

Long-Run Costs and Performance Effects of Competitive Sourcing

Frances Clark
Cheryl Rosenblum
Murrel Coast
Elaina Smallwood

Center for Naval Analyses
4825 Mark Center Drive • Alexandria, Virginia 22311-1850

Contents

Summary	1
Long-run savings are real and sustained over time	3
Performance is satisfactory.	3
Other issues or trends affected the competitive sourcing program	4
Recommendations	5
Improving DoD’s ability to track savings.	5
Improving transitions.	5
Improving the quality of A-76 implementation.	6
Introduction	7
Background.	7
Purpose	8
Summary of competitions	9
Distribution by service	10
Distribution by function	11
Problems with data collection	11
Long-run savings from competitions	15
Evaluating savings.	15
Are long-run savings real?	17
Are savings rates sustained?	19
What is happening to savings and costs after the first solicitation period?	22
How do observed costs fit into the picture?	24
Contract versus in-house	26
Are there savings trends by function?	27
How do our results compare with the results of other studies of cost savings?	35
Post-competition performance	37
Was overall performance satisfactory?.	37
Did performance change over time?	41
Does performance vary by type of personnel interviewed?.	43

Other issues or trends affecting the successful implementation of the competitive sourcing program	45
Were the documentation and implementation of competitions adequate?	45
Were PWSs performance-based?.	47
Is competitive sourcing implemented strategically?	48
Conclusions and recommendations	51
Conclusions.	51
Savings are real and sustained	51
Performance is satisfactory	51
Documentation needs to be improved	51
PWSs are prescriptive.	52
Recommendations	52
Improve DoD’s ability to track savings	52
Improve packaging	53
Improve transitions	54
Improve the quality of A-76 implementation	54
Appendix A: Methodology	57
Competition selection	57
Criteria	57
Telephone screening	59
Data collection	59
Installation interviews.	59
Documentation review	60
Supplementary data.	61
Data analysis	61
Tracking cost changes	61
Comparing costs and savings.	64
Caveats and assumptions.	67
Scope and workload changes versus one-time cost increases	67
Baseline costs	68
Labor augmentation	68
Annualizing costs	68
In-house wins	68
Wage changes	69

Appendix B: Selected CNA competition and outsourcing bibliography	71
List of figures	73
List of tables	75



Summary

Between FY 1997 and FY 2005, the Department of Defense (DoD) plans to compete roughly 203,000 of the full-time positions (FTEs) in which people are performing commercial functions. This effort, which is part of DoD's competitive sourcing program, was begun in FY 1997. The Department estimates that it will save roughly \$9.2 billion in operating costs during that period, and \$2.8 billion in annual recurring savings after FY 2005. These savings will help fund modernization and improve readiness.

As a consequence, it is important to know whether these savings targets are realistic. Past reviews of the competitive sourcing program conducted by CNA and other organizations have estimated that the program saves 30 percent or more of the pre-competition cost of performing the function. However, there is some concern that these estimated savings may not materialize; that they cannot be sustained over time; and that if savings are achieved, they will be coupled with a significant decrease in the quality of performance. The purpose of this study is to address these concerns and examine whether the expected level of savings can be achieved and maintained over the long run without affecting the quality of services provided.

To look at these cost and performance issues, CNA examined 16 competitions completed between 1988 and 1996. Initially, we hoped to examine at least 30 competitions completed during this time frame; unfortunately, problems with insufficient and missing data forced us to limit our analysis to 16 competitions. These competitions, which consisted of 14 contract wins and 2 in-house wins, accounted for \$100 million in annual pre-competition operating costs and more than 2,800 military and civilian positions. Eleven of the competitions were conducted by the Air Force, three by the Army, and two by the Navy. These 16 competitions represent about 15 percent of the positions competed between 1988 and 1996. They also represent the major types of functions that are available for competitive sourcing, functions such as

supply/logistics, facility and family housing maintenance, and aircraft maintenance.

For the 16 competitions included in our analysis, we collected actual costs and all available performance information from the time of competition through FY 1999. To evaluate whether savings were sustained over time, we calculated the *expected* level of savings for each competition (based on the difference between the pre-competition costs and the winning bid) and compared these savings estimates with the post-competition costs under two scenarios. The *expected* savings are the estimated savings that are identified at the completion of an A-76 competition.

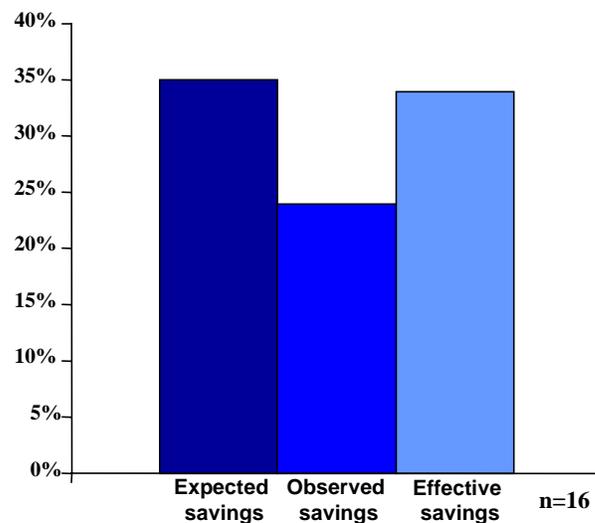
First, we looked at *observed* costs, or what DoD actually spent for the provision of services, for each year after the competition. Observed costs include any increases or decreases in costs that result from changes in scope, workload, wages, and one-time cost adjustments.

Next, we estimated *effective* costs, or the cost to DoD of providing the *same set* of services as originally identified in the cost comparison. Effective cost estimates exclude cost changes that would have occurred whether or not the function was competed. For example, in one competition the *observed* costs of providing services increased by over 15 percent from 1991 to 1992. This increase was due to additional workload needed to support our military in the Persian Gulf. This type of increase in workload, and therefore cost, would have occurred no matter who provided the necessary services, be it a contractor or in-house labor. Therefore, the *effective* costs for 1992 would be adjusted to remove these one-time costs. By adjusting the data to exclude these types of workload, scope, wage, and one-time costs, effective cost estimates allow us to compare changes in cost while keeping the original scope constant. Comparing *effective* and pre-competition cost estimates provides insight into true cost growth. Estimating *effective* costs and savings allows policymakers to assess the value of the competitive sourcing program and make appropriate adjustments to improve its implementation.

Long-run savings are real and sustained over time

For the sample of 16 competitions, our analysis indicates that the savings achieved from competition are sustained over time. The expected savings for this group was 35 percent for the first solicitation period, with an estimated effective savings rate of 34 percent (indicating that savings are not degrading over the first solicitation period). Even with all wage, scope, and workload changes included in the cost analysis, a substantial level of observed savings (24 percent) is realized. These savings appear to continue through subsequent solicitation periods. Figure 1 summarizes these savings.

Figure 1. Summary of savings



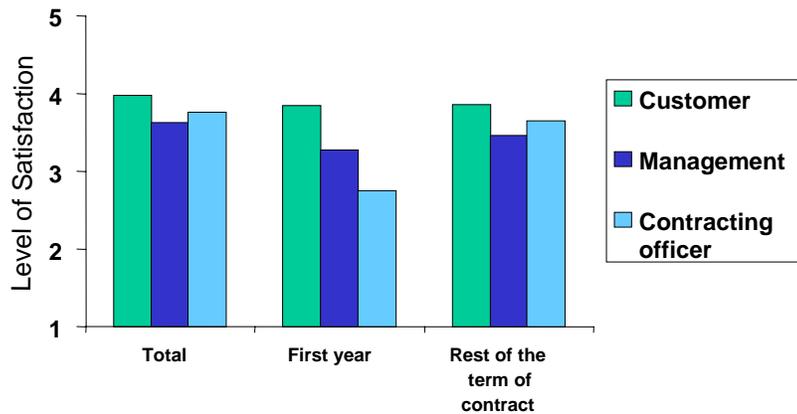
Performance is satisfactory

For the 16 competitions included in our analysis, we conducted interviews to determine the extent to which customers, management, and contracting officers are satisfied with post-competition performance. On a scale of one to five, with one being dissatisfied, three being neutral (neither satisfied nor dissatisfied), and five being satisfied, on

average, overall performance was ranked between neutral and satisfied.

Performance levels tended to be lower during the first year, particularly if tensions created during the competition continued into contract performance, or if the transition proved to be more difficult than expected. On average, customers were more satisfied with performance than were management and contracting officers. Performance data are summarized in figure 2. Grounds maintenance, which accounts for less than 5 percent of the competitions' total dollar value, was the only function that received unsatisfactory performance ratings. Where there were problems with ground maintenance, the bases in question have now taken steps to correct them.

Figure 2. Summary of performance



Other issues or trends affected the competitive sourcing program

Documentation of changes to cost, performance, and workload needs to be improved if DoD wants to continue to evaluate the program's effectiveness. This is particularly true for in-house wins because records of cost, performance, and workload changes have

not been routinely kept. Recent changes in documentation requirements will improve documentation of cost-related changes, but they don't address similar needs for performance and workload information.

In the past, DoD has missed opportunities for increased savings because Performance Work Statements (PWSs) were too prescriptive and competitions were not optimally packaged. Prescriptive PWSs reduce the efficiencies that can be achieved through competition, and reduce the ability to effectively benchmark DoD functions with the private sector. DoD's on-going efforts to provide better PWS and packaging guidance to its Components will help resolve this problem.

Recommendations

As a result of our review of the long-run cost and performance effects of the competitive sourcing program, we have identified several ways in which DoD can improve the quality of its program and its ability to track savings in the future. These recommendations center on ways to improve DoD's ability to track savings, to improve transitions, and to improve the quality of A-76 implementation.

Improving DoD's ability to track savings

To improve its ability to track savings, DoD should:

- Have the managers of in-house wins conform to the same standards required of contract managers (including documenting all cost changes and monitoring performance against the PWS)
- Ensure that in-house wins are recompeted every 5 years
- Track a small percentage, perhaps 5 to 10 percent, of all competitions from cradle to grave, or from just before the start of competition until the function is no longer performed or loses its identity as a separate function.

Improving transitions

To address the level of tension and confrontation that can occur when work is being transferred from the in-house organization to a

contractor, DoD should consider using partnering conferences. A partnering conference brings together representatives from the in-house organization and the contractor to develop a transition strategy and to identify and mitigate problems.

Improving the quality of A-76 implementation

To improve the quality of A-76 implementation, DoD should consider using activity-based costing (ABC), benchmarking, and performance measurement to help package and develop the PWS, and to help track post-competition costs and quality. These tools provide senior leadership with information about how the costs and performance of particular functions compare with those of the private sector and other government agencies. They also promote effective packaging decisions and help functional managers identify high-cost or low-performance areas within their function. Each of the Services has begun to adopt these tools, and the Marine Corps, in particular, is making them part of its competitive sourcing program.

Introduction

DoD relies on A-76 competitions and the competitive sourcing program to promote cost savings and increase the quality of service delivery. Between FY 1997 and FY 2005, DoD estimates that it will save roughly \$9.2 billion in operating costs as a direct result of competitive sourcing. Savings from A-76 competitions are used to help fund modernization and improve readiness. There is some concern that these estimated savings may not materialize; that they cannot be sustained over time; and that if savings are achieved, they will be coupled with a significant decrease in the quality of performance. To address these concerns, we did a post-competition analysis of the cost and performance of 16 A-76 competitions. This report documents the results of that analysis.

The 16 competitions were completed between 1988 and 1996 and represent \$100 million in annual pre-competition operating costs and more than 2,800 military and civilian positions. The purpose of this study is to examine whether the expected level of savings from these competitions was achieved and maintained over the long-run and to determine the impact, if any, on the quality of services provided.

Background

DoD has conducted competitive cost comparisons of commercial functions under the guidelines provided by Office of Management and Budget (OMB) Circular A-76 since the late 1970s. The Department's program for conducting A-76 cost competitions is now known as the competitive sourcing program. Since the program's inception, DoD has conducted more than 2,200 cost competitions.

The competitive sourcing program is a key initiative in the Department's attempt to streamline and reduce the costs of its infrastructure. Between FY 1997 and FY 2005, DoD plans to study commercial

functions involving roughly 203,000 positions. DoD has estimated that it will save \$9.2 billion between FY 1997 and FY 2005, and \$2.8 billion in annual recurring savings after FY 2005. Of the 203,000 positions targeted for study, DoD had completed studies on 9,000 by the end of FY 1999. The savings from the program will help fund modernization and improved readiness in DoD.

It is important, therefore, to know whether these savings targets are realistic and whether they validate A-76 cost competitions as savings tools.

Past reviews of the competitive sourcing program conducted by CNA and others have estimated that the program saves roughly 30 percent of what it costs to perform the function prior to competition. As effective as the program appears to be, there has been some concern that the initial savings expected from the competitions may not materialize and that these savings may dissipate over time. To date, no reviews or studies have been done to answer these questions. Further, no reviews have been conducted on whether the performance of the competed functions was satisfactory.

