SOURCES OF COST SAVINGS FOR SPECIFIC COMPETITIONS

While it is relatively easy to calculate broad savings estimates on the basis of information contained in cost-comparison documents, an understanding of the sources of those savings can be gleaned only through an in-depth examination of the cases in question. Below, we summarize the sources of cost savings for each of the sites visited. This information was drawn both from the interviews and from document review.

Base Operating Support #1 (BOS #1)

The BOS #1 competition was won by the in-house organization. Most savings were generated by reducing the number of workers required to do the job. This reduction was facilitated primarily by civilianization and organizational restructuring, although multiskilling also played a minor role. The MEO also generated savings by downgrading positions. Finally, there was some minor capital-labor substitution in the form of installing some computers and reducing the number of workers performing clerical tasks.

The BOS #1 MEO reduced the number of positions by 24 percent and personnel costs by 34 percent. This was a multifunction competition and, as suggested by Table 3.3, the savings varied dramatically across the functions. In each function, the personnel slot savings paralleled personnel cost savings.
The low savings rate in the MWR/billeting function is striking. This is a function that had few military personnel, and even fewer (16 out of 100) appropriated fund (APF) civilians to start with. Moreover, because this was a nonappropriated fund (NAF) function, it was already under pressure to hold down costs (at least the cost of civil service workers). The telephone operator function, which was only five authorizations to begin with, generated no savings. The telephone operator function is an around-the-clock staffing; someone has to be there to answer the phones 24 hours a day, seven days a week. Therefore, the number of people required to fully staff the function is not very flexible.

Savings in this case clearly were achieved by reducing the number of personnel. However, disentangling the changes that allowed for such reduction is difficult.

Civilianization played an important role in reducing the number of supervisors required. All 177 military positions were either eliminated (74) or civilianized (103). The military structure involved a lot of supervision and required hierarchies; for example, the number of squadrons was reduced because the Air Force cannot have a squadron without a commander and the commander has to be a uniformed individual.

In total, 82 percent of the personnel cost savings came from eliminating positions (both civilian and military). Another 18 percent came from direct military-to-civilian conversions.

Other organizational restructuring efforts also played an important role in allowing the reduction in the number of personnel. For example, the logistics group was eliminated and its activities incorporated into other groups. These changes allowed for a reduction in overhead personnel requirements. In addition, the MEO used more

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1Appropriated and nonappropriated funds refer to the source of the funds used to pay the workers. Most civil servants are paid from money that is appropriated by Congress for that purpose. However, there are some services that are supported in whole or in part by user fees. These activities are referred to as NAF activities because they derive at least some of their operating revenue from nonappropriated funds. NAF functions are required to balance their revenue and costs and their workers are covered by a different set of rules and regulations. There is a different pay schedule for NAF employees, a different retirement system and benefit structure, and a less restrictive hiring and firing policy.
work leaders rather than work supervisors, and generally increased the worker/supervisor ratio. For example, one housekeeping superintendent manages 60 positions. In the billeting function, managers have made use of NAF workers, reduced the number of full-time employees, and increased the number of part time employees. Currently, the function has 16 APF workers and the rest are NAF.

The reorganization also generated opportunities for multiskilling. Because the BOS A-76 grouped several independent functions under one umbrella, the managers in the different functional areas came to realize that they could distribute workers across units: workers in supply could be used in transportation and/or CE. The MEO also included limited improvements to the work process. For example, the MEO proposed swing shifts to reduce overtime.

The downgrading of positions is a bit more difficult to understand because it is intermingled with civilianization. Much of the “downgrading” occurred by eliminating proportionately more of the high-grade military positions and civilianizing proportionately more of the low-grade positions. For example, in the civil engineering area, more of the E-6 to E-8 and officer positions were eliminated, whereas more of the E-3 to E-5 positions were converted. Even when higher-grade military positions were civilianized, they were often downgraded in the process. For example, in the billeting function of MWR, there were E-6, E-5, E-4 and E-3 slots on the billeting desk—all were converted to GS-4 positions. The management study also downgraded a number of civilian positions in all functions. Notably, many WG-5 positions in civil engineering were downgraded to WG-2 and WG-3 positions. Collectively, these downgrading actions allowed cost savings to reach 34 percent even though the number of billets was reduced by only 24 percent.

