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DEFENSE ACQUISITION

Best Commercial Practices Can Improve Program Outcomes

Statement for the Record by Louis J. Rodrigues, Director, Defense Acquisitions Issues, National Security and International Affairs Division

GAO/T-NSIAD-99-116

Mr. Chairman and Members of the Subcommittee:

Thank you for the opportunity to submit this statement for the record, which discusses the best practices that can improve the way the Department of Defense (DOD) buys major weapon systems. With DOD's annual research, development, and production spending for major systems at about $85 billion, the Subcommittee's oversight of acquisition policy can have a major impact on the value the taxpayer gets for that expenditure.

For several years, the leadership in the Office of the Secretary has been committed to instituting reforms to improve the outcomes of the acquisition process. In particular, the Under Secretary of Defense's (Acquisition and Technology) focus on shorter cycle times is welcome. Shorter cycle times make for a more agile acquisition process, which is critical if DOD is to respond quickly in a national security environment of unknown threats. Shorter cycle times are also important for solving problems associated with readiness by ensuring that the industrial base will be able to support systems once they are fielded.

Despite good intentions and some progress, our ongoing reviews of DOD's major system acquisitions are showing that these efforts at systemic change have not yet been reflected in the management and decision-making on individual programs. The flagship systems, as well as many other top priorities in each of the services, continue to cost significantly more, take longer, and deliver less than was promised. Our work for this Subcommittee shows that lessons for major system acquisitions can be learned from the best commercial practices and applied in the DOD environment. Adopting these practices will require a dramatic change in behavior—a change that must be supported by incentives. In this context, the Office of the Secretary of Defense, the Congress, and the services' organizations for requirements, research, and acquisition, each play a critical role in getting the better outcomes sought on major weapon system programs.

Results in Brief

On the basis of the work we have done over the past 3 years, we believe the best practices of leading commercial firms can be used to improve the development of technology and weapon systems in DOD. In particular, knowledge standards that are rigorously applied, coupled with the practice of keeping technology development separate from product development, stand out as key factors in the most successful commercial examples. These practices have put managers in the best position to succeed in

developing better products in less time and producing them within estimated costs. DOD programs, with some exceptions, proceed with lower levels of knowledge available about key factors of product development, such as proof of design maturity and production readiness. In addition, DOD allows technology development to take place during product development. These practices put DOD program managers in a much more difficult position to deliver better weapons more quickly and within cost projections.

Getting better outcomes on weapon system programs will take more than attempting to graft commercial best practices onto the existing acquisition process. There are underlying reasons and incentives for why such practices are not a natural part of how weapon systems are bought. Environmental factors, such as the intense competition for funding when a program is launched, encourage lower standards of knowledge and the acceptance of higher, but unrecognized, risks. What we offer to help the adoption of best practices is not a cookbook recipe, but a series of actions aimed at fostering an environment in DOD that encourages or rewards such practices. These actions will put managers of DOD programs in a better position to succeed, for we believe they are as informed and capable as their commercial counterparts.

Following the discussion of our work on best practices, we present information on the status of other work we are doing that is of interest to the Subcommittee. Most of this work deals with DOD initiatives related to acquisitions. The work includes acquisition workforce training in best practices, best practices for test and evaluation of weapon systems, pricing of sole-source commercial items, spare parts price trends, the Cost Accounting Standards Board, other transactions, and government-wide information technology contracts.