Although DoD has collected some data on the results from earlier A-76 competitions, there are no centrally collected data that track actual cost and performance after the competition is completed. Also, the cost and performance data that do exist at the local level have not been consistently maintained because OMB, departmental, and service requirements have changed over the years. For these reasons, we have relatively little data on the longer-term impact on cost and performance.

Purpose

The purpose of this study is to assess the long-term cost savings and performance from DoD's competitive sourcing program and identify individual issues and overall trends in the program. To accomplish this, we answer the following questions:

- Are the savings from competitive sourcing real?
- Are the savings sustained over time?

- Is the post-competition performance satisfactory?
- Are there individual issues or trends that affect the successful implementation of the competitive sourcing program?

Summary of competitions

To determine whether the savings from competitive sourcing are real and sustained over time, we examined 16 competitions completed between 1988 and 1996. We chose this time period because it provides sufficient time to determine whether the savings estimated at the time of the competition materialized and were sustained over time. Table 1 lists the competitions and provides summary data on their service affiliation, size, and dollar value and whether they were in-house or contract wins.

Table 1. Summary data on 16 competitions

Record	Function	Service	Annual baseline cost	Military billets	Civilian FTEs	Result
1	Supply/logistics	Army	17,687,482	73	524	Contract
2	DPW/family housing maintenance	Army	11,410,072	3	248	Contract
3	Visual information services	Army	3,572,664	7	72	Contract
4	Base operating services	Air Force	11,807,125	205	72	In-house
5	Grounds maintenance	Air Force	1,026,437	-	31	Contract
6	Aircraft maintenance	Air Force	28,703,925	853	126	In-house
7	Base operating support	Air Force	10,264,890	177	101	Contract
8	Grounds maintenance	Air Force	903,059	-	28	Contract
9	DPW/family housing maintenance	Air Force	2,234,118	-	45	Contract
10	Grounds maintenance	Air Force	1,139,500	-	34	Contract
11	DPW/family housing maintenance	Air Force	1,328,338	1	30	Contract
12	DPW/family housing maintenance	Air Force	2,860,295	-	27	Contract
13	Aircraft maintenance	Air Force	2,069,450	12	21	Contract
14	Vehicle ops and maintenance	Air Force	3,382,846	65	34	Contract
15	Supply/logistics	Navy	945,667	-	33	Contract
16	Supply/logistics	Navy	668,533	-	23	Contract
<i>Total</i>			100,004,401	1,396	1,449	

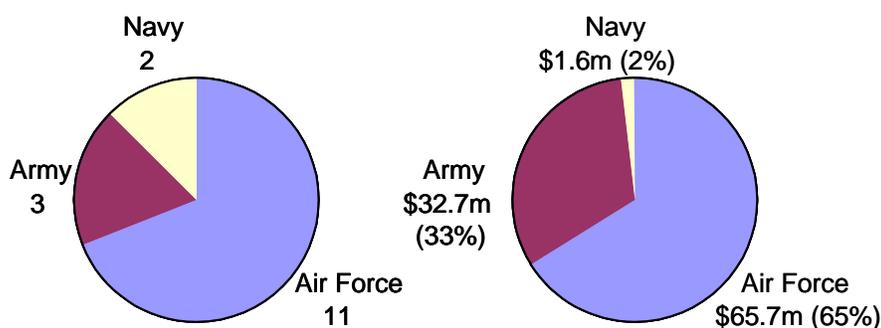
The competitions consisted of 14 contract wins and 2 in-house wins. The 16 competitions represented roughly 2,800 FTEs or billets, or

15 percent of the FTEs/billets competed between 1988 and 1996. Annual pre-competition costs for these functions totaled roughly \$100 million. The competitions ranged in size from 23 to almost 1,000 FTEs/billets. The average size of a competition was 178 FTEs/billets, and the median was 40, which tells us there are a significant number of small competitions. We had at least 3 years of data for each of the 16 competitions, and for the 9 completed before 1992, we had at least 8 years of data.

Distribution by service

Figure 3 shows the service distribution of the competitions by frequency and by pre-competition dollars. The Air Force competitions represented the majority of the competitions analyzed in terms of both frequency (11 out of 16) and dollar value (\$66 million).¹ The Army represented 3 out of the 16 competitions reviewed with a total dollar value of \$32.7 million, and the Navy represented 2 out of 16 competitions. However, the Navy competitions were smaller competitions totaling only \$1.6 million or just under 2 percent of the total annual costs analyzed.

Figure 3. Service distribution of the 16 competitions



1. For the period 1988 to 1996, Air Force competitions represented 42 percent of the total Department of Defense billets (civilian and military) competed under OMB circular A-76.

Distribution by function

The 16 competitions spanned 7 commercial functions. The functions chosen covered a range of activities: from traditional installation support functions such as grounds and facility maintenance, to equipment maintenance, supply, and—in one case—visual information services. Table 2 shows the distribution of the competitions by major DoD function and the pre-competition annual cost.

Table 2. Distribution of the 16 competitions by function

Function	Number of competitions	Annual baseline cost	Military	Civilian	Percent of total
Aircraft maintenance	2	30,773,375	865	147	31
Base operating support	2	22,072,015	382	173	22
DPW/family housing maintenance	4	17,832,823	4	350	18
Ground maintenance	3	3,068,996	-	93	3
Supply/logistics	3	19,301,682	73	580	19
Visual information services	1	3,572,664	7	72	4
Vehicle ops and maintenance	1	3,382,846	65	34	3
Grand total	16	100,004,401	1,396	1,449	100

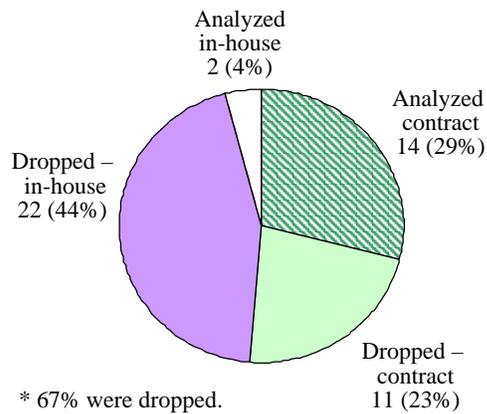
Although the 16 competitions should not be considered a representative sample of the population of competitions, the competed functions do reflect the majority of competitions completed during the 1988 to 1996 period. The DoD Commercial Activity Management Information System (CAMIS) reports 53 percent of the population of competitions in two categories—equipment maintenance and installation services. Most of the pre-competition annual costs of the 16 competitions analyzed in this study fall into these categories as well.

Problems with data collection

Our original intention was to examine a balanced number of in-house and contract wins. However, insufficient and missing data eliminated about two-thirds of the 49 competitions we had identified for potential review. Figure 4 displays the distribution of the original 49 competitions and the 16 competitions that we ultimately analyzed.

As we see in figure 4, data problems were particularly apparent for in-house wins. Of the 24 in-house wins originally identified for analysis, only 2 had the data we needed to complete the analysis.

Figure 4. Distribution of 49 original competition methodologies



To determine whether there are long-run cost savings from competitive sourcing, we analyzed a sample of 16 competitions that had been competed between 1988 and 1996. We had originally planned to examine at least 30 competitions, won both by in-house and contract; however, insufficient or inadequate data limited the number to 16. Our intent was to be able to review the actual costs to perform these functions for at least the performance period specified in the competition. We also examined the extent to which management, customers, and contracting officers were satisfied with the resulting performance.

We reviewed all available documentation on the cost and performance of the function; interviewed base personnel representing management, contracting, and customers; and obtained supplementary data such as audit reports, private sector cost data on comparable functions, and relevant workload data when available. From these data, we identified both the pre-competition and post-competition

costs for each competition to the fullest extent possible. We then tracked and compared these costs, specifically identifying those that would have occurred regardless of the competition's outcome. This allowed us to isolate the increases and decreases in costs over time. It also allowed us to make an apples-to-apples comparison of costs to perform the scope of work specified in the PWS over the first solicitation period, as well as compare the actual out-of-pocket cost of the function to DoD regardless of changes to the PWS.

During the course of our analysis, we had to make some assumptions in isolating such factors as the effects of scope or workload changes, the amount of contract administration or augmentation of contract labor by government labor, or minor discrepancies between authorized and expended funds. In all cases, we chose to be conservative and decided in favor of the alternative that would limit rather than increase savings. A complete description of the methodology is provided in appendix A. We conducted our analysis between August 1999 and July 2000.

Long-run savings from competitions

This section provides the detailed results of our examination of the long-run savings rates for the 16 competitions analyzed. Our analysis evaluates and compares three types of savings calculations—*expected*, *observed*, and *effective*—for each competition. Using these calculations, we attempt to provide answers to the following questions:

- How should we evaluate savings?
- Are long-run savings real?
- Are savings rates sustained over time?
- Are there specific savings trends by function?
- How do our results compare with those from other studies?

Evaluating savings

Over the competition period, typically 3 to 5 years, the original PWS is often revised to reflect changes in the work environment. These changes include wage increases and fluctuations in workload, as well as changes in the type and scope of work to be performed. For example, in one grounds maintenance competition, the total acreage maintained at an improved or semi-improved level increased 80 percent over a 5-year period. In another competition, shuttle buses to remote base locations were removed from a vehicle operations function, and Department of Labor (DOL) prescribed wage rates increased total contract costs. These types of changes affect the cost of providing a particular function beyond what was originally identified in the PWS. Many, and in some cases most, of these changes occur regardless of whether the decision is to contract out or to retain the function in-house.

To determine whether savings were achieved for the 16 competitions, we have evaluated and compared savings costs from three

perspectives: *expected*, *observed*, and *effective*. Using this approach allows us to separate and evaluate the costs of meeting the tasks described in the original PWS, and the impact on costs from changes in scope, workload, and other adjustments. This approach also allows us to assess whether or not long-run savings are real and sustained overtime. Definitions of terms follow:

- *Expected costs* are defined as what the government expects to pay for the provision of a commercial function after a competition is completed (e.g., the price of the winning bid plus all administrative costs to the government). *Expected savings* are estimates of the difference between what the government expects to pay and the pre-competition costs of providing the function. *Expected costs* and *savings* are forecasts based on the winning contract or most efficient organization (MEO) bid at the time of competition and can be incorporated into out-year budget decisions.
- *Observed costs* are defined as what DoD actually spent for the provision of services. Observed costs include increases or decreases to annual costs from changes in scope, workload, wages, and one-time cost adjustments. *Observed savings* are the difference between the pre-competition annual costs to the government and the actual or observed costs of that function after the competition was completed.
- *Effective costs* are defined as the estimated cost to DoD of providing the *same set* of services as originally identified in the cost comparison. Effective cost estimates exclude cost changes that would have occurred whether or not the function was competed. For example, in one competition the *observed* costs of providing services increased by over 15 percent from 1991 to 1992. This increase was due to additional workload needed to support our military in the Persian Gulf. This type of increase in workload, and therefore cost, would have occurred whether the necessary services were provided by the contractor or by in-house labor. Therefore, the *effective* costs for 1992 would be adjusted to remove these one-time costs. By adjusting the data to exclude workload, scope, wage, and one-time costs, effective cost estimates allow us to compare changes in cost while

keeping the original scope constant. Effective savings are defined as the difference between the pre-competition annual cost to the government and the effective costs of that function after adjustments are made. Comparing *effective* and pre-competition costs provides insight into true cost growth or savings.

Effective costs are the most meaningful indication of whether an A-76 competition was successful in producing real and sustained savings because they identify the costs of providing the same scope of work over time. Measuring effective costs and savings is the most relevant concept for policymakers to use in assessing the value of the competitive sourcing program and identifying any needed adjustments. However, it is also important to examine changes in observed costs because, historically, these are the types of costs people have looked at when examining the worth of the competitive sourcing program.

Are long-run savings real?

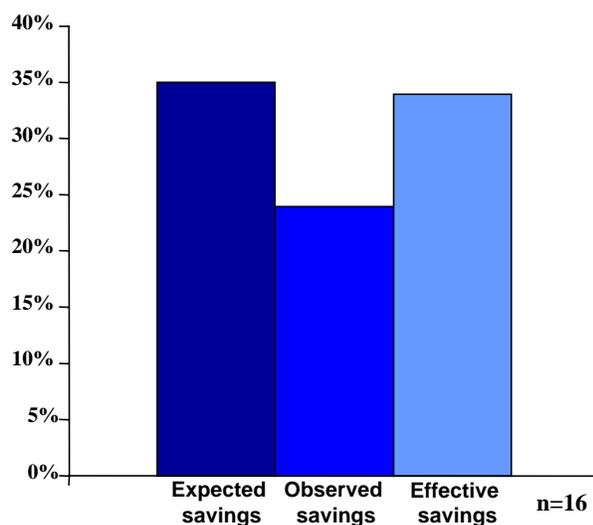
Summary data

For the sample of 16 competitions, our analysis indicates that the savings achieved from competition are real. The expected savings for this group was 35 percent for the first solicitation period, with effective savings of 34 percent (indicating savings are not degrading during the first competition period).² Even with all wage, scope, and workload changes included in the cost analysis, a substantial level of observed savings (24 percent) is also realized. Therefore, taking the most limited or restricted view, the average savings for the 16 competitions ranged between a low of 24 percent of observed savings to a high of 34 percent of effective savings. These data are summarized in figure 5.

