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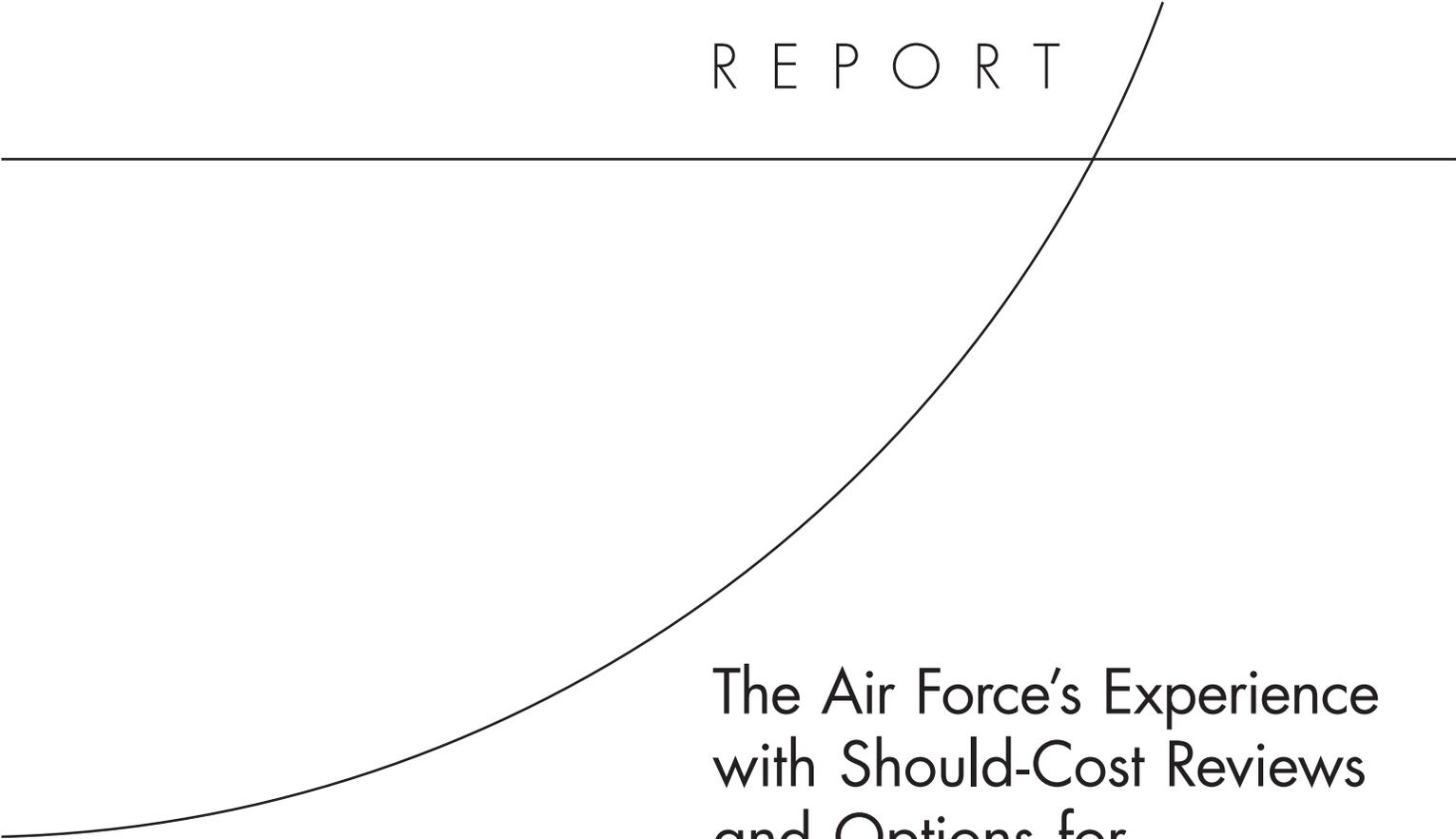
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R E P O R T



The Air Force's Experience with Should-Cost Reviews and Options for Enhancing Its Capability to Conduct Them