A Best Practices Model for Acquisition

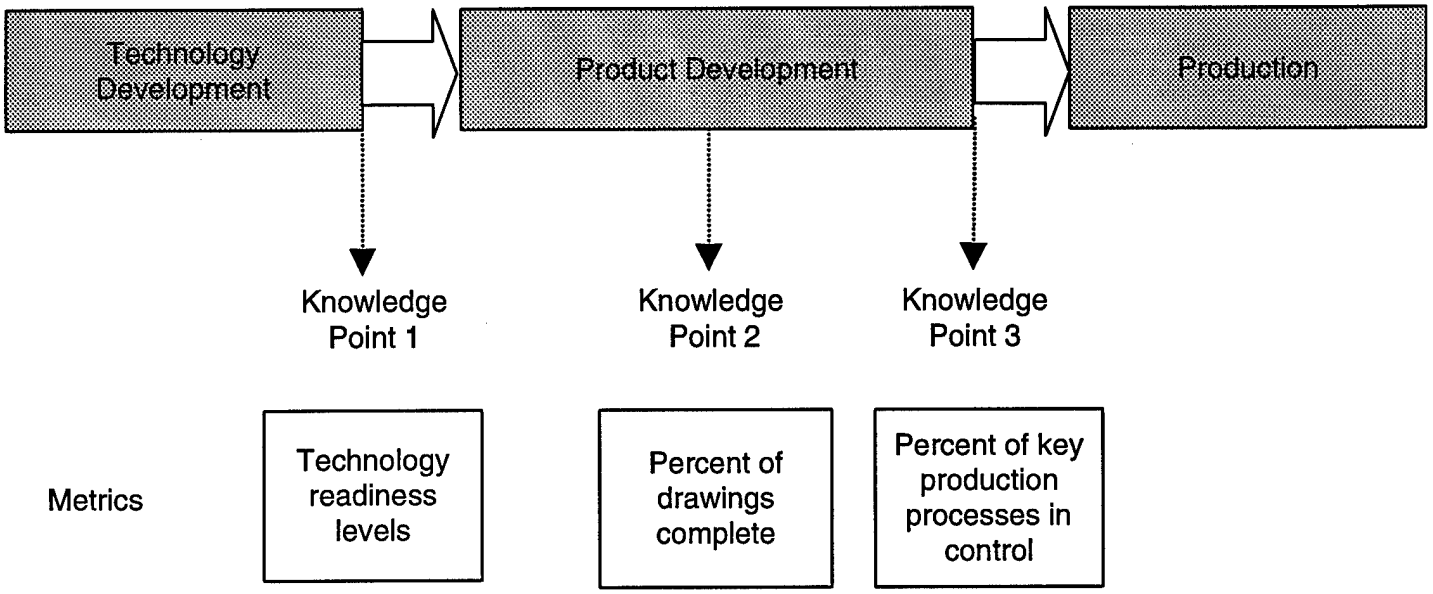
For an acquisition process that meets DOD's goal of developing and producing militarily superior weapons in a resource-constrained environment, we look to answer the basic question of how a capability can best be provided to the customer. The characteristics of best practices, as we have analyzed them, suggest a process for developing new capabilities—whether they are commercial or defense products—that is based on knowledge. It is a process in which technology development and product development are treated differently and managed separately. The process of developing technology culminates in discovery and must, by its nature, allow room for unexpected results and delays. The process of

developing a product culminates in delivery, and therefore, gives great weight to design and production. Discipline is inherent because criteria exist, tools are used, and a program does not go forward unless the strong business case on which the program was originally justified continues to hold true.

In the past several years, we have examined best practices used by world class commercial firms such as Boeing, Chrysler, Hughes, Ford, and 3M, and individual DOD acquisition programs for weapons such as the F-22, the C-17, the Comanche, the New Attack Submarine, and the Advanced Amphibious Assault Vehicle with the objective of finding best practices for developing and producing major weapon systems. Our completed work has examined best practices for quality assurance, earned value management, supplier management, and transitioning products from development to production. A listing of these reports is included in the appendix. We are currently reviewing best practices for readying technology for inclusion in product development programs, best practices for test and evaluation of weapon systems, and how well DOD training supports the implementation of best practices.

We have learned that a knowledge-based process is essential to getting better cost, schedule, and performance outcomes. This means that decisionmakers must have virtual certainty about critical facets of the product under development when needed. Such knowledge is the inverse of risk. The commercial and military programs we reviewed did not all follow the same processes in their development cycles. However, at some point, full knowledge was attained about a completed product, regardless of what development approach was taken. This knowledge can be broken down into three junctures that we refer to as knowledge points: when a match is made between the customer's requirements and the available technology, when the product's design is determined to be capable of meeting performance requirements, and when the product is determined to be producible within cost, schedule, and quality targets. In addition, we have identified metrics that indicate the knowledge levels associated with best practices and can thus help forecast problems as a development program progresses. An important corollary to having a knowledge-based process is that technology development should take place separate from an acquisition program and its related product development process. The knowledge points and their associated metrics are depicted in figure 1.