2. Weighted average based on pre-competition annual cost.

Figure 5 shows the weighted average for each of the three types of savings (expected, observed, and effective). For the 16 competitions, the expected savings are 35 percent, the observed savings are 24 percent, and the effective savings are 34 percent.

Figure 5. Expected, observed, and effective savings rates for the 16 competitions (first solicitation period)



The results of our review are consistent with the results of other studies that examined the cost savings from the competitive sourcing program. Our previous studies that examined the expected cost savings from the program found that between 1978 and 1994, DoD A-76 cost competitions saved an average of 31 percent. These savings came from all military branches and virtually all types of commercial functions.

Detailed data

Table 3 lists the expected, observed, and effective savings rates for the 16 competitions that we examined. In two the 16 competitions the observed costs were greater than the expected baseline costs during the first solicitation period. The observed savings for these competitions are negative and shown in red, indicating a cost increase over

baseline. Further, for one grounds maintenance competition the effective costs during the first solicitation period were 25 percent greater than the original baseline cost of the function.

Table 3. Savings rates for the 16 competitions

Record	Function	Service	Pre-comp. annual cost	Expected savings	Observed savings	Effective savings
1	Supply/logistics	Army	17,687,482	18%	(0%)	15%
2	DPW/family housing maintenance	Army	11,410,072	21%	4%	19%
3	Visual information services	Army	3,572,664	62%	59%	61%
4	Base operating support	Air Force	11,807,125	36%	38%	46%
5	Grounds maintenance	Air Force	1,026,437	48%	(31%)	(25%)
6	Aircraft maintenance	Air Force	28,703,925	40%	34%	42%
7	Base operating support	Air Force	10,264,890	43%	28%	42%
8	Grounds maintenance	Air Force	903,059	11%	(10%)	11%
9	DPW/family housing maintenance	Air Force	2,234,118	25%	5%	17%
10	Grounds maintenance	Air Force	1,139,500	40%	13%	23%
11	DPW/family housing maintenance	Air Force	1,328,338	20%	16%	24%
12	DPW/family housing maintenance	Air Force	2,860,295	42%	33%	42%
13	Aircraft maintenance	Air Force	2,069,450	68%	66%	66%
14	Vehicle ops and maintenance	Air Force	3,382,846	51%	45%	48%
15	Supply/logistics	Navy	945,667	20%	(2%)	1%
16	Supply/logistics	Navy	668,533	39%	29%	38%
Weighted Average			6,250,275	35%	24%	34%

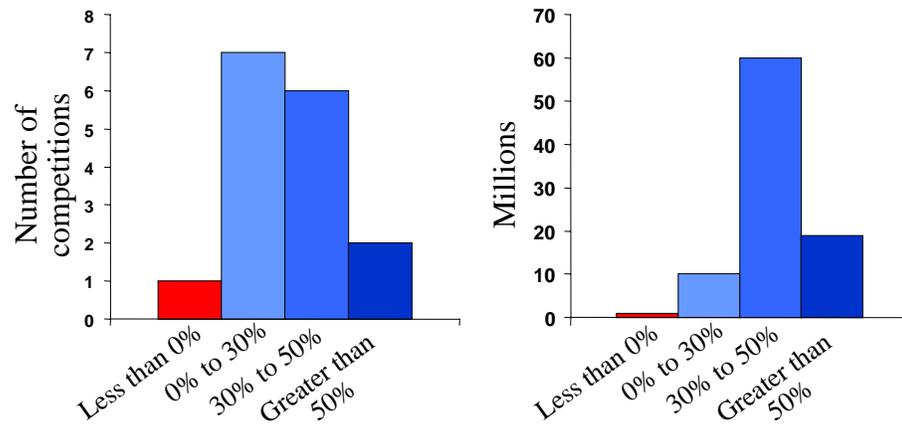
Grouping the 16 competitions by range of savings, we found that the overall effective savings estimate of 34 percent is not driven by one or two large competitions. Six of 16 competitions had savings of between 30 and 50 percent and accounted for 57 percent of the total dollars analyzed. Only the visual information services and one of the aircraft maintenance competitions had savings of more than 50 percent. Note, however, that these high average savings were expected for both of these competitions. Figure 6 summarizes the distribution of savings both by number of competitions and by dollar value.

Are savings rates sustained?

What is happening to effective costs over the first solicitation period?

Over the first solicitation period, our analysis estimated that 98 percent of expected savings are being realized. Next, we examine how the savings rates change during the first solicitation period. Are we

Figure 6. Distribution of effective savings by frequency and pre-competition annual cost (first solicitation period only)



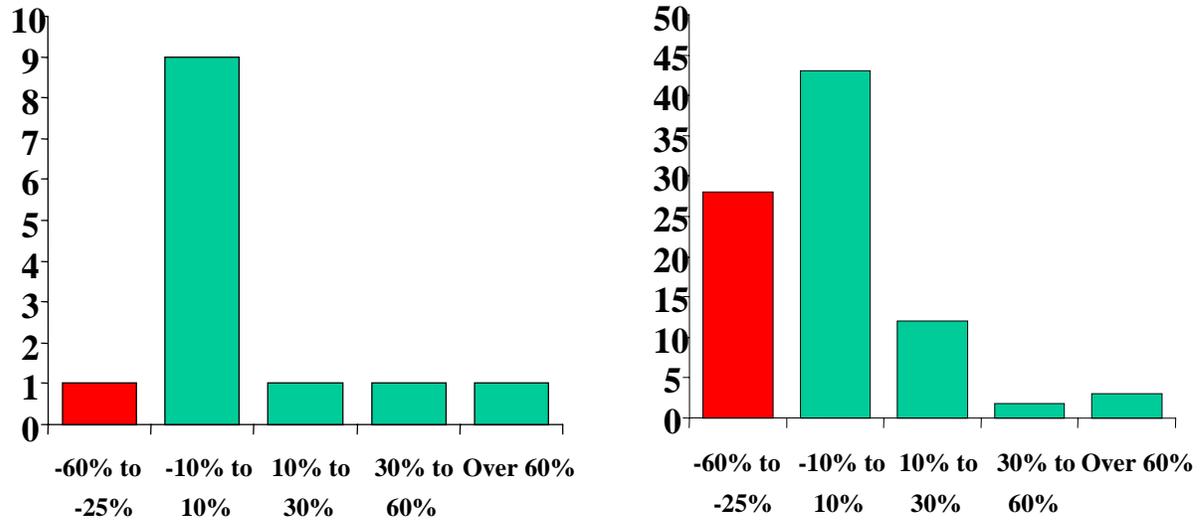
seeing large savings rates the first year after competition with decreases in each subsequent year? Are savings rates increasing over the solicitation period? Or, are savings constant throughout the first solicitation period?

Summary data

Out of the 16 competitions analyzed, 13 showed positive savings over the first solicitation period.³ A trend analysis of these 13 competitions showed that when savings occur, the savings rates appear to be constant over the first solicitation period. Nine competitions included in the trend analysis showed no substantial (greater than or less than 10 percent) increase or decrease in effective costs during the first solicitation period. These competitions represented just under 45 percent of the total costs analyzed. Figure 7 shows the distribution of savings trends across the 16 competitions. We have presented data in terms of frequency and size (weighted by baseline annual cost).

3. Competitions were excluded from the trend analysis if data were insufficient (3 years or less) or if no savings occurred over the first solicitation period.

Figure 7. Distribution of trends in effective savings by frequency and pre-competition annual cost (first solicitation period only)



As shown in figure 7, only one large competition (representing about 28 percent of the costs analyzed) showed a decreasing savings trend. This aircraft maintenance competition was an in-house win that had significant savings during the first few years after the competition, but in subsequent years the effective costs began increasing significantly, eventually surpassing the losing bid.

Detailed data

Table 4 lists the effective savings growth rate for each of the 16 competitions. These constant growth rates are obtained from semi-log-linear regressions. The dependent variable is the log of the percentage savings, and the independent variable is a linear trend variable. We define percentage savings as actual cost minus baseline cost divided by baseline cost; or percentage savings = (Actual cost - Baseline cost)/Baseline cost.

Table 4. Detailed effective savings growth rates for the 16 competitions (first solicitation period only)

Record	Function	Service	No. of yrs	Growth rate
1	Supply/logistics	Army	4	3.2%
2	DPW/family housing maintenance	Army	5	14.2%
3	Visual information services	Army	4	-0.3%
4	Base operating support	Air Force	5	-8.2%
5	Grounds maintenance	Air Force	N/A	
6	Aircraft maintenance	Air Force	10	-46.7%
7	Base operating support	Air Force	N/A	
8	Grounds maintenance	Air Force	5	3.7%
9	DPW/family housing maintenance	Air Force	5	6.2%
10	Grounds maintenance	Air Force	5	47.7%
11	DPW/family housing maintenance	Air Force	5	-3.5%
12	DPW/family housing maintenance	Air Force	4	90.0%
13	Aircraft maintenance	Air Force	4	-0.7%
14	Vehicle ops and maintenance	Air Force	5	-0.2%
15	Supply/logistics	Navy	N/A	
16	Supply/logistics	Navy	4	7.2%

What is happening to savings and costs *after* the first solicitation period?

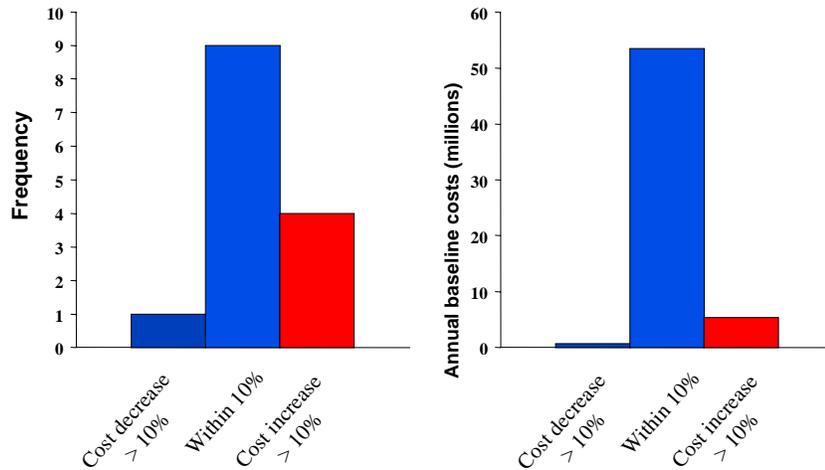
The trend analysis discussed in the last section looks at savings growth rates across the first solicitation period. The next logical question to follow this analysis is “*What happens to savings after the function is re-competed? Do the effective costs as compared to pre-competition costs increase or decrease?*” Unfortunately, since PWSs can change drastically during a re-competition, an evaluation of savings trends as compared to pre-competition activity over more than one solicitation period is not possible. However, it is possible to compare effective and observed costs with the contract bid for the original and all subsequent contract periods. Note: All findings in this section are limited to the 14 competitions resulting in a contractor win because none of the in-house wins were re-competed.⁴

4. The contract bid includes all administrative costs to the government above the actual contract price.

Summary data

For the 14 competitions resulting in a contract win, it appears that effective costs were, on average, within 10 percent of the contract bid. Figure 8 shows the differential between effective costs and the contract bid, distributed by frequency and weighted by size of competition. In 9 of the 14 competitions, representing 90 percent of the costs, the annual effective costs were within 10 percent of the contract bid from the time of competition through FY 1999.⁵ In four competitions, effective costs were, on average, 10 percent or greater than the contract bid; and in one competition, effective costs were actually 12 percent lower than the contract bid.

Figure 8. Differential of effective costs versus the contract bid, distributed by frequency and size of competition



5. Covers the first, and all subsequent, contract periods.

Detailed data

Table 5 lists the average differential between effective costs and the contract bid for each of the 14 competitions that resulted in a contract win.

Table 5. Average differential between effective costs and the contract bid (all solicitation periods)

Record	Function	Avg. annual contract bid	Avg. annual effective cost	Differential (effect. cost vs bid)
1	Supply/logistics	13,004,000	12,497,000	(4%)
2	DPW/family housing maintenance	8,880,000	8,763,000	(1%)
3	Visual information services	1,304,000	1,314,000	1%
4	Base operating support	<i>In-House: Excluded from analysis</i>		
5	Grounds maintenance	532,000	1,631,000	207%
6	Aircraft maintenance	<i>In-House: Excluded from analysis</i>		
7	Base operating support	5,829,000	5,951,000	2%
8	Grounds maintenance	763,000	767,000	1%
9	DPW/family housing maintenance	1,583,000	1,763,000	11%
10	Grounds maintenance	496,000	799,000	61%
11	DPW/family housing maintenance	1,014,000	963,000	(5%)
12	DPW/family housing maintenance	1,510,000	1,542,000	2%
13	Aircraft maintenance	680,000	700,000	3%
14	Vehicle ops and maintenance	1,798,000	1,748,000	(3%)
15	Supply/logistics	830,000	926,000	12%
16	Supply/logistics	341,000	301,000	(12%)

How do observed costs fit into the picture?