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Summary

The Air Force, along with the other military services, has been plagued with a history of cost overruns in major acquisition programs, such as the C-5A and C-17A cargo aircraft and F-22A and F-35 fighter aircraft programs. A series of studies has shown that part of that growth can be attributed to poor initial cost estimates.¹ Additionally, there has been a long-standing concern since the 1990s about the size, experience level, and quality of the acquisition workforce. These concerns, along with the opportunity for the Air Force to increase the size of its acquisition workforce as part of a larger Department of Defense (DoD)–wide initiative,² prompted the Air Force to ask RAND Project AIR FORCE to help it find ways to improve its contract cost/price analysis capability. The Air Force sponsors of this research were particularly interested in the feasibility of improving the Air Force’s capability to conduct should-cost reviews, which are defined by Federal Acquisition Regulation (FAR) 15.407 as a special form of contract cost analysis.³ This report responds to the sponsors’ questions about should-cost reviews.

The primary methodologies used to address the questions were (1) interviews conducted with participants in should-cost reviews of Air Force programs and (2) reviews of the literature on should-cost analyses in DoD and in commercial organizations.

Findings

The research team posed the following two questions regarding should-cost reviews:

- What has been the Air Force experience with should-cost reviews?
- How can the Air Force enhance its capability to conduct should-cost reviews?

What Has Been the Air Force Experience with Should-Cost Reviews?

The Air Force has conducted should-cost reviews or similar analyses since the 1960s, but they have been done infrequently and with mixed results. They have been performed during the development, procurement, and sustainment phases of major programs, ranging in scope from

¹ Various individuals and organizations have studied the sources of cost growth in military acquisition programs. Recent RAND research on the subject includes Bolten et al. (2008) and Blickstein et al. (2011).

² Due to budget pressures and reductions in end strength, the Air Force has been unable to increase its acquisition workforce above the level it was at the end of fiscal year 2008.

³ “[T]hese reviews evaluate the economy and efficiency of the contractor’s existing work force, methods, materials, equipment, real property, operating systems, and management. . . . The objective of should-cost reviews is to promote both short and long-range improvements in the contractor’s economy and efficiency in order to reduce the cost of performance of Government contracts” (FAR 15.407-4).

reviews of the entire program to smaller modification efforts. The reviews require a mix of people with such skills as cost estimating, pricing, and contracting and subject-matter expertise in manufacturing or other areas relevant to the particular program being reviewed. Some argue that industrial engineers are also important members of any review team.

The size and composition of the teams and the duration of should-cost reviews vary with the scope of the review and nature of the program. For major reviews in the past two years, industrial engineers and price analysts and other contracting personnel have been less represented than in earlier Air Force experience. It is not clear whether the skill mix required has changed or whether individuals with these skills were needed but not available.

Finding people within DoD who have the requisite skills to do should-cost reviews on a temporary basis poses challenges and diverts the individuals from their primary tasks. The reviews are typically done infrequently on major acquisition programs.

There is limited and mixed evidence as to whether should-cost reviews save money compared with other forms of contract negotiation. Ideal comparisons to answer this question would be of final contract prices on matched pairs of contracts (same contractor, weapon system, and contract type), where one contract is negotiated using data from a should-cost review and the other contract is negotiated in some other way.

Potential savings identified during reviews may not necessarily be realized in contract negotiations or achieved in the final price to the government. Prominent practitioners of should-cost reviews of DoD programs say they can identify inefficiencies and potential savings during their analyses, but this does not necessarily lead to savings to the taxpayer. The procuring organization must have the ability and willingness to use the results of the analysis in contract negotiations to achieve a lower contract price. And the procuring organization must further structure and administer the contract in such a way that cost growth and contract modifications do not negate the originally negotiated contract price.

As of the time of the writing of this report in fall 2011, the Air Force has no dedicated capability to conduct should-cost reviews. The Air Force instead finds the required individual skills from across the Air Force and among Air Force retirees, federally funded research and development centers, support contractors, and other government agencies.

