Once Troubled C-17 Program Provides Acquisitions Lessons for Today

VIEWPOINT

BY STEVE BRADY AND SHAWN WINN

Imagine a time when war is ending, large-scale security requirements are receding, and defense budgets are declining. Add to this a push for acquisition reform and arms-length relationships with the defense industrial base. If this sounds similar to the current environment, it is. The last time this level of pressure was put on defense programs was the early 1990s.

Back then — in an era of so-called "peace dividends" — Congress saw the Air Force's C-17 Globemaster III transport aircraft as a white elephant. Cost overruns and delays posed further risks to the program.

The C-17 offers an example of how a troubled program can go from the brink of extinction at its outset to an award winning one today. To understand how to successfully navigate a weapons program through these volatile days, it might be useful to identify a case study from the early 1990s. Selecting a program that easily maintained its leadership support and funding would have been a happier story, but it wouldn't provide the lessons learned for those who are facing an uncertain unknown future.

The C-17 provides a case study of a troubled program that was turned around by wise leadership.

Three key lessons learned from the C-17 acquisition are: the importance of communication among stakeholders; using the right contracting mechanism; and fostering commitment across a defense-industry program team.

In the early 1990s, the political landscape in the United States and the world had changed. The Cold War had been declared over, and politicians were anxious to turn their attention to what was termed the "peace dividend." Leadership focused on eliminating or reducing the costs associated with large defense programs and acquisitions. While today's conflicts are more kinetic than the Cold War, the budgetary and political response is similar.

The C-17 program was born out of the ground forces requirement to respond rapidly with heavy equipment to meet an aggressor on an underdeveloped battlefield. To meet those needs, the Defense Department determined in 1981 that the Air Force would have to be able to deliver up to 66 million ton-miles per day. The C-17 was one aspect of growing the capabilities and capacities to meet that need. The C-17 would deliver large, oversized equipment and also function tactically, landing on short, unimproved runways.

The C-17 contract was awarded to the McDonnell Douglas Co. in 1981, eight years before the fall of the Berlin Wall and 10 years before the dissolution of the Soviet Union.

In July 1990, the Senate — following the collapse of the Soviet Union — pushed to remove $18 billion from the defense budget for 1991. By the time Congress recessed in August, the C-17, along with the B-2 and the MILSTAR satellite constellation all were on the verge of cancelation or curtailment.

Meanwhile, the C-17 was undergoing development problems. As with most complex programs, initial tests didn't go well. The first flight in 1991 was 18 months late. This delay was due in part to a firm-fixed price development contract. The decision to use this method was based on an assumption — by both the government and the contractor — that the C-17 would be a commercial-off-the-shelf solution, or a minimum development effort. That assumption was incorrect.

C-17 Globemaster III AIR FORCE

The net effect was increased costs for a program with limited profit margins. In addition, cancelation of the A-12 attack aircraft subtracted from the available margins, putting McDonnell Douglas in financial difficulty.

As many in the defense industrial base face today, the contractor experienced greater and greater losses as its program management team shifted from a long-term productivity improvement posture to a near-term focus on stemming the red tide. To worsen the entire situation, the relationship between McDonnell Douglas and the Air Force did not foster the necessary open communication to bring these challenges to light.

McDonnell Douglas' difficulties increased when the firm attempted to reduce its internal costs by applying the then-fashionable total quality management system model, and laid-off a number of its experienced managers. The Defense Science Board Task Force on C-17 Review identified the impact of this decision:

"In early 1989, the program environment was further complicated when MDC instituted a total quality management program, which displaced nearly all of the middle management personnel at their Long Beach, California, facility. Prior to this point, [McDonnell Douglas] had used functional middle managers as informal integrators.

"With the loss of middle management informal communication and without the existence of any type of electronic means of effecting integration, program progress over the next 12 months came to a virtual standstill. This action was accomplished with the full awareness and tolerance of the government."

The lack of communication within McDonnell Douglas and across the defense-industry team led to an environment where progress ceased. The industry partner needed additional resources to meet the milestones and the government was waiting for the milestones to release resources.

Concurrent with these developments the acquisition community continued to look for cost reductions, driving an "arm's length" contracting approach between the system program office and its industrial partner. The relationship between McDonnell Douglas and the Air Force continued to decline as each side focused on their near term, parochial mission.

Cost overruns, schedule delays and poor supplier performance led to Congress' decision to reduce the number of aircraft from 120 to 40. This decision decreased McDonnell Douglas' revenue, driving additional layoffs of engineering staff. In light of these challenges, Under Secretary of Defense for Acquisition Technology and Logistics John Deutch, commissioned the task force to make recommendations on the program.

The defense science board task force in its December 1993 report found three primary areas of concern.

"The fixed-price contract did not account for the unknowns of a development program, and led to incessant contractual and legal bickering over who was to pay," the report said.