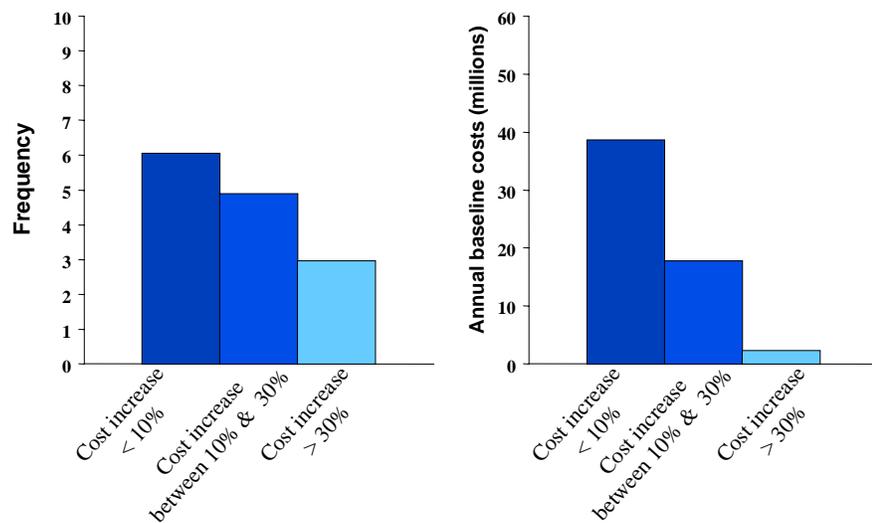
There is significant interest in how the observed costs of contracted functions change over time. Installations, in particular, focus more on observed costs (as compared to effective costs) because installation-level budgets are typically based on the expected costs of the contract or MEO. In many cases, changes in scope or workload will significantly increase the observed costs of a function with little to no budgetary relief from scope and workload changes.

Summary data

As discussed earlier, over the first solicitation period, observed savings total 24 percent (11 percentage points less than the 35 percent savings expected). In this section, we look beyond the first solicitation period and compare observed costs with the contract bid over all

contract periods.⁶ On average, for 14 competitions resulting in a contract win, annual observed costs are within 10 percent of the contract bid. Since observed costs include wage increases that generally increase over time, it is not surprising that observed costs are higher than the original bid. Figure 9 shows the differential between observed costs and the contract bid for the 14 competitions resulting in a contract win.

Figure 9. Differential of observed costs versus contract bid, distributed by frequency and size of competition



Detailed data

Table 6 compares the observed costs and the contract bids for 14 contracted functions.

6. The contract bid includes all administrative costs to the government.

Table 6. Comparison of observed cost and contract bid for 14 contracted functions (all solicitation periods)

Record	Function	Avg. annual contract bid	Avg. annual observed cost	Differential (Obs. cost vs bid)
1	Supply/logistics	13,004,000	13,569,000	4%
2	DPW/family housing maintenance	8,880,000	9,554,000	8%
3	Visual information services	1,304,000	1,367,000	5%
4	Base operating support		<i>In-House: Excluded from analysis</i>	
5	Grounds maintenance	532,000	1,705,000	220%
6	Aircraft maintenance		<i>In-House: Excluded from analysis</i>	
7	Base operating support	5,829,000	7,426,000	27%
8	Grounds maintenance	763,000	940,000	23%
9	DPW/family housing maintenance	1,583,000	2,021,000	28%
10	Grounds maintenance	496,000	870,000	75%
11	DPW/family housing maintenance	1,014,000	1,059,000	4%
12	DPW/family housing maintenance	1,510,000	1,712,000	13%
13	Aircraft maintenance	680,000	718,000	6%
14	Vehicle ops and maintenance	1,798,000	1,812,000	1%
15	Supply/logistics	830,000	950,000	14%
16	Supply/logistics	341,000	452,000	33%

Contract versus in-house

We had initially planned to analyze 24 competitions that had resulted in an in-house win. We had identified 24 likely candidates, but because so few records had been kept, we were only able to analyze two competitions. Therefore, due to the large size of in-house wins (the average MEO was 360 FTEs) and the fact that we had analyzed only two, a comparison of in-house and contract wins would not be valid.

However, evaluating these two Air Force competitions (one for aircraft maintenance and the other for base operating support (BOS)) does provide insight regarding the observed and effective savings of a well-managed in-house win. The two competitions had expected savings of 39 percent (slightly higher than the 35-percent weighted average in the sample). Observed savings that included all subsequent cost changes were 35 percent, and effective savings were actually higher than expected at 43 percent. Effective savings were 110 percent of expected savings, showing that savings were actually higher than what was originally projected over the first cost competition period.

There are a combination of reasons why we are seeing these high savings rates. First, these competitions may be very well managed and, therefore, a self-selecting group. Second, if the organizations providing

these functions are not sheltered from budget cuts, they could be vulnerable to funding shortfalls without corresponding decreases in the scope or workload they are required to provide (i.e, they must do more with less). If budgets are cut and the scope or workload remain the same, this means the work is being provided at less cost, e.g., higher savings rates.

Are there savings trends by function?

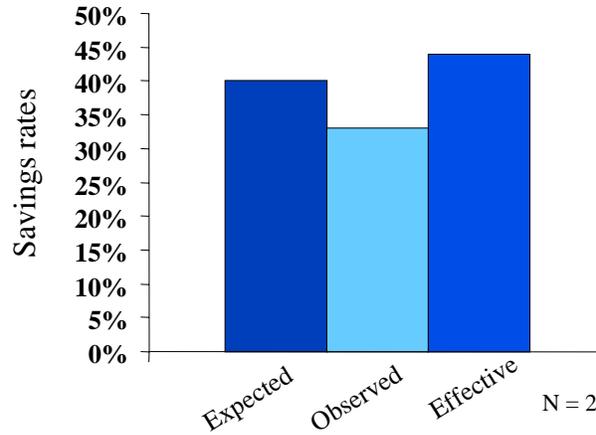
Originally, we had intended to examine at least 30 competitions and had identified 49 candidates representing a broad range of functions. We had hoped to analyze enough competitions to make our findings meaningful by function. However, we had to eliminate 33 competitions because of insufficient or inadequate data, and therefore, the final sample size for each function is too small to permit statistically meaningful projections for entire functions. However, our observations may well be useful in identifying areas for further examination or study.

Base operating support functions

We examined two competitions of Air Force BOS functions. One competition was contracted out; the other was retained in-house. Both were large competitions with an average of 227 FTEs and an average pre-competition dollar value of \$11 million.

As we see in figure 10, the BOS competitions were expected to yield an average savings of 40 percent. Observed savings were 33 percent. Effective savings, however, were higher than expected. The annual effective savings of 44 percent is 4 percentage points higher than what was expected to be saved over the first solicitation period (the range was 42 to 46 percent). Although this may be an anomaly and may not reflect the results of BOS competitions in general, it warrants further analysis because large competitions typically produce greater expected savings, reduce the number of total competitions needed, and require less time to compete than multiple small competitions.

Figure 10. Summary analysis of savings—BOS competitions



Supply operations

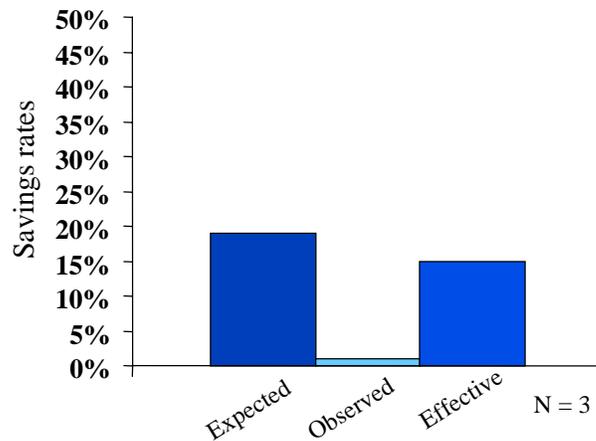
We examined three supply competitions, two conducted by the Navy and one by the Army. All three competitions were contracted out. The two Navy competitions were relatively small with an average of 28 FTEs and average annual dollar value of \$800,000. The Army competition was one of the largest in the sample, with 597 FTEs and annual pre-competition operating costs of \$17.7 million.

Together, the competitions had average expected savings of 19 percent for the first competition period. Average effective savings were 15 percent (the range was 9 to 38 percent). Changes in wages, workload, and scope increased the cost of the contracts so that the observed savings were only 1 percent (18 percentage points less than what was expected).

In one case, the major impact on observed costs was the result of multi-million-dollar increases in workload due to the build-up for Desert Shield/Storm. In another case, the impact was due to the unionization of the contract workforce, which increased the base contract price by over 20 percent shortly after the function was contracted. In fact, with the unionization example, the effect of this sharp increase in wage rates pushed observed costs over the pre-competition costs of performing the function by 2 percent. This competition

was one of only two competitors that we reviewed where there were no effective savings. Figure 11 summarizes these savings rates.

Figure 11. Summary analysis of savings—supply competitions



The most pervasive change in the supply function that we observed resulted from the introduction of the IMPAC card in 1989. The IMPAC card, which has recently become the General Services Administration (GSA) Smart Pay Program, allows non-supply personnel to make purchases directly from the private sector. In 1999, 20.6 million transactions were conducted under the GSA Smart Pay program; this number is expected to increase to 23 million in 2000. The IMPAC card program has significantly decreased reliance on installation supply operations, reduced workload, and eliminated the need for base self-help stores. This trend is likely to continue as more and more supplies are purchased directly from the private sector. In addition to observing the effects of the IMPAC card on the three supply competitions (workload reductions and closures of self-help stores), we saw evidence of it in the supply portions of the BOS competitions, as well as in the supply functions we have examined in other recent studies.

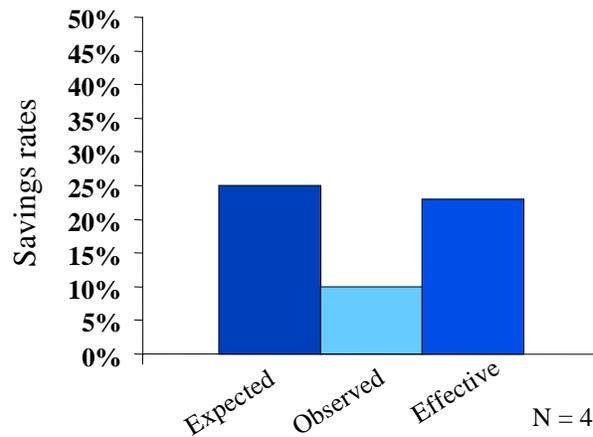
Facilities and family housing maintenance

We examined four competitions involving maintenance of facilities or family housing. Three were Air Force competitions and one was an

Army competition. The Air Force competitions were for family housing maintenance only and were relatively small, averaging 34 FTEs with an annual pre-competition cost of \$1.8 million. Conversely, the Army competition covered 251 FTEs and annual pre-competition operating costs of \$11.4 million. It covered the operation and maintenance of all base facilities and housing.

The average expected savings from these four competitions was 25 percent. However, changes to wages, scope, and workload decreased the expected savings by 61 percent. The contracts typically contained a provision that allowed the base to use the contractor to undertake minor construction projects in addition to the services provided in the base contract. As a result, most of the contract changes were for such things as replacement of appliances, window and floor renovations, and other ad hoc projects. Effective savings were 23 percent or 92 percent of expected savings. The range of effective savings was 17 to 42 percent. Figure 12 summarizes these results.

Figure 12. Summary analysis of savings facility and family housing maintenance competitions

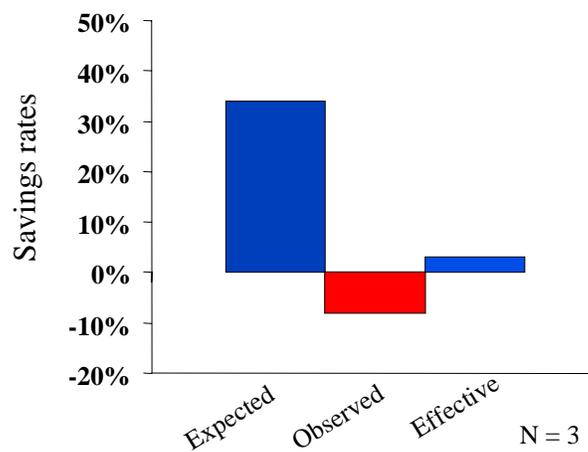


Grounds maintenance

We examined three Air Force grounds maintenance competitions. All were contracted out. Ground maintenance competitions are

usually rather small; these had an average of 31 FTEs with an average annual pre-competition cost of \$1 million. All were small business set-asides. The expected savings averaged 34 percent. However, in two of competitions effective costs over the first solicitation period were substantially less than expected, with one competition showing negative savings of 25 percent (i.e., the effective costs were 25 percent above the pre-competition cost of providing the function). The three competitions, on average, had effective savings of only 3 percent and negative observed savings of 8 percent (i.e., costs were 8 percent higher than they were before the competition). The range of effective savings was a negative 25 percent to 23 percent. Figure 13 summarizes our analysis of the grounds maintenance competitions.