Work scope issues in BOS #1 were not considered in the PWS or management study. However, the base commander noted that be-

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2 The advantage of using work leaders is that they can perform both supervisory and functional activities, whereas work supervisors can only engage in supervisory activities.

3 According to DoD policy, a GS-4 is roughly equivalent to an E-4. In terms of personnel cost of an individual employee, a GS-4 costs more than an E-1, but less than an E-2. However, assessing the cost of a single military or civil service worker is a complicated process. See Gates and Robbert, 1998, for a discussion.
Before the A-76 competition, the base was stretching the mission of the civil engineering function, asking individuals assigned to that unit to perform minor construction tasks for which they would otherwise have to contract. The civil engineering function was able to accommodate these requests because it had more personnel than it needed to perform its assigned civil engineering maintenance functions. The PWS excluded minor construction and thus de facto decreased the scope of work.

The functional managers noted examples where the PWS reduced the work scope but the base commander increased it in spite of the PWS. For example, the PWS specified that the wing commander’s car be washed once a week. But, often there are requests to wash it several times a week—e.g., if it rains or if a VIP is visiting. The functional manager noted that the PWS does not formally constrain the relationship between the commander and MEO the way it would constrain the relationship between the commander and a contractor. The contractor could demand additional payment for work that was not included in the PWS.

Generally, we found little substitution of capital for labor. The MEO added some computers and reduced the number of clerical personnel, but this had a minor impact. One functional manager noted that any capital substitution had been written into the PWS—the MEO is really a labor bid, with capital provided by the government for either in-house or outsourced performance. The MEO also generated minor savings to the organization by closing a warehouse.

**Aircraft Maintenance #1 (AM #1)**

The AM #1 competition was won by the in-house organization. According to the manpower officer, the major cost savings generated by this competition came from civilianization and reducing the number of supervisors. The initial organization included 929 military and 122 civilians. All military positions were either eliminated or converted. The MEO required 583 civilians. Therefore, about half of the military slots were converted and about half were eliminated. The number of supervisory positions was reduced substantially; for example, two O-5 positions and six O-4 positions were eliminated and replaced with one GS-14 position, two GS-12 positions, and two WS-14 positions. Because this replacement was such a large activity, the
The greatest personnel savings came in the civilianization of the mid-level workforce: converting E-3 to E-5 positions into WG-7 to WG-10 positions. The savings from civilianization stemmed mainly from substituting one civil service worker for every two or three military personnel. According to the calculations included in the cost-comparison study documents for this function, the cost per worker for military personnel in the E-3 to E-5 range was comparable to the cost per civil service worker in the WG-7 to WG-10 range.

Both the civilian personnel representative and the manpower officer reported that this MEO did not take advantage of multiskilling. The civilian personnel office representative suggested that with such a large function, the benefits from specialization tend to outweigh the potential benefits from multiskilling because there is enough work in a particular skill area to employ many workers. Other savings were obtained by setting up progression structures (helper, intermediate, journeyman) instead of using a more journeyman-intensive workforce structure. Thus, the MEO changed the structure of the workforce and the grade mix in such a way as to downgrade the overall structure of the workforce. The shift in the grade mix allowed cost savings (51 percent) to exceed billet savings (45 percent). The estimated cost of the original MEO that was developed by the commercial activities study team at this installation was lower than the estimated cost of the MEO that was approved by command headquarters. The command headquarters thought that the locally developed MEO was too small for the required work and restored 40 to 50 billets.

We found no evidence that the PWS reduced the scope of work in the AM #1 function.

**Missile Maintenance (MM)**

The MM competition was won by the in-house organization. As reflected in Table 3.1, the savings from the Missile Maintenance competition were substantial. Much of the savings was derived from an ability to do the work with fewer people. The MEO reduced the number of positions by 60 percent, and the personnel costs by 59 percent. These savings were achieved in several ways. “Civilianization” was one important source of savings. We place the term in quotation marks in this context because the MEO did not in
fact convert any slots but simply eliminated all the military positions. The management study of this missile maintenance function argued that the military personnel assigned to this activity were not doing anything related to the function. Some were detailed to drive distinguished visitors around the base, others were on semi-permanent TDY. The MEO development team saw no reason to fill any of the military slots with civilians and simply eliminated the positions.