Also, "Congressional changes laid in a four year gap between when McDonnell Douglas 'won' the C–X competition, and when development would be fully funded. This gap also saw legislation forcing the Air Force to buy 50 C–5Bs and 60 KC–10s.

"Last, and certainly not least, poor performance by McDonnell Douglas was apparent in all aspects of the program."

The findings drove Deutch to issue his "40 and no more" decree. It committed the Defense Department to buy no more than 40 aircraft rather than the original 120, with subsequent buys only after key performance measures were shown to be adequate. The measures included cost reduction, aircraft performance and quality levels. By the end of 1993, there was positive movement on both the contractor and government sides to regain traction within the program. As with many of today's programs, the positive movement stemmed from defense-industry collaboration and an effective contract mechanism.

The report also clearly identified a number of additional recommendations. Perhaps the most visible and enduring was its program environment recommendation to "create a new program environment that fosters trust, teamwork, empowerment and accountability."

This recommendation became the foundation of the management approach changes and has permeated the entire program culture to this day.

Through a newfound commitment to the program from both sides and a series of negotiations with the Defense Department, McDonnell Douglas was convinced to drop all of its claims against the government, totaling more than $1 billion dollars at the time. The Air Force agreed to increase the ceiling for the contract by $237 million, providing the development capital needed for the contractor to invest in improved manufacturing equipment and software. By early 1994, the settlement was signed by the undersecretary of defense for acquisition, technology and logistics and John McDonnell, president of McDonnell Douglas, providing the foundation needed to get the focus back on program performance and the war fighting customer. To build on this foundation and show its commitment, the Air Force assigned the program directorship to Brig. Gen. Ron Kadish, who immediately teamed with the McDonnell Douglas program manager Don Kozlowski to develop an aggressive plan to show success in the 24-month window they were provided.

As they began their march forward, professional staffers in Congress advocated cutting the number of planes to less than 40 and developed a plan to procure commercial airplanes such as the Boeing 747 for military airlift. Fortunately for the freshly minted program director and manager, the Army end customer stepped forward and highlighted the need for direct delivery of forces, including outsize equipment.

The voice of the end customer not only saved the C-17 program, but inspired Kadish to make the commitment to the Army that it would remain a full member of the team as the program gained traction.

With cover coming from his three-star, Kadish was free to downshift and bring his combined government and contractor team together. He identified each organization's strengths and weaknesses. He understood that his contractor teammate had additional constraints and acknowledged them by stating that, "this program cannot be successful unless the contractor makes a profit."

Kadish and Kozlowski committed their teams for six months, decomposing the process of sustaining an aircraft into individual activities, then identifying elements core to the Air Force and those best served by their industry partner from a quality and performance perspective. The analysis then turned to a depot study where normalized costs per activity were compared, ensuring informed management decisions from the cost perspective as well.

Once effective communications and commitment were established, the focus moved to developing a contract mechanism that fostered success. Kadish and Kozlowski created combined integrated product teams, where the Air Force, McDonald-Douglas and the Defense Contract Audit

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Agency created what was affectionately called the "three-legged stool." The integrated product teams worked to separate the legacy contractor logistics support contract into three distinct areas: production, sustainment and product enhancement/producibility improvement. Part of this decision was designed to help clarify the program costs to the media, who at the time were skewing the cost-per-aircraft by lumping together the total contract costs of all three areas into one number and then dividing by the number of aircraft in the field. During the contract restructure, the Air Force/private sector team ensured that engineering authority was delegated to the contractor, by then The Boeing Co., in the production contract. This change aligned the program with the acquisition reform that was under way at the time.

With this contract and responsibility alignment, the program transitioned from the chopping block to awards ceremonies. Performance for the aircraft began to soar, surpassing all key requirements within budget. Trust in the defense-industry partner led to a transition to a true performance-based logistics contract and an increase in aircraft orders. Then came the global war on terrorism, and the political and fiscal pendulums swung to above-Cold War levels.

The C-17 not only survived the 1990s downturn, it was funded and performing at a level that made it ready to support unprecedented lift requirements into under-developed battlefields across multiple fronts. It survived to not only produce the initial 120 aircraft, but today supports the Air Force with 213 aircraft in service with the active units, Guard and Reserve. Its success has also led to foreign sales. The program not only provides a primary lift capability, it is a cornerstone for cross-nation partnering between the United States and multiple allied nations.

The key lesson from the days of budget cuts and acquisition reform is that the minute the three key stakeholders — program office, contractor, and user — are not openly communicating, a program is in trouble.

Secondly, the misuse of contract vehicles and incentives drives a wedge between the stakeholders. Without the likelihood of recurring revenue, the contractor cannot invest in the improvements necessary to drive costs out over the lifecycle.

Finally, changes in funding and focus should be expected in a political environment, so a commitment between the stakeholders is key to overcoming risks that arise.

The defense science board put it best. The C-17 needed "a new program environment that fosters trust, teamwork, empowerment and accountability."

And that can be applied to acquisition programs today. **ND**

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