The ad hoc and infrequent nature of the reviews, combined with the absence of a dedicated capability to conduct them in the Air Force, has resulted in an acquisition workforce in which few people have experience with the reviews, and there is no core group that can learn from experience, retain lessons learned, and lead or provide training to inexperienced staff.

How Can the Air Force Enhance Its Capability to Conduct Should-Cost Reviews?

The Air Force needs to be able to match the demand for should-cost reviews with a supply of people with the appropriate skills and experience to conduct them. There are limited numbers of personnel in some fields that have traditionally been involved in should-cost reviews, including cost estimating, pricing, and industrial engineering. In addition, few people in the Air Force have experience with conducting these reviews.

A skeletal or virtual should-cost review office, with the capability to provide ad hoc training to team members, collect and retain lessons learned, and quickly obtain personnel with critical skills, would enhance the Air Force's capability to conduct these reviews. There are also other, more robust (but more costly) options for organizational support of the capability, such as an office staffed with a core cadre of experts to lead reviews and train other members or an office with a large, dedicated staff capable of conducting a review of a major program.

Recommendations

We suggest four recommendations that should improve the Air Force's ability to conduct should-cost reviews.

Determine Whether Should-Cost Reviews Result in Savings Compared with Other Forms of Contract Negotiation

When inadequate competition exists to determine contract prices, the government determines a fair and reasonable price objective and attempts to reach agreement on the price with the contractor through negotiation. A fair and reasonable price can be determined in various ways. For relatively small and routine procurements, the pricing is usually done by the procuring contracting officer. For larger contracts over certain dollar thresholds,⁴ the pricing is usually done by pricers, usually with technical input from subject-matter experts. In certain cases, generally for large procurement programs, the pricing can be enhanced through a should-cost review that informs contract negotiations.

A detailed analysis of should-cost review outcomes was beyond the scope of this study. Information on contract negotiations and outcomes is retained by local contracting offices, generally in paper records, and is difficult for those outside the office to obtain. The RAND research team found little evidence in the published research to indicate that should-cost reviews have achieved better results than other methods of contract pricing and negotiation. An important first step in formulating a strategy for the use of should-cost reviews would be to determine whether they result in savings compared with other forms of contract negotiation, and under what circumstances. This determination would inform Air Force efforts to devote additional resources to a should-cost review capability. If historical reviews are found to produce results no better than other forms of contract pricing and negotiating, the Air Force should allocate resources accordingly. If reviews using a particular methodology are found to be especially successful, resources should be devoted to ensuring that people with the skills and training needed for the successful methodology are available.

Assess Lessons Learned from Recent Should-Cost Reviews

The lack of a dedicated capability within the Air Force to conduct should-cost reviews and the shortage of people within the Air Force with experience in conducting such reviews suggest a lack of broad and current institutional knowledge of the subject. The Air Force should conduct an assessment of lessons learned from should-cost reviews across DoD. The assessment should address the outcomes of the reviews, whether people with the required skills were available and what additional skills would be needed for similar reviews in the future, whether sufficient time was available for the reviews, and the role of training in the capability to conduct the reviews. The Air Force may also benefit from comparing its experience with should-cost against the practices used by the best commercial organizations.

⁴ A threshold of \$10 million at three of the Air Force product centers is specified in the Air Force Materiel Command Federal Acquisition Regulation Supplement.

Develop Training on Should-Cost Reviews

If should-cost reviews are found to be effective in lowering contract prices relative to other forms of negotiations, the Air Force should ensure that appropriate training is available for teams. Training should encompass several areas:

- how to assemble a team
- how to conduct a should-cost review
- how to work as a multidisciplinary team
- lessons learned from previous reviews, including the possible finding that new should-cost processes are needed to address the increased use of outsourcing.

Establish Databases of Cost, Schedule, Earned Value, and Technical Information Useful for Cost-Estimating and Pricing Activities

An industry best practice is to develop a database that can be used strategically for contract negotiations. In the Air Force, relevant data, such as those on cost, schedule, earned value, and technical issues, are collected by members of various disciplines but not necessarily shared. These data could be collected into databases and used to develop a better understanding of industry standards, improved cost-estimating relationships, and documentation of contractor performance.