According to the functional manager, the function had 33 military slots several years before the competition began. At the time of the management study there were 13 military authorizations, only eight of which were actually filled. This accords with staffing information contained in the management study. Moreover, independent of the A-76 competition, several changes were on the horizon for the subsequent year: the elimination of five (of the 13) authorizations (E-5s) and the reassignment of one E-8 authorization to another functional area. In other words, for reasons having nothing to do with the A-76 competition, the number of military personnel assigned to the function was scheduled to decline to seven. The personnel cost savings estimates presented in the management study report calculate the total cost savings based on a reduction from 13 military authorizations. We adjusted the baseline cost estimate to include only those seven authorizations that were scheduled to remain within the function.

On the basis of the estimates used in the management study, the elimination of the military slots accounted for 30 percent of the total personnel cost savings for this function. When we adjusted the baseline personnel cost and personnel cost savings estimates to include only those seven military positions that were staffed and not scheduled for elimination, the civilianization accounted for 19 percent of the total personnel cost savings.

The missile maintenance MEO benefited from organizational restructuring. The most substantial formal change was that the maintenance division was eliminated and the activity placed under the maintenance branch of the equipment management division. No special waivers were required for this change, and it allowed for the elimination of a division chief (E-8) position. Less formal organizational restructuring also occurred. For example, the new organization made more use of wage leader (WL) positions and instituted a
quality control system where work leaders could sign off on the work being done. This innovation reduced the number of work supervisors. The MEO reduced the number of supervisors (WS-13) from two to one and the number of wage leaders (WL-13) from five to one. This change accounted for 22 percent of the personnel cost savings.

The management study also reduced costs by altering the grade structure. The changes to grade structure were accomplished through a careful assignment of tasks in the position descriptions. This function is mainly staffed with WG-12 and WG-13 electric integrated systems mechanics. The MEO limited the high grades (WG-13) to the people working on the more complex missile systems that do not have as much self-diagnostic capability and require workers with both electronic and radar expertise. This led to a relatively greater decrease in the number of WG-13 workers. The MEO cut the number of WG-12 workers from 15 to 11, and WG-13 workers from 17 to three.

The civilian personnel officer involved in the A-76 competition noted that part of the reason for the greater-than-proportional cuts in the WG-13 positions stemmed from the fact that the customer organization had phased out its use of one of the two more complex missile systems. She also noted that there were just “too many” high-graded workers. Therefore, it is difficult to determine how much of the grade reduction was due to work mix changes that were occurring during the timeframe of the competition and how much was due to streamlining or modifying position descriptions. Nevertheless, the savings due to these cuts were substantial.

In addition to the changes just discussed, the MEO added a position for a production control clerk, which led to a more efficient organization of the work process. Formerly, there was no system for tracking work and assigning it to workers. Although standard procedures require that a work order be submitted before the work begins, in many cases the supervisors were writing up work orders after the fact. No good record existed of what was being done, and no way to prioritize. Formerly, the function had one GS-5 secretary position. The MEO proposed one GS-5 production support clerk and one GS-7 production control person. The functional manager argued that this position allowed the MEO to operate with fewer mechanics because
the organization would be better able to monitor and manage work-
load and input requirements.

This streamlining of the core workforce through improved work pro-
cesses, increased work intensity, and downgrading positions ac-
counted for about 59 percent of the personnel cost savings.

Multiskilling did not appear to be an important source of savings for
the MEO relative to the baseline workforce. Several members of the
A-76 team reported that the job descriptions for this function have
always been flexible, so in some sense there was always multi-
skilling. Both before and after, the job descriptions refer to
“Electronic Integrated Systems Mechanic,” and the management
study report makes no explicit mention of multiskilling contributing
to the MEO’s ability to reduce the number of people employed.
These job descriptions allow mechanics to work on all parts of any
complicated missile system. From a classification perspective, work-
ers could work on one or several different missile systems. However,
in practice workers are assigned to one missile system. The MEO did
not change this missile-specific team structure.