Figure 13. Summary analysis of savings grounds maintenance competitions

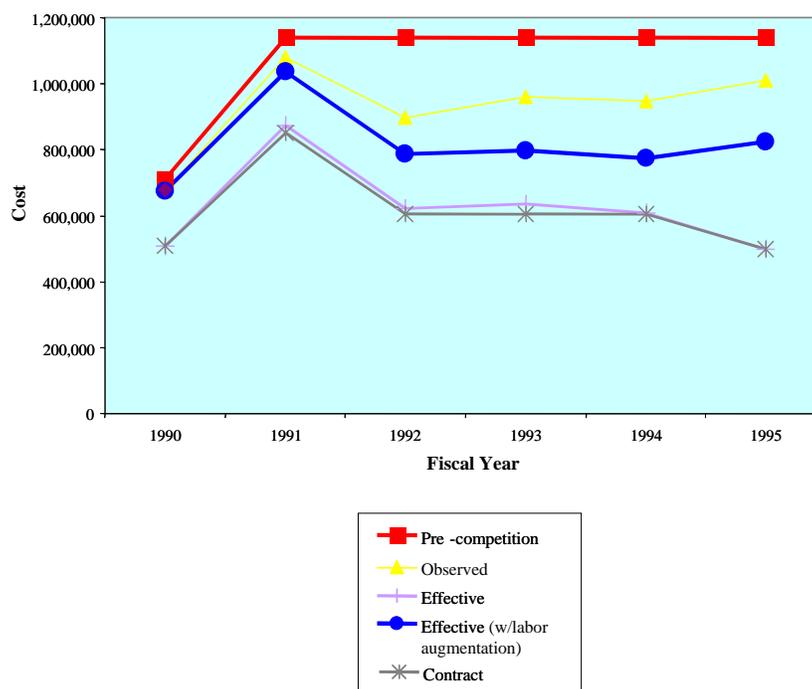


Grounds maintenance was the only function we examined that had significant cost and performance problems. (The performance problems are discussed in the next section.) In two competitions, base personnel were so dissatisfied with the contractors' performance that they felt compelled to augment the contract with military personnel. In these cases, the augmentation with military personnel significantly reduced or eliminated the savings expected from the competition.⁷

7. The grounds maintenance function may be easier to augment than other functions because it uses mostly unskilled labor so that any unassigned military may perform the function.

In one case, the competition was expected to generate 40 percent savings; however, augmenting the contractor's workforce with military personnel reduced the effective savings to only 23 percent. Figure 14 shows the annual costs for this competition over the first solicitation period. As shown, the effective costs, as determined by the contract documentation, remain within one percent of the contract bid. However, when estimates of military labor used to augment the contract are included, the annual effective costs increase substantially, degrading expected savings by 17 percentage points.

Figure 14. Example of grounds maintenance competition with labor augmentation

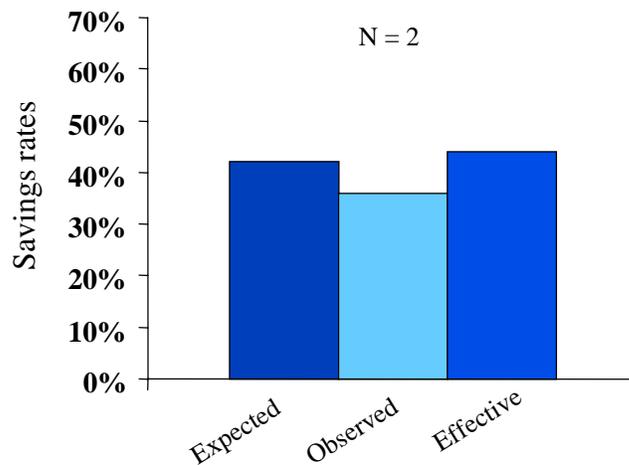


Aircraft maintenance

We examined two Air Force competitions for aircraft maintenance. One was retained in-house, and the other was contracted out. One competition was very large with 979 FTEs, and the other was small with 33 FTEs. The expected savings were 42 percent, and the effective

savings were 46 percent. The range of effective savings was 42 to 66 percent, and observed savings were 36 percent. Figure 15 shows the summary data.

Figure 15. Summary analysis of savings from the aircraft maintenance competitions

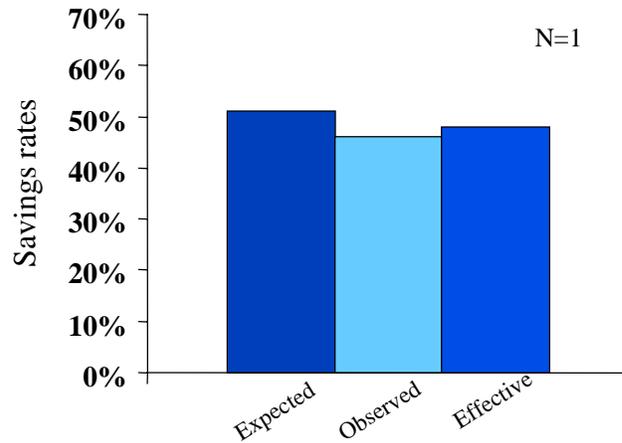


Vehicle operations and maintenance

We examined only one Air Force competition for vehicle operations and maintenance. It had 99 FTEs with an annual pre-competition operating cost of \$3.4 million. Its workload, like that of other vehicle operations and maintenance functions we have examined in the past studies, decreased over time. The decreases are mainly due to the increased use of the GSA for fleet services, thereby diminishing the demand for contracted vehicle maintenance.

As shown in figure 16, expected savings were 51 percent. Changes in wages, scope, and workload decreased the observed savings by 5 percentage points to 46 percent. After adjusting for these changes, effective savings totaled 48 percent, indicating a 3 percentage point decrease in the amount of expected savings during the first solicitation period.

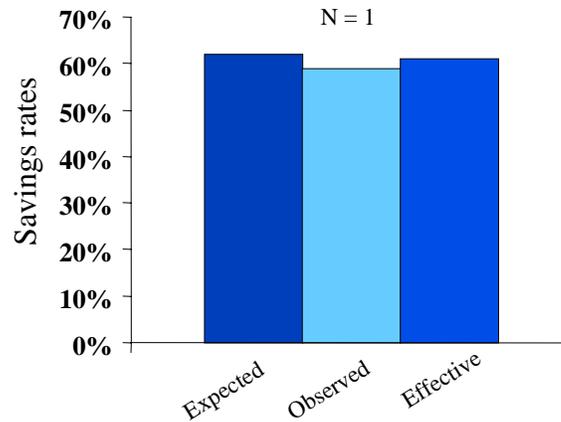
Figure 16. Summary analysis of savings from the vehicle operations and maintenance competition



Visual information services

One Army competition included in this study fell in the area of visual information services. This function covered the graphic design and signage services provided to an installation. This function had 79 FTEs with an annual pre-competition operating cost of \$3.6 million. Exceptionally large savings—62 percent—were expected because, at the time of competition, a transition was being made to more sophisticated design and production equipment. Indeed, the use of new technology did result in large savings in labor costs. This contract remained very stable over the first solicitation period with observed savings of 59 percent (only 3 percentage points lower than what was expected) and effective savings of 61 percent (one percentage point lower than expected). Figure 17 shows the summary data.

Figure 17. Summary analysis of savings—visual information service



How do our results compare with the results of other studies of cost savings?

The results of our review are consistent with the results of other studies that examined the cost savings from the competitive sourcing program. Our previous studies that examined the expected cost savings from the program found that between 1978 and 1994, DoD A-76 cost competitions saved an average of 31 percent. These savings came from all military branches and virtually all types of commercial functions. A 1993 CNA review of Navy competitions covering 29,000 billets found that in the previous decade, the expected savings rate averaged 29 percent and that a review of selected case studies indicated that these cost savings continued over time. The review also found that there were few quality problems when the Navy contracted out functions.

A 1998 CNA analysis of 44 Air Force competitions that have been completed since 1994 indicate that the expected savings have risen to 42 percent. Three Navy competitions completed in the same time frame found that each produced expected savings of at least 37 percent. Our subsequent reviews of four recent Navy competitions and an update of DoD competitions since 1994 reinforce these findings.

They found that the four Navy case studies averaged expected savings of 40 percent, and the DoD average expected savings was 45 percent.

A study by Rand focusing on workforce-related savings from competitive sourcing found that the program generated savings that appeared to be real and endured over time. It found through a review of six DoD case studies that expected savings from personnel costs ranged from 41 to 66 percent, and that fluctuations in personnel or costs over time ranged from an increase of 4 percent to a decrease of 13 percent.

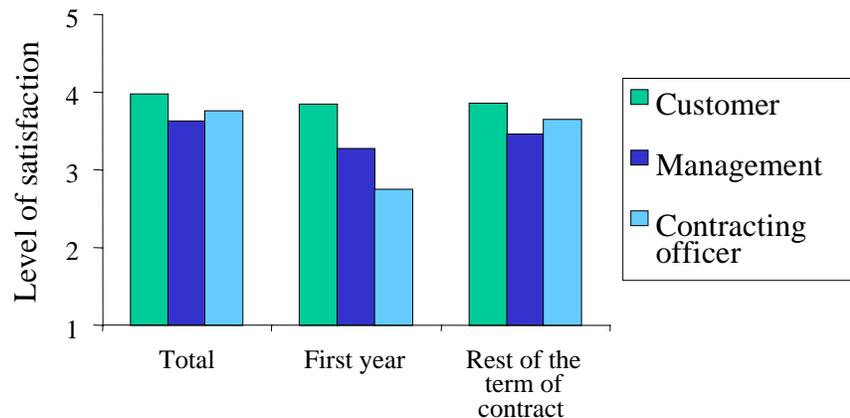
In a report issued in August 2000 on competitive sourcing, the General Accounting Office (GAO) examined nine DoD cost competitions and found that while it could not precisely quantify the extent of savings over time, the savings were significant. It found that savings occurred in seven of the nine cases it examined. In the other two cases, it found that savings were unlikely in one and the data were insufficient in the other to determine whether the expected savings would materialize.

Taken together, these studies demonstrate a pattern of findings that demonstrate that the competitive sourcing program can produce significant cost savings and is an effective cost reduction tool. Appendix B contains a bibliography of selected reports.

Post-competition performance

Based on the interviews that we conducted, customers, managers,⁸ and contracting personnel were generally satisfied with post-competition performance, although assessments of performance were somewhat lower during the first year of performance than in subsequent years. Reviews of performance contained in contract and other files generally supported the interview assessments. Figure 18 summarizes the results of our interviews.

Figure 18. Summary of performance information



Was overall performance satisfactory?

In all but 2 of the 16 competitions, we were able to interview management, contracting personnel, or customers on their perception of

8. Managers included in-house civilian or military functional managers and quality assurance evaluators (QAEs).

post-competition performance. Personnel were asked a series of questions related to performance where they were asked to rank performance on a scale of one (dissatisfied with performance) to five (very satisfied with performance)

In eleven of these cases, almost 80 percent, the personnel we interviewed believed that the overall performance after competition was neutral to satisfactory. For this group, the average satisfaction level was 3.3 or greater. In three cases, the personnel found post-competition performance to be unsatisfactory or unacceptable (with average satisfaction levels under 2.5). Table 7 illustrates the performance ratings by competition and personnel type.

Table 7. Levels of customer, management, and contracting officer satisfaction

Record	Function	Service	Satisfaction		
			Cust.	Mgmt.	C.O.
1	Supply/logistics	Army		●	●
2	DPW/family housing maintenance	Army		●	●
3	Visual information services	Army	●	●	●
4	Base operating support	Air Force	●		
5	Grounds maintenance	Air Force	●	●	●
6	Aircraft maintenance	Air Force	●		
7	Base operating support	Air Force	●	●	●
8	Grounds maintenance	Air Force		●	●
9	DPW/family housing maintenance	Air Force			
10	Grounds maintenance	Air Force	●	●	●
11	DPW/family housing maintenance	Air Force	●	●	●
12	DPW/family housing maintenance	Air Force	●		
13	Aircraft maintenance	Air Force		●	●
14	Vehicle ops and maintenance	Air Force	●		
15	Supply/logistics	Navy		●	
16	Supply/logistics	Navy			

Blue = very satisfied with performance (4.0 to 5.0)

Green = neutral/satisfied with performance (2.6 to 3.9)

Red = dissatisfied with performance (1 to 2.5)

Eleven of the competitions were given overall neutral/satisfied (green) to very satisfactory (blue) performance ratings. In these cases, the personnel we interviewed were complimentary of the work that was being done. For example, military family housing customers at one Air Force base said that the contractor responded quickly to their needs and worked with them to schedule repairs at mutually convenient times. They said that call backs and repeat visits were seldom necessary. They were also pleased with a self-help center that the contractor ran, finding the personnel to be very friendly and helpful.

