a life cycle cost estimate that is updated routinely throughout the program. This will assure no surprises. The result from this step should be a financial plan for incentives that includes an understanding of the risk associated with the plan. Both contractor and government should proportionately share in the risk, based on the effort and the contract type, and the risk should be well documented.

## Step 6: Select the Right Contractor

The team will have contractors perform oral presentations of their solutions and evaluate each one. This may be a lengthy process depending on the complexity of the solution. Past performance evaluation will be critical since risk will be shared. If the contractor is proposing performance metrics, then the team needs to understand if these metrics are ones the contractor has been able to meet in the past. In some cases, the teams are encouraged to allow the contractors to have a "due diligence" period where the contractor is allowed to interview the government prior to putting together their proposal. The key elements of this step are:

- Compete the solution
- Allow due diligence when appropriate
- Use oral presentations
- Perform source selection

### PROGRAM AFFORDABILITY ACTIVITY

This is when all the model development and research comes to fruition. During this step the team will assess each proposed solution against the earlier models. The model can be changed to reflect the different incentive plans. The government team for each bid being evaluated should perform an independent assessment of the true cost of the program. Before the final selection is completed, the government should have a very well defined cost model of the solution being accepted. This model will be the very basis of the program control that will be put into place once the contract is awarded. The performance incentives will be measured against parameters within the model and to determine how well the contractor performs to the cost drivers agreed upon during this phase.

The Program Office needs to be an educated consumer and not take contractor proposals at face value. All contractors, by nature, are overly optimistic about the total program cost. Program Managers need to ensure that the program is adequately funded throughout its life cycle, taking into account the uncertainties and inherent risks. Based on accurate independent analysis, they can establish an adequate budget and set contractor incentives to ensure that the program is delivered within that budget. Also, they can establish measures that will ensure that program's legacy will remain within budget during its entire life cycle.

## Step 7: Manage Performance

This is clearly not a simple step. Managing contractor performance takes a different set of skills than selecting the contractor. Historically, this has been handed off to an entirely different team of people who had no insight into the acquisition process. One of the keys to successfully managing performance is that the same team should stay involved after the source selection is completed. Many programs falter at this stage because they are handed off to a team that was never involved in the first six steps. If the team was selected properly, they will stay engaged throughout at least the early stages of the program. Together, the contractor and government will form a team that will monitor and assess progress on a routine basis. How often and how detailed will depend on the specific program. The best programs function as one integrated team including both the contractor and the government. Key elements that need to happen here are:

- Keep the team together
- Adjust roles and responsibilities from pre-selection to post-selection
- Assign accountability for managing performance
- Perform a formal kick-off meeting with both contractor and government present
- Regularly review performance

### PROGRAM AFFORDABILITY ACTIVITY

This step is where effective program control comes into place. It is critical that the contractor is incentivized not just on completing the current phase of the program within budget, but that they are measured on the predicted cost of subsequent phases. It completes the circle of Program Affordability Management. As performance is being measured, the metrics are being fed back into the baselined models and new cost estimates are being generated. This allows the team to accurately assess the impact of performance and life cycle costs and any changes that are needed. Before a change is approved, the total life cycle cost impact can be known and the impact fully understood. This activity is critical to the success of any program, but even more critical to performance-based programs because changes cause the baseline to become obsolete. When changes happen, and they always do, the whole team can understand the impact and agree upon how performance measures will be adjusted. This keeps the contractor happy and the government fully aware of the impacts of the changes. It is this total life cycle view that keeps programs affordable.

## Summary

Performance-based acquisitions provide challenges to program offices that are over and above what has been demanded of them in the past. These challenges can be met with the use of tried and true methodologies. Program Affordability Management™ methodologies will allow the program office to set reasonable expectations, make disciplined decisions, and track progress throughout the program.

Program Managers will implement some form of Program Affordability Management. It may be well structured or hidden within existing practices. Performance-based Acquisitions make affordability management methodologies very important to capture cost drivers, define risks early in the procurement, develop reasonable and measurable metrics, and help the program office keep the program on track. The table below shows a summary of what a program office should prepare from a perspective of Program Affordability Management.

Program Affordability Management methodologies can be started at any point in the acquisition process. It is always best to start them early, but program managers have had very good results implementing them even after contract award. It is important to implement these affordability methodologies using professionals that are seasoned and understand the challenges with the specific program and the acquisition process overall. These methodologies are repeatable, so one program office can leverage the experiences of others. The challenges are great, but the tools and methods are available to make the challenges less risky and the potential for success much higher.

**We may not have to write a statement of objective (SOO) like Patrick Henry did, but as we face the challenges of our generation, we can solve them with confidence, keep them affordable, and make them successful.**

| Standard | Cost Estimating | Knowledge Capture | Program Control | Reporting |
|---|---|---|---|---|
| **Minimally Acceptable** | Initial baseline model developed and submitted with budget (OMB Exhibit 300) | Totally rely on contractors to develop history and build repository. | Work Breakdown Schedule and program milestones defined. Baseline and change control responsibility left with contractor | Periodic CPR updates from contractors to management. Cursory analysis. |
| **Good Affordability Management** | Functional and Performance-based Parametric Model of initial baseline. Formal basis of estimate for program established. | Capture and correlate similar program and contractor's data for full-cost reference points | EVM applied to contractors in accordance with ANSI/EIA 748 criteria | Consistent EVM reporting, variance analysis, EAC updates for ongoing reports to management |
| **Best Affordability Management Practices** | Federal Enterprise Architecture and agency mission integrated, Performance-based parametric life cycle model updated throughout program | Continuous EVM metric capture and normalization for ongoing planning reference | Portfolio-wide EVM applied to full program and evaluated continually | Comprehensive portfolio performance “roll-up / drill-down dashboard” visibility |

PRICE Systems offers a complete Program Affordability Management™ solution with a combination of world-class technology and seasoned consultants. Cost modeling and knowledge management tools enable users to capture critical data and build quality cost estimates. Consultants bring implementation experience and best practices in specific program control methods including Earned Value Management. The combination of technology, consulting, and compliance enables an agency or office to implement a complete Program Affordability Management solution maximizing your return on investment.

If you would like further information on how PRICE Systems can assist you in implementing a Program Affordability Management solution, please call 1-800-43-PRICE (USA, Canada, Asia-Pacific) or +44-1256-760012 (Europe).

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