The missile maintenance competition also generated some facilities
savings that were unrelated to personnel use and were not included
in the savings estimates.4 Consolidating maintenance activities in
the facilities of the supported organization allowed the function to
vacate 18,721 square feet of space in another building,5 saving the
government about $70,000 per year in base operating support (BOS)
costs. The functional manager made the point that BOS “savings” are
not really savings since the space is probably just put to another use
on the installation. However, they do reflect opportunity costs to the
installation. The facility consolidation also allowed the MEO to
eliminate one vehicle rental for a savings of about $3000 per year by
relocating the direct support maintenance to the building where the
missiles are located. These savings are not reported in our savings
estimates or in the savings estimates for the A-76 competition.

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4These facilities-related savings were not included in the CAMIS cost savings esti-
mates either. Because the government normally provides facilities to whomever wins
the competition, their costs are not generally itemized in the cost-comparison study.

5After the study, the function would be assuming only about 10,000 square feet of
space.
The missile maintenance function is unique in that it is a service provided by one command for another under an inter-service support agreement (ISSA). The customer organization and the provider organization are in different commands within one service. The customer organization has to budget specifically for the missile maintenance services it purchases from the other organization. Because the customer organization is under budgetary pressure, it is sensitive to the cost of the reimbursement. Among other things, this arrangement seems to create more of an incentive for the customer and the provider to define clearly and look for opportunities to reduce the scope of the work.

The PWS explicitly addressed work scope issues. Some of the work scope adjustments were relatively minor and reflected a new understanding of the division of labor between the customer and the provider organization. During the development of the PWS, the functional manager of the provider organization reviewed the work that was being done and determined that much of the pre-study missile maintenance activity was beyond the scope of the ISSA. For example, individuals from the service provider came in at the start of the day to turn on equipment, although this is something for which the customer is responsible. It was also determined that the customer organization was not living up to some of its preventive maintenance obligations and that this oversight was creating unnecessary work for the provider organization.

Other work scope adjustments were more formal and involved the transfer of authorizations between customer and provider. Workers were doing several things that went beyond the maintenance and support function (e.g., supporting PC users and installing software). The management study determined that this support was not part of the ISSA, and suggested that the function be transferred to the customer organization. The original team performing this activity was composed of a WL and four electronic integrated system mechanics. Three electronic systems mechanic slots were transferred to the customer organization. It appears that when the management study calculated the manpower savings, they included all five positions (including the three that were transferred) in the cost savings. We were told that the customer organization did not actually use the authorizations, but absorbed the workload with its existing workforce, and we were unable to uncover any evidence to the contrary.
Therefore, we included these three authorizations as “savings” in our overall savings estimate.

In summary, the cost savings in the MM competition stemmed from several sources. Civilianization was an important source of savings, as were organizational restructuring and reductions in the scope of work. The consolidation of facilities also contributed to savings.

**Base Operating Support #2 (BOS #2)**

The BOS #2 competition was won by the contractor. According to the contractor’s local manager, the cost savings from this competition came from several different sources: multiskilling, lower wages, organizational restructuring, and increased labor availability.

The contractor hires multiskilled workers and is thereby able to use people across different activities. This flexibility leads to efficiency improvements and allows for the work to be done with fewer workers. Multiskilling facilitated improved work scheduling. In addition, the contractor implemented swing shifts to reduce overtime.

Organizational restructuring and streamlining played an important role in generating cost savings. The contractor has broken down the functional walls between activities and reengineered the work process. This restructuring permitted elimination of several mid-level managers, including three department managers. The contractor anticipates more such reengineering opportunities and may be able to cut even more management personnel.