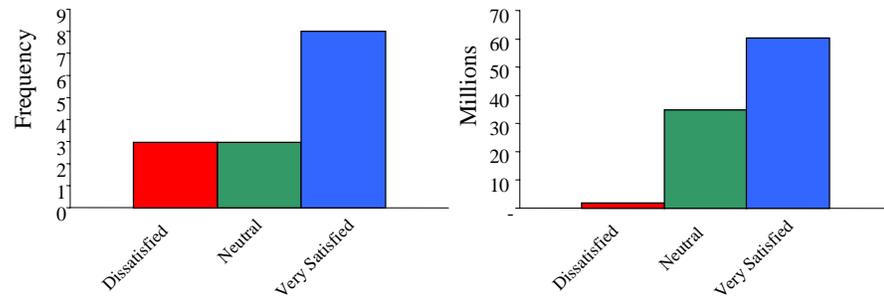
Customers of a base operating support function that was retained in-house also found performance to be excellent. Performance dipped slightly during the transition period due to difficulties in recruiting sufficient employees to fill former military billets, but this problem was soon overcome. In the customers' view, the removal of the military personnel had improved performance because there were no delays associated with the military's involvement in an exercise. Many believed that the work was performed faster because there was increased multi-tasking and improved scheduling. The consensus was that the service was prompt, the quality of the work was good, and the people were professional.

These eleven competitions accounted for about 95 percent of the total dollar value included in this analysis. Further, eight competitions had overall satisfaction levels above 4.2 indicating that personnel were very satisfied with the provision of services. The competitions included in this category accounted for 60 percent of the examined competitions' total dollar value.

Figure 19 shows the distribution of the competitions' performance by number and cost distribution. The three competitions where interviewees indicated they were dissatisfied with performance were for grounds maintenance; they accounted for only \$3 million of the \$100 million in total pre-competition costs for services examined in this study. Grounds maintenance was the only functional group that we examined that consistently had performance problems. However,

considering the small sample size, this may be an anomaly and may not be indicative of all grounds maintenance competitions.

Figure 19. Distribution of overall satisfaction by frequency and weighted by pre-competition costs



In cases where base personnel were dissatisfied with the level of performance, the reasons they gave for the poor performance included:

- Contractors underestimated the amount of work to be done and the level of performance that was necessary. As a result, the contractors could not keep up with mowing and weeding schedules.
- The Air Force standards for grounds maintenance were frequently higher than those the contractors were used to meeting in the private sector.
- Contractors were under-financed and could not afford to replace equipment. As a result, mowing and watering did not get done on time because of equipment breakdowns.
- Contractors did not provide enough on-site management. As a result, there was little quality control, and problems often went uncorrected until the bases made repeated requests.

In two cases, the bases were concerned about the quality of the contractors at the time of award, and the contracting personnel recommended against contract award. In both cases, the Small Business Administration issued Certificates of Competency, and the base had no choice but to award the contract.

All the bases have taken steps to correct their performance problems. Two bases have resolicited the function, and one of the two used a best value approach to hire better quality contractors. The third base has just begun its resolicitation process and has informed the incumbent contractor that he will not be considered for award.

Did performance change over time?

Performance generally improved after the first transition year. There may be problems in the first year of performance if the competition was contentious or if the transition proved to be more difficult than expected. However, most of these problems were resolved in subsequent years, and overall performance was viewed as satisfactory. In 8 of the 14 cost competitions where we interviewed personnel, performance improved after the first year. Five competitions had no performance problems during the first year, and in three competitions performance problems continued into subsequent years. Table 8 summarizes how performance changed between the first year and the rest of the competition period.

Table 8. Comparison of satisfaction levels (first year versus the rest of the competition period)

Record	Function	Service	First Year			Rest of Contract		
			Cust.	Mgmt.	C.O.	Cust.	Mgmt.	C.O.
1	Supply/logistics	Army		●		●	●	
2	DPW/family housing maintenance	Army			●	●	●	
3	Visual information services	Army	●	●	●	●	●	●
4	Base operating support	Air Force	●			●		
5	Grounds maintenance	Air Force	●	●	●	●	●	●
6	Aircraft maintenance	Air Force	●			●		
7	Base operating support	Air Force	●	●		●	●	●
8	Grounds maintenance	Air Force		●	●		●	●
9	DPW/family housing maintenance	Air Force						
10	Grounds maintenance	Air Force	●	●	●	●	●	●
11	DPW/family housing maintenance	Air Force	●	●	●	●	●	●
12	DPW/family housing maintenance	Air Force	●			●		
13	Aircraft maintenance	Air Force		●	●		●	●
14	Vehicle ops and maintenance	Air Force	●			●		
15	Supply/logistics	Navy		●			●	
16	Supply/logistics	Navy						

Blue = very satisfied with performance (4.0 to 5.0)

Green = neutral/satisfied with performance (2.6 to 3.9)

Red = dissatisfied with performance (1 to 2.5)

Frequently, the transition from in-house to contract performance or from the pre-competition workforce to the most efficient organization (MEO) can be more difficult than expected. For example, in one case the transition to contract was so charged with emotion and tension that a second cost competition was conducted within 4 years of the first one. These tensions eased only after the contracting officer for the second contract convened a partnering conference run by an independent facilitator. The conference produced a mutually acceptable set of expectations and rules of conduct.

In another case, the transition to contract performance was exacerbated by tension between the contractor's key personnel and the

base's quality assurance personnel, and the contractor's underestimation of the size and scope of the work to be performed. With changes to key contract personnel and an increase in overall contract staffing, performance has improved to a satisfactory level. And in a third case—an in-house win—difficulty in hiring enough civilian personnel to replace military personnel made it hard at first to meet the required performance standards in a timely manner.

Does performance vary by type of personnel interviewed?

Each group of personnel we interviewed—customers, managers, and contracting personnel—bring different perspectives to the work being performed.

Customers generally rank performance higher than do managers or contracting personnel. The customers we interviewed focused primarily on the timeliness and quality of the service delivered to them. They also commented on the professionalism and courtesy of the personnel performing the function. They may or may not have been familiar with the scope of work or level of performance required by the competition. They generally compared performance with what they had received at other installations or in the private sector. In some cases, they were knowledgeable about how the work was performed prior to the competition.

On the other hand, the managers and quality assurance personnel we interviewed had an intimate knowledge about the terms of the competition as well as how the work was performed prior to the competition. They made their assessments based on these factors. The management and contracting people we interviewed repeatedly mentioned that the quality assurance evaluators (QAEs) were sometimes over zealous in performing their duties, particularly if they had been adversely affected by the competition. This may partially explain the variation in managers' satisfaction ratings. However, another reason may be that, compared to the customer, they are closer to the actual performance of the function and are more aware of what is involved.

Contracting personnel are also very knowledgeable about the performance requirements of the competition and are concerned about

how well the contractor meets the administrative and procedural requirements of the contract. They generally base their assessments on these factors as well as on how other contractors comply with similar requirements. Contracting officers, however, can be heavily involved with any and all transition problems occurring when moving from in-house to contract. As we saw in figure 18, contracting officers rank satisfaction with performance at 2.7, borderline between neutral and dissatisfied during the first year after competitions. We expect that this is primarily due to transition problems.

Other issues or trends affecting the successful implementation of the competitive sourcing program

In addition to our findings on the long-run cost and performance of competitive sourcing competitions, we made several other observations about the program's implementation. First, there was too little documentation of cost and performance of competitions, particularly in regard to in-house wins, to permit the accurate tracking of savings over time. Second, as a rule, the PWSs we reviewed were not performance-based or results-oriented. Third, the competitive sourcing program across the Services is being implemented tactically, not strategically. The effect of these findings is that the full potential of the program to generate savings and improve efficiency is being lost.

Were the documentation and implementation of competitions adequate?

If DoD is to know whether its functions are being performed efficiently and effectively, it is essential to monitor their cost, performance, and workload. These three factors provide a full picture about how efficiently and effectively a function is being provided. For example, if a vehicle maintenance function showed a 10-percent decrease in costs with corresponding increases in performance over a 5-year period, it would appear that vehicles were being well maintained at a lower cost than expected. However, if the total number of vehicles maintained (workload) had dropped 40 percent during the same period, a very different conclusion would be drawn. Without this information, DoD cannot answer the questions it will continue to get about whether it realizes savings from its competitive sourcing program. The three factors (cost, performance, and workload)

should be viewed as a three-legged stool, with each leg providing a critical piece of the overall picture, and all three required to provide a complete picture about how efficiently and effectively a function is being performed.

Since 1998, DoD has required that changes in costs and performance be documented for 5 years after the competition is completed. However, at the time that most of the competitions we examined were conducted, 1988 through 1996, DoD had no documentation requirements. However, the Services imposed requirements of their own. For example, the Navy required that any changes to the MEO be documented and maintained locally for the period of the cost comparison. The Air Force required that its manpower officers document changes to authorized positions. In general, these Service-imposed requirements were insufficient for the purpose of our analysis because complete documentation on all cost and actual (not authorized) personnel changes, as well as the reasons for the changes (e.g., scope change, wage determination, and workload adjustment) are necessary in order to identify the savings that are realized. Further, these data need to be kept beyond the first solicitation period if DoD wishes to determine the long-run effect of cost and performance changes.

Sixty-seven percent of the competitions we initially selected for review were eliminated from analysis because of inadequate cost and performance documentation. Documentation was adequate for contract wins because the contract files are required to identify all changes to the contract, be they for wage increases or scope and workload changes. Eleven competitions that resulted in contracts were eliminated, however, because several critical modifications were missing, because the contracts had been combined with other contracts making it impossible to isolate savings, or because files had been destroyed during reorganizations or moves.

Inadequate documentation was particularly prevalent when the function was retained in-house. Twenty-two of 24 in-house wins, or 92 percent, were eliminated because files documenting changes in scope, workload, FTEs, and costs could not be found or had not been kept. In some cases, we found personnel ceilings and costs kept by year, but with no explanation of what had caused the changes over the year, such as wage increases,

shifts in workload, or additional duties. In other cases, we found that estimates of personnel costs were incomplete because they excluded estimates of overtime costs and use of military labor, and included personnel assigned to unrelated activities. Costs of supplies, utilities, or other expenses typically were not tracked at all. These non-personnel costs typically account for about 15 percent of the total cost of performing the function. Without this information, it was impossible to determine whether any cost growth that occurred was warranted.

Conversely, we found that budget cuts occasionally reduced the overall cost to perform a function. However, because these cuts were not translated into scope or workload changes to the MEO, it was impossible to determine whether effective savings increased because the required work was being performed for less, or whether less total work was performed and costs remained stable or increased.

In a recent report, GAO also found that data were insufficient for them to conclude whether savings were realized in two of the nine competitions it examined. As a consequence, even though it found that significant savings were realized, it was unable to quantify them.

Finally, workload data for both contract and in-house wins, were often unavailable both in terms of the number of units (e.g., number of vehicles, acreage, or square footage) as well as the type and condition of the workload (e.g., 6-year old box trucks, semi-improved acreage, or warehouse space). Because it can be much more costly to maintain an older vehicle than a newer one, and much less costly to maintain a square foot warehouse space than a temperature- and humidity-controlled facility, pre- and post-competition estimates of workload should not only reflect the number of units but also provide and track full information on changes in the type of work performed. Without this information, it is difficult to measure the full effect of changes to a contract or an MEO.

Were PWSs performance-based?

OMB Circular A-76 requires that the performance work statements used in A-76 solicitations be performance-based or results-oriented. That is to say, that they need to describe *what* results need to be

achieved, not *how* the results are to be achieved. The PWS is to describe the desired performance level in terms of quality, quantity, and timeliness. It is not to prescribe how the work is to be performed—e.g., how grass is to be mowed, how supplies are to be stored, or vehicles repaired.

Performance-based or results-oriented PWSs allow potential bidders the greatest latitude in determining how to perform the work and, as a consequence, offer the greatest opportunity for innovation, creativity, and cost savings. They can also attract a greater number of bidders and increase the level of competition.

The PWSs we reviewed were generally overly prescriptive and, in the main, restricted potential bidders largely to duplicating the process by which the installation currently performed the work. For example, one PWS specified the type of grass seed that was to be used on its grounds. Another prescribed the number of insects that must be counted before treatment could be initiated. A third prescribed the number and type of personnel the contractor was required to provide. Nearly all of the PWSs required potential contractors to follow vast numbers of military instructions or manuals.

Generally, we found the older PWSs to be the more restrictive. The more recent ones that used a commercial standard as the required level of performance were much less restrictive. However, even these required prospective contractors to use Service processes, instructions, and forms. For example, in one recent PWS for the maintenance of military family housing, the contractor was required to use the Service's guidelines when scheduling times for applying primer, first, and second coats of paint. The contractor was also required to use government paint specifications.

Is competitive sourcing implemented strategically?

With a few exceptions, the Services have left the implementation of the competitive sourcing program to the installations. The installations have determined what functions will be competed as well as when and how they will be competed. The choices and priorities made by the installations reflect the best interests of the base, which

may not be the best interest of the command or Service. Frequently, the decisions are driven by which functions the installations think they can retain in-house after competition, rather than by which can generate the greatest amount of savings.