Because this is the first large government BOS contract for this particular contractor, the participants really do not have any “lessons learned” to apply to this installation. Surprisingly, the contractor said that it shares information on what works with its competitors—

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6One of the QAEs in the facilities area said that the contractor has taken this too far, stating that the contractor “has workers all over the place” in a manner that is well beyond prudent cross-utilization. Clerks are sent to work in the warehouse. The contractor wrote a description for the position of “supply clerk” and got it approved. These clerks can then be sent to work anywhere in the supply function. Government unions would complain if civil servants were assigned to duties outside their occupational boundaries. However, this observer acknowledged that government position descriptions could be written in this way.
not the big national players like Dynacorp, Johnson Control, or Boeing Services, but the smaller regional players. It relocates managers, but not other employees, to other installations or contracts. As managers get more experience, they are moved to larger, more complex contracts.

The contractor reduced labor costs by downgrading positions so that the average grade level is lowered. This downgrade changed the grade mix, reducing the average skill level and wage of the workforce. For example, this BOS contractor uses more general maintenance workers and helpers and fewer journeymen laborers (e.g., carpenters, plumbers, and electricians), who are much more expensive.\(^7\)

The contractor can easily adjust the workforce to respond to changing work volume. The contractor can hire in a few weeks and can fire with minimum due process. Because the contractor does not have to staff for exceptional workloads, staffing can be more streamlined.

The contractor’s local representative reported that there was limited opportunity for capital-labor substitution because the equipment usage was prescribed by the PWS. However, the contractor installed additional computers and off-the-shelf software. Computerization freed foremen to be on the job rather than doing paperwork, thereby reducing the total number of workers required.

We found no evidence that the PWS reduced the scope of work in any of the areas studied. However, several people mentioned that the cost comparison process induces one to think about what really needs to be done and what is excessive.

**Aircraft Maintenance #2 (AM #2)**

The AM #2 competition was won by a contractor. It is difficult to discuss savings generated through this competition because it involved a consolidation of functions from several installations and, as a result, there is no real baseline organization against which to compare.

\(^7\)One of the government QAEs expressed some concern that the contractor has gone too far with this and that it is leading to high turnover rates.
the contractor. In the end, the contractor bid and the MEO bid were quite close.

The wage differential between the contractor and government was not a substantial factor. As we will discuss later, contractor wages are restricted by the SCA, and in this case these wages are not very different from civil service wages. When we asked the contractor’s local manager what his source of advantage was, he noted that the government benefits are much more costly than the contractor’s benefits. Another source of advantage for the contractor is a higher manhour availability rate (basically, the number of hours worked per person per year), largely due to less leave time. In addition, the contractor’s local manager believes his workers work harder because they are held accountable—they can be fired easily.

We heard conflicting reports on the ability of the contractor to reduce cost by improving the work processes. The function manager who developed the MEO claimed that in the area of aircraft maintenance, neither the contractor nor the MEO has much flexibility to improve work processes because they must follow Air Force regulations and technical orders related to the maintenance process. With all of these process restrictions in place, the government is not really outsourcing the function but rather hiring someone to staff what remains essentially an in-house function.

However, the contractor modified several work processes to generate savings. It streamlined parts flow 20–25 percent by removing needless (and unrequired) processes. In addition, the contractor isolated the tear-down process from the build-up process, thereby removing distractions and improving efficiency. The contractor said that it tended to organize the work more functionally than the task had been under government management. For example, the contractor has three production foremen: one stays with the aircraft, one is in charge of the back shop, and one is in charge of material control. Some of these ideas came from the experience that contractor employees had gained at other installations—usually as military personnel. These individuals based their bid on intimate knowledge of the process.
Telecommunications Operations and Maintenance (TEL)

The TEL competition was won by a contractor after an appeal of the initial decision which was for the in-house organization. Savings from the TEL competition came from several sources, including reduced work scope, civilianization, multiskilling, and organizational restructuring.

All key people involved in this contract (the contractor’s local manager, the government COR, and most of the workers) worked in the government organization before the A-76 competition. The COR was the functional manager and he contributed substantially to the PWS and MEO development. As a result, we were able to learn much about the use of personnel before and after the A-76 competition through interviews, in spite of the competition being won by a contractor.

The baseline workforce was 52 (23 military, 29 civilian). This baseline already represented a decrease from 75 a few years before, as this competition occurred in the midst of a broader transfer of mission from this installation to others. As a result, we were cautioned that the competition will appear to have generated a lot of personnel savings that actually occurred because of declines in mission.