Portions of functions, rather than complete functions, have been competed because of differing views of what is an inherently governmental position. For example, at one installation the activities included in the PWS for a supply competition included receiving, packing, and shipping supplies, and operating the SERVMART, a self-service supply store for base customers. The PWS excluded the storage and distribution of the supplies because the base felt that these activities were inherently governmental or otherwise exempt from competition. However, at another installation these activities were included, as well as rewarehousing of materials to other storage locations. By raising packaging decisions to the command or Service level, a consistent strategy can be developed on how to handle problems related to inherently government positions.

Installations also tend to compete smaller functions than is the case if a command is making the decisions. For example, at the installations we visited where decisions were made at the installation level, facilities management functions such as military family housing, buildings operations and maintenance, and grounds maintenance are rarely competed as a single package. Rather, they are competed as three separate packages. Six competitions included in our analysis fell into this category. On average, these competitions had roughly 33 FTEs. Their expected savings rate (weighted) was only 32 percent. Our previous work indicates that the greatest amounts of savings are generated when 250 or more FTEs are competed.

In contrast, at installations we visited that were driven by command decisions, facilities management functions were part of a larger package of base operations support functions. The two BOS functions included in our analysis had averaged 277 FTEs per competition. The expected savings for these competitions were almost 40 percent.

While a decentralized approach that allows the installations to determine if, how, and when functions are competed, maximizes installation priorities, it may be at cost to the command or Service. A

more strategic approach would be for the Service headquarters, commands, and installations to work together to perform strategic analyses that identified the best way to package and set competition priorities. This type of analysis would examine national and regional, as well as installation, approaches to competing functions. For example, competing supply functions at a regional or command level might yield greater efficiencies by identifying warehouses that could be closed or improvements to inventory management that would not have been possible if the competition were restricted to the installation level.

A more centralized approach would also provide a more consistent approach to competing similar functions across a command or Service. In addition, it would promote a higher level of confidence from potential industry competitors. Finally, it could reduce the competitions needed and the amount of time needed to complete them.

Conclusions and recommendations

Conclusions

Savings are real and sustained

For the sample of 16 competitions, our analysis indicates that the savings achieved from competition are real and are sustained over time. The expected savings for this group were 35 percent for the first competition period, with an estimated effective savings rate of 34 percent (indicating that savings are not degrading over the first competition period). Even with all wage, scope, and workload changes included in the cost analysis, a substantial level of observed savings (24 percent) is realized. These savings appear to continue through subsequent competition periods.

Performance is satisfactory

For the 16 competitions included in our analysis, customers, management, and contracting officers considered post-competition performance to be satisfactory overall. Performance levels tended to be lower during the first year after competition, particularly if tensions created during the competition continued into contract performance, or if the transition proved to be more difficult than expected. On average, customers were more satisfied with performance than were management and contracting officers.

Grounds maintenance was the only function that received unsatisfactory performance ratings.

Documentation needs to be improved

Documentation of changes to cost, performance, and workload needs to be improved if DoD wants to continue to evaluate the program's effectiveness. This is particularly true for in-house wins

because records of cost, performance, and workload changes have not been kept routinely. Recent changes in documentation requirements will improve documentation of cost-related changes, but they don't address similar needs for performance and workload information.

PWSs are prescriptive

In the past, DoD has missed opportunities for increased savings because PWSs were too prescriptive and competitions were not optimally packaged. Prescriptive PWSs reduce the efficiencies that can be achieved through competition, and reduce the ability to effectively benchmark DoD functions with the private sector. On-going efforts to improve DoD PWS and packaging guidance to its Components will help resolve this problem.

Recommendations

As a result of our review of long-run cost and performance effects of the competitive sourcing program, we have identified several ways in which DoD can improve the quality of its program and its ability to track savings in the future.

Improve DoD's ability to track savings

Our recommendations to improve DoD's ability to track savings include:

- *Have the managers of in-house wins conform to the same standards required of contract managers.*
 - Document all changes in annual costs. All increases or decreases to the cost of providing a particular function should be tracked in terms of cost impact and description. These changes include modifications to scope, increases or decreases in workload, one-time cost changes, and wage rate adjustments. Documentation should be similar to that of contracted functions. This documentation should also include changes in budget availability so the impact of budget cuts can be measured.

- In-house performance should be monitored against the PWS on a regular basis. The quality assurance surveillance plan developed to monitor contractor compliance should also be used to monitor in-house performance.
- In-house wins should be re-competed or re-evaluated every 5 years or if they fail a post-MEO performance review. The 1996 changes require that 20 percent of MEOs be reviewed for compliance with the solicitation. MEOs that fail such reviews are to be resolicited. This will put these recompetitions on a par with contract competitions.
- *Track a small percentage, perhaps 5 to 10 percent, of all competitions from cradle to grave.* This will provide a test-bed of competitions, the data from which can be used to evaluate a wide variety of issues on the competitive sourcing program. Used in combination with the documentation from the other competitions, these data can provide a fuller picture of the effectiveness of the program and help identify new and continuing challenges in implementation.

Improve packaging

Although A-76 competitions do promote savings, they are expensive and time-consuming, and they affect the morale of all the affected personnel. Therefore, it is in the best interest of DoD, the Services, and the installations to package A-76 competitions as effectively as possible. To this end, we recommend the following:

- Develop a corporate strategy at the Service or command level.
- Identify low-hanging fruit. Identify functions where it is expected that conducting an A-76 competition will yield significant savings.
- Use economies of scope. Identify whether combining complementary functions under one competition would yield greater savings to DoD than running two single-function studies.
- Use economies of scale. Identify whether combining similar functions at more than one installation into one competition would yield greater savings than running separate competitions.

- Identify the full picture. When making packaging decisions, evaluate the impact of the arrangement on the day-to-day operations at the installation, on small and disadvantaged businesses, and on other interested parties.

Improve transitions

To address the level of tension and confrontation that can occur during transitions from in-house to contract, DoD should consider using partnering conferences. A partnering conference brings together representatives from the in-house organization and the contractor to develop a transition strategy and to identify and mitigate problems. Such a partnering conference was very successful in one of the competitions we examined.

In addition to the partnering conferences, the careful selection of QAEs is a necessary part of the transition process. If existing in-house personnel are going to move into the role of QAEs, they should be included in the partnering conference and selected carefully to ensure that animosity or bias is not introduced into contract monitoring.

Improve the quality of A-76 implementation

To improve the quality of A-76 implementation, DoD should consider using activity-based costing (ABC), benchmarking, and performance measurement to help package and develop the PWS, and to help track post-competition costs and quality. Although the implementation of ABC and the development of performance metrics is expensive, ABC and benchmarking can be an integral part of centralized planning and packaging of A-76 competitions.

Implementing ABC and developing benchmarks before the competition, provides senior leadership with information about how the costs and performance of particular functions compare with that of the private sector and other government agencies. With this information, senior leaders can package competitions effectively, choosing functions with high expected savings from competition. Functional managers can use the information provided through ABC and benchmarking to identify high-cost or low-performance areas

within their function and make pre-competition changes that can make them more competitive. For functions not being competed, ABC and benchmarking can, and should, be used to identify targets for cost savings.

Once pre-competition benchmarks and performance metrics are developed, data on cost and performance are presented in unit measures (e.g., cost per square foot, customer complaints per job order). Measuring costs and performance in terms of units allows data to be effectively tracked over time regardless of workload variations. Therefore, using benchmarking and performance metrics as part of the A-76 process is a way to accurately track costs and performance both pre-and post competition. Incorporating ABC and benchmarking into a PWS can add specificity and increased accuracy in cost estimating, thereby promoting competition and providing well-defined standards of performance.

The Services are exploring a variety of ABC and benchmarking initiatives that can be useful in improving the quality of their competitive sourcing programs. The Marine Corps, in particular, has taken steps to integrate these efforts.

Appendix A: Methodology

To determine whether there are long-run cost savings from competitive sourcing, we examined commercial functions that had been competed between 1988 and 1996. Our intent was to be able to review the full and actual costs to perform these functions for at least the full solicitation period specified in the A-76 competition. We also examined the extent to which management, customers, and contracting officers were satisfied with the resulting performance.

This section outlines the methodology used in our assessment of costs and performance, lists caveats and assumptions, and discusses the problems and limitations of the data that are available. Our approach covers the following steps:

- Competition selection
- Data collection
- Data analysis.

We performed our review between August 1999 and July 2000.

Competition selection

Most of the studies that evaluate the effectiveness of competitive sourcing do so through the study of savings 6 months to one year post-competition. To add to and expand this body of knowledge, our initial goal was to review functions that were competed at least 4 years ago, where data were available for, at minimum, one full solicitation period. Ideally, we wanted to examine functions that had been competed for 10 or more years. We used the process described below to select the competitions included in our review.

Criteria

Forty-nine competitions fit our criteria for review. The functions included operations support (BOS), facilities/ housing operations

and maintenance; vehicle operations and maintenance; logistics or supply operations; visual information services; and aircraft maintenance. The competitions included 25 contract wins and 24 in-house wins and were distributed among the Army, Navy, and Air Force. We used the following criteria:

Timeframe: 1988 to 1996

All of the competitions we examined were completed between 1988 and 1996. Because contract files are typically destroyed 6 years after contract-closeout, we could not go further back than 1988. Comparable documents for in-house wins are often destroyed even sooner. Competitions that were completed after 1996 were excluded because we wanted to be able to review the actual costs for at least the performance period specified in the initial competition. Since the inception of the DoD competitive sourcing program, roughly 2,200 competitions have been completed. By selecting the time frame of 1988 to 1996, this pool of competitions was reduced to slightly more than 300.

Competitions at closed installations eliminated

We eliminated all competitions that took place at installations that were later closed or had a major realignment because there was a high probability that the relevant documentation would have been destroyed or lost.

Competitions with 20 or more FTEs

We excluded competitions with fewer than 20 FTEs because these competitions typically generate smaller cost savings.

Balance between contract and in-house wins

We also wanted to choose functions that had a history of both contract and in-house wins so we could identify any differences in cost and performance trends.

Functions that have some relevance for future competitions

Many of the earlier competitions covered functions such as key punch operations or telephone switchboards. We excluded these types of functions because, for the most part, these functions are not part of

the current competitive sourcing inventory and examining them would have little relevance for future competitions.

Functions that had several competitions, preferably in more than one Service

We excluded functions where there had only been a few competitions because we would not have been able to draw any conclusions at the functional level. Initially, we set the lower limit at six competitions with at least three Services represented. We subsequently had to relax this criterion to at least five competitions with at least two Services represented.

Telephone screening

Before we visited an installation to interview personnel and review documents, we first called the installation to ensure that the relevant documents would be available. This initial screening eliminated 27 competitions from our sample of 49 because the data were either unavailable, too old, or too disorganized for our review. Seventeen of the competitions that were eliminated at this stage were in-house wins.

Data collection

Installation interviews

After telephone screening, we visited installations to conduct interviews and collect competition data. During these visits, we interviewed installation personnel who routinely came in contact with the function that had been competed—functional managers; quality assurance evaluators; customers; and, if the competition was a contract-win, contracting personnel and the contractor. We used a structured interview form designed to gather both information on competition cost and performance. The goal of the interview process was to gain an understanding of:

- The tasks being conducted within the function and what tasks, if any, differ from a traditional perceptions (i.e., identifying any unique characteristics of the function).

- The history of the competition. Whether there were any specific problems with the cost comparison or competition process, any protests, and the number and types of bidders.
- Any major changes in how the function was provided pre- and post- competition. For example, in one visual information services competition, the annual outlay for government-furnished equipment increased significantly at the time of competition. Therefore, due to technology increases, the post-competition function could be provided with significantly less labor.
- The major changes to workload during each solicitation period. For example, in one aircraft maintenance function, changes in the required number of flying hours at the installation increased workload significantly.
- The major changes to scope during each solicitation period. For example, in one vehicle operations contract, the operation of a bus route was added, thereby increasing the scope of the work performed under the contract.
- The major one-time cost changes during each performance period.
- The quality of the performance of the function and whether performance has changed during the period of performance.
- Any additional costs to the government not identified in the cost comparison or contract documentation. For example, in some grounds maintenance functions, military labor was being used to augment the contract workforce. Through these interviews, we identified the level of effort and, therefore, the total cost of this additional labor.

Documentation review

During each site visit, we reviewed all available documentation on the cost and performance of the function. Documentation review included: the competition documentation (PWS, cost comparison, correspondence, bids, protests); all post-competition contracts, modifications, and purchase orders (if contract-win); budgets; audit and

manpower reports (if in-house win); and performance reviews. We also obtained relevant workload information if it was available.

After our site visits were completed, we had to drop an additional 8 competitions from our cost and performance analyses because of insufficient or incomplete data, leaving a total of 16 competitions that we ultimately evaluated.

Supplementary data

In addition to the site visits and interviews, we obtained additional data to verify and augment the data collected at the installation. These supplementary data included audit reports, data from Service-wide information systems, and private sector cost data on comparable functions.

Data analysis

Once we had gathered cost and performance data on the selected competitions, we analyzed them to determine whether actual costs were more or less than had been originally estimated and whether performance met the level specified in the competition. The goal of this analysis was to examine whether the expected level of savings from A-76 competitions can be achieved and maintained over the long run without affecting the quality of services provided.

Tracking cost changes

Pre- and post-competition costs

To determine whether the expected level of savings from A-76 competitions can be achieved and maintained over the long run without affecting the quality of services provided, the annual costs of a function, post-competition, must be isolated and tracked over each solicitation and compared with pre-competition costs. To have an accurate comparison between the *full* pre- and post-competition costs, components of cost must be isolated and defined.

- *Pre-competition costs.* Throughout this study, we have made comparisons between a function's annual costs and its

pre-competition, or baseline, costs. In the past, there has been a concern that baseline per-billet cost estimates are too high. To address these concerns, we have used the MEO cost per billet (as reported in the cost comparison) and applied this ratio to the pre-competition billets to estimate baseline costs. This provides a more conservative estimate, and assumes that the cost per billet, both before and after the competition, is the same.

- *Post-competition costs.* Post-competition costs include the total direct cost of providing the service plus any indirect costs to the government. The direct cost of providing a service is the contract price in the case of a contract win and the cost of meeting the MEO in the case of an in-house win. Indirect costs include contract administration costs, one-time conversion costs (amortized over the first solicitation period), and any other costs. All calculations of post-competition costs include both the direct and indirect costs of providing the service.

Tracking post-competition costs

The total costs estimated on the cost comparison form for each year in the first solicitation period do not actually correspond to what was spent on an annual basis. Often, there are changes in the demand for a particular function, as well as changes in the specific tasks that are to be conducted. However, these changes are not part of the A-76 process, and they would have occurred whether or not the function was competed. By isolating the components of total costs, we can track increases and decreases in cost and determine whether changes would have occurred if the competition had never been conducted. Therefore, to evaluate contract costs, we looked at the funds available for each year of the contract and tracked the modifications made during the year. For in-house wins, we tracked annual costs from budget and manning documents with estimates for the impact of changes during the year. The components that affect annual cost are defined as follows:

- *Scope changes.* These are changes in the original set of functions defined in the PWS. Examples include adding facility painting to a maintenance contract that had been limited to minor repair or eliminating the self-help stores from a supply con-

tract. If the scope of a contract changes during the first year, funding in all subsequent years of the contract may reflect this change.

- *Workload changes.* There are changes in the level of effort required under the PWS. Examples include an increase in the number of acres to be managed under a grounds maintenance contract or a decrease in the number of passenger vehicles to be maintained under a vehicle maintenance contract. After a workload adjustment, funding for all subsequent years of the contract can reflect the impact of this change in workload.
- *One-time cost changes.* These are adjustments in scope or workload that only affect the current year of the contract. For example, one installation suffered major damage from a hurricane. The contracts for facility maintenance and grounds maintenance at this installation were modified to allow extra workers to be brought in to clean up the debris and rebuild. However, because this was expected to be a one-time effort, funding in subsequent years of the contract was not increased.
- *Wage determinations.* At any time during the contract, the Department of Labor may decide to raise labor rates, or rates may be raised under the Service Contract Act. Wage increases will affect not only the current year of the contract, but all subsequent years as well. Wage increases are also calculated for in-house wins.
- *Cost adjustments.* At any time during the contract, the unit cost of materials may change. For example, increases in fuel costs will increase the costs of performing shuttle services under a vehicle operations contract. This type of cost increase would affect the cost of providing this service whether it was performed in-house or under contract. We have assumed that an increase or decrease in unit price would continue throughout the contract period.
- *Labor augmentation.* Under certain contracts, particularly those where poor performance was an issue, government labor was brought in to bolster the effort. Through interviews with customers and management, we estimated the size of this

workforce and developed fully burdened rates for this labor on an annual basis. In other cases, the total number of personnel involved in managing the function was larger than estimated in the cost comparison. Through interviews, we also estimated the fully burdened cost of this additional labor force.

Comparing costs and savings

The annual costs of a function are the funds made available to conduct that function at the start of the fiscal year, plus or minus adjustments made during the year, and, for contract wins, the total costs to the government from contract administration and management including QAEs. These are the annual costs observed by the government for the provision of the function.

To determine how these costs compare with what was “bid” in the cost comparison relative to the original PWS, adjustments for changes in workload, scope, unit cost, and wage changes must be accounted for, not only in the year in which they occurred, but for all subsequent years as well. To this end, if in a given year, there is an increase in scope costing of \$50,000, it is expected that funding for each of the remaining years will be \$50,000 higher than what is projected in the cost comparison form.⁹ This increase in cost reflects the provision of additional effort, not an increase in the cost of providing the original functions defined in the PWS. Therefore, to ensure an apples-to-apples comparison of the cost of providing the original set of functions, the \$50,000 for additional workload would be subtracted from the funds available for each subsequent year of the contract.

To determine whether savings were achieved for the 16 competitions, we evaluated and compared costs and savings from three perspectives: *expected*, *observed*, and *effective*. Using this approach allows us to separate and evaluate the costs of meeting the tasks described in the original PWS, and assess how costs are affected by changes in scope, workload, and other adjustments.

9. Adjustments that are made mid-year are annualized for all subsequent years (e.g., it is assumed that a \$20,000 change in scope that affects 6 months of a given year will affect each subsequent year by \$40,000).

Definition of terms and method of calculation

The terms we used and our method of calculation are defined as follows:

- *Expected costs* are what the government expects to pay for the provision of a commercial function after a competition is completed (e.g., the price of the winning bid plus all administrative costs to the government). *Expected savings* are estimated as the difference between what the government expects to pay and the pre-competition costs of providing the function. *Expected costs* and *savings* are forecasts based on the winning contract or MEO bid at the time of competition and can be incorporated into out-year budget decisions.

The expected cost is given by the following formula:

$$XC_t = C_t + A_t$$

XC = Expected costs. The annual costs the government expects to pay for a given year

C = The total winning contract bid (or MEO) for a given year

A = The total administrative and other costs to the government as reported on the cost comparison form for a given year. (Note: one-time conversion costs are annualized across the first solicitation period)

- *Observed costs* are what DoD actually spent for the provision of services. Observed costs include increases or decreases to annual costs from changes in scope, workload, wages, and one-time cost adjustments. *Observed savings* are the difference between the pre-competition annual cost to the government and the actual or observed costs of that function after the competition was completed.

The observed cost is given by the following formula:

$$OC_t = F_t + A_t + S_t + D_t + O_t + W_t + P_t + L_t$$

OC = Observed cost. The annual cost the government is required to pay for a given year

F = Actual funds made available for a given contract or MEO at the start of a given fiscal year

A = The total administrative and other costs to the government as reported on the cost comparison form for a given year. (Note: Conversion costs are annualized across the first solicitation period.)

S = Total annual increase or decrease in cost due to scope changes for a given year.

D = Total annual increase or decrease in cost due to workload changes for a given year.

O = Total annual increase in cost due to one-time cost changes for a given year.

W = Total annual increase or decrease in cost due to periodic changes in wage rates prescribed by the Department of Labor or the Service Contract Act.

P = Total annual increase or decrease in cost due to changes in the unit cost of materials.

L = Total annual increase in cost due to labor augmentation for a given year.

- *Effective costs* are the estimated costs to DoD of providing the *same set* of services as originally identified in the cost comparison. Effective cost estimates exclude cost changes that would have occurred whether or not the function was competed. For example, in one competition the *observed* costs of providing services increased by over 15 percent from 1991 to 1992. This increase was due to additional workload needed to support our military in the Persian Gulf. This increase in workload, and therefore cost, would have occurred whether the necessary services were provided by in-house or contract labor. Therefore, the *effective* costs for 1992 would be adjusted to remove these one-time costs. By adjusting the data to exclude workload, scope, wage, and one-time costs, effective cost estimates allow us to compare changes in cost while keeping the original scope constant. Effective savings are defined as the difference between the pre-competition annual cost to the government and the effective costs of that function after adjustments are made. Comparing *effective* and pre-competition cost estimates provides insight into true cost growth or savings.

Based on the observed cost and expected cost formulas above, the effective cost is determined by the following formula:

$$EC_t = OC_t - \sum_{i=1}^t (S_i + D_i + W_i + P_i) - (O_t + L_t)$$

where the effective cost (EC) for a given year is equal to the observed costs of the function less the cumulative impact of all scope, workload, wage and price adjustments occurring since contract inception and less the one time cost changes and labor augmentation for the year of calculation only.

Effective costs are the most meaningful indication of whether an A-76 competition was successful in producing real and sustained savings because they identify the costs of providing the same scope of work over time. However, it is also important to examine changes in observed costs because, historically, these are the types of costs people have looked at when examining the value of the competitive sourcing program.

Caveats and assumptions

During our analysis, we had to make some assumptions in isolating such factors as the effects of scope or workload changes, the amount of contract administration or augmentation of contract labor by government labor, or minor discrepancies between authorized and expended funds. In all cases, we chose to be conservative and decided in favor of the alternative that would limit rather than increase savings.

Scope and workload changes versus one-time cost increases

It was sometimes difficult to determine the difference between these two changes. When in doubt, we tried to guess conservatively—deciding in favor of a change in scope rather than a one-time change. However, if it was in fact a one-time change, then future years adjusted (effective) costs will be lower than we show them.

Baseline costs

If the baseline FTE billet estimates provided by the Services are for a set of functions other than the set described in the PWS, baseline estimates will be wrong, and this will affect the savings estimates provided in this study. We have assumed that baseline billets are correct and are for the same set of functions described in the PWS.

Labor augmentation

These estimates were based on estimates provided to us during our interviews with relevant customers and contract personnel. To our knowledge, there are no documented data in this area.

Annualizing costs

If a contract or an MEO was modified 6 months into the solicitation period, we doubled the cost of the modification for subsequent years. However, certain modifications occur mid-year but actually cover the full year. We have tried to be conservative in our estimates and identify as many of these situations as possible. A good example of this type of modification is in the grounds maintenance area. If a change in scope occurs in January, well before the growing season, the cost change is likely to be in effect for the whole year, and we have treated it as such.

In-house wins

We included only two in-house wins in our analysis because good documentation of the post-competition costs was very scarce. These two wins are probably a self-selecting group and because good documentation exists, we can probably assume that the functions are well managed. As a result, they may demonstrate higher savings than we would have found had we been able to analyze a larger sample of in-house wins. The contract wins we analyzed may also be self-selecting because we dropped 11 contracts from the analysis due to missing data or because the contracts were later combined with other contracts and it became impossible to track changes in cost. Most of the contracts that we dropped because of missing data were the earlier contracts—those awarded in the late 1980s. The data for these

contracts had been lost. As a general rule, contract wins are much less likely to be self-selecting because procurement requirements mandate complete documentation of all changes to a contract. Therefore, even poorly managed contracts could be included in our sample.

Wage changes

We have assumed that wage changes for contract and in-house labor would have been similar. We would have preferred to evaluate the difference in wages between contract and in-house workforces, but wage determinations were often coupled with other adjustments in scope or workload. Thus, we could not isolate the impact of wage changes from that of other changes.

Appendix B: Selected CNA competition and outsourcing bibliography

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List of figures

Figure 1. Summary of savings	3
Figure 2. Summary of performance.	4
Figure 3. Service distribution of the 16 competitions	10
Figure 4. Distribution of 49 original competition methodologies.	12
Figure 5. Expected, observed, and effective savings rates for the 16 competitions (first solicitation period)	18
Figure 6. Distribution of effective savings by frequency and pre-competition annual cost (first solicitation period only)	20
Figure 7. Distribution of trends in effective savings by frequency and pre-competition annual cost (first solicitation period only)	21
Figure 8. Differential of effective costs versus the contract bid, distributed by frequency and size of competition	23
Figure 9. Differential of observed costs versus contract bid, distributed by frequency and size of competition	25
Figure 10. Summary analysis of savings—BOS competitions	28
Figure 11. Summary analysis of savings - supply competitions	29
Figure 12. Summary analysis of savings facility and family housing maintenance competitions	30
Figure 13. Summary analysis of savings grounds maintenance competitions	31

Figure 14. Example of grounds maintenance competition with labor augmentation	32
Figure 15. Summary analysis of savings aircraft maintenance competitions.	33
Figure 16. Summary analysis of savings from the vehicle operations and maintenance competition	34
Figure 17. Summary analysis of savings—visual information service	35
Figure 18. Summary of performance information	37
Figure 19. Distribution of overall satisfaction by frequency and weighted by pre-competition costs	40

List of tables

Table 1.	Summary data on 16 competitions	9
Table 2.	Distribution of the 16 competitions by function. . .	11
Table 3.	Savings rates for the 16 competitions	19
Table 4.	Detailed effective savings growth rates for the 16 competitions (first solicitation period only) . . .	22
Table 5.	Average differential between effective costs and the contract bid (all solicitation periods)	24
Table 6.	Comparison of observed cost and contract bid for 14 contracted functions (all solicitation periods) . . .	26
Table 7.	Levels of customer, management, and contracting officer satisfaction	38
Table 8.	Comparison of satisfaction levels (first year versus the rest of the competition period)	42