There were four commercial bids for this contract. The winning contractor bid 23.5 man-years of effort per year. The other contract bids were much higher: 28, 29, and 31 man-years. The MEO bid was 35. Because the winning bid was so much lower, government officials were concerned that this contractor was under-bidding and would not be able to do the work within the bid. However, the technical evaluation team took a special look at the contractor’s technical proposal and was ultimately convinced that it could do the work within the bid.

This contractor has several other government contracts for communications functions. The contractor’s local manager said that it capitalizes on that experience and transferred lessons learned from other locations to improve efficiency. He also mentioned that this experience is what allowed the contractor to propose the workforce modifications that led to such a low bid.
Multiskilling was a key factor allowing the contractor to perform the function with fewer people. Under the government structure of work, there were two distinct types of workers in the technical control area: operators and technicians. Operators are trained to operate and monitor the machines, while technicians perform maintenance. These jobs are in different federal job series. The technician jobs are more highly paid and require more specialized training. The work also seems to carry a bit more cachet; several of the employees mentioned that technicians tend to view operating tasks as mundane. According to one employee, about 90 percent of the work is operational and only 10 percent maintenance. Operators have to be on site, monitoring and operating the machines around the clock. However, these tasks do not require the full attention of operators; they can do other tasks (such as paper work or repairs) while they perform operator duties.

The contractor determined that the work could be done with far fewer people if they were cross-trained. It hired all of the technicians and trained them as operators (little training was needed, and it occurred informally on the job). It also hired a few operators and has been training them in maintenance, although that is a more involved process because the PWS requires substantial formal training for technicians. According to the contractor’s local manager multiskilling alone allowed the contractor to cut eight positions out of the personnel bid. He also noted that the multiskilling allowed the contractor to cut out some supervisory positions. Whereas there used to be an overall supervisor, a maintenance supervisor, and an operations supervisor on each shift, now there is only one supervisor per shift.

Multiskilling has worked out well, although the technicians were reluctant to be cross-trained as operators. One employee reported that the technicians saw it as “demeaning” to perform the operator functions because the work does not require the same level of skills. Another worker noted that technicians are not automatically good operators; they needed time to learn about the circuits, the etiquette involved in operating the different machines, and also just how to operate them. The learning process was not trivial.

Perhaps part of the reason that the workers were not more resistant to the multiskilling is that the contractor ended up paying wages that
were between 50 cents and $1 per hour higher than civil service wages—the government workers got a raise when they went to work for the contractor. In spite of this increase, the workforce was unionized within six months of the contract start; wages increased by 10 percent and the workers got more leave. Despite the still-higher wages, the contractor was able to reduce costs by offering fewer benefits than civil service workers received (particularly leave time) and by performing work with fewer people.

Civilization and organizational streamlining were also important elements of cost saving. The COR noted that civilization allowed for a substantial amount of savings because, when military people are involved in a particular activity, there is a big “infrastructure” that goes along with it. When this function was performed in-house there was a division officer and several intermediate-level supervisors. For example, under government performance one function was staffed with a training officer, a wiring officer, a division officer, a leading petty officer, and a clerk. The contractor reduced this overhead to one person. The COR also noted that the contractor was able to save on training programs. When the function was performed in-house, people always participated in training programs because the government has a policy of promoting from within. In addition, they faced training requirements through the EEOC to provide advancement opportunities for current workers. The contract has cut training and tried to reduce the cost of training that remains. For example, employees who might move into supervisory positions take supervision courses via CD-ROM.8

The contractor’s local representative provided another example of savings under the contractor. Formerly, the government organization would detail eight different people for some amount of time each week to clean the building. In addition, there was a contractor providing grounds maintenance. Now, the contractor has one person doing all the cleaning and grass-cutting. That person is doing a better job. According to the COR and the contractor’s local representative, this activity presented little opportunity for capital-labor substitution, as this was mainly a service function.

8While training supervisors via CD-ROM might be less costly, we do not know whether such training is as effective as traditional training.
The PWS changed the scope of work slightly by regionalizing a few relatively small responsibilities: the Defense Information Services Agency (DISA) coordinator functions and the mobile radio test equipment repair and maintenance function.