Figure 1: Levels of Knowledge Attained in Best Practices for Developing Technology and Products



The leading commercial firms we visited gained more knowledge about a product's technology, design, and producibility much earlier than DOD in the acquisition programs we reviewed. In fact, product development in commercial ventures is a clearly defined undertaking for which firms insist on having the technology in hand that is needed to meet customer requirements before starting. Once underway, the firms demand—and receive—specific knowledge about the design capability and producibility of a new product before production begins. The process of discovery—the accumulation of knowledge and elimination of unknowns—is completed well ahead of production. There is a synergy in this process, as the attainment of each successive knowledge point builds on the preceding one. In contrast, DOD programs are started earlier and allow technology development to continue into product development and even into production. Consequently, the programs proceed with much less knowledge available—and thus more risk—about required technologies, design capability, and producibility. Proceeding with lower levels of knowledge available explains much of the turbulence in DOD program outcomes. Metrics, such as those associated with knowledge points, show this to be a predictable consequence.

Knowledge Point 1: Requirements and Technology Are Matched

Technology development has the ultimate objective of bringing a technology up to the point that it can be readily integrated into a new product and counted on to meet requirements. As a technology is developed, it moves from a concept to a feasible invention to a component that must fit onto a product and function as expected. In between, there are increasing levels of demonstration that can be measured. In our ongoing review of best practices for including new technology in products, we applied a scale of technology readiness levels—from one to nine—pioneered by the National Aeronautics and Space Administration and adapted by the Air Force Research Laboratories. Without going into the details of each level, let me note that a level four equates to a laboratory demonstration of a technology that is not in a usable form. Imagine, if you will, an advanced radio technology that can be demonstrated with components that take up a table top. A level seven is the demonstration of a technology that approximates its final form and occurs in an environment outside the laboratory. A level eight is a technology that has been proven to work in its final form and in its intended operating conditions. The same radio at this level would have been installed in the instrument panel in the aircraft cockpit, integrated with other aircraft systems, and flown under all expected conditions.

The lower the level of the technology at the time it is included in a product development program, the higher the risk that it will cause problems in the product development. According to the people that use the technology readiness levels in DOD, level seven enables a technology to be included on a product development with acceptable risk. In applying these standards to leading commercial firms, we have observed that the firms do not let a new technology onto a product development until it reaches level eight. On weapon systems that experienced cost and schedule problems, we observed that they were started with key technologies at levels three and four. By the time the same programs reached a point DOD considers analogous to beginning product development, key technologies were still at level five or lower.

We also observed that three factors contribute to the successful maturation of technology for inclusion on a product development. These are: flexibility in resources and requirements to allow for the uncertainties of technical progress; disciplined paths for technology to take toward inclusion on products, with strong "gatekeepers" to decide when to allow it onto a product development program; and high standards for judging the maturity and readiness of technology. The commercial technologies and a few of the DOD technologies we reviewed exhibited these factors and were

successfully included in product developments. Technologies that caused problems in product development did not exhibit all of these factors. In essence, these technologies were still going through discovery in a delivery-oriented environment. As one might imagine, the most difficult situation occurs when a product development is launched with inflexible requirements that can only be met with a new and immature technology.

Knowledge Point 2: The Design Will Perform as Required

The commercial firms we visited had achieved near certainty that their product designs would meet customer requirements and had gone a long way toward ensuring that the products could be produced by the halfway point of product development. Both DOD and the commercial firms hold a critical design review (CDR) to review engineering drawings, confirm the design is mature, and "freeze" it to minimize changes in the future. The completion of engineering drawings and their release to manufacturing organizations signify that program managers are confident in their knowledge that the design performs acceptably and is mature. The drawings are critical to documenting this knowledge because they are not only precision schematics of the entire product and all of its component parts—they also reflect the results of testing and simulation, and they describe the materials and manufacturing processes to be used to make each component.

Both DOD and commercial companies consider the design to be essentially complete when about 90 percent of the engineering drawings are completed. Officials from commercial companies such as Boeing and Hughes told us that they typically had over 90 percent of these drawings available for the CDR. Two DOD programs we reviewed had less than 60 percent—one had less than one-third—of the drawings done at the time their CDRs were held. Thus, these programs had significantly less knowledge available about their designs. The programs did not get or were not expected to get to the 90-percent level of completion on the drawings until late in development or in production. Nonetheless, at the time of the CDRs, the risks of proceeding with the rest of development on these programs as planned were deemed acceptable. Both programs encountered significant design problems in testing that occurred after the CDR.

Knowledge Point 3: Production Units Will Meet Cost, Quality, and Schedule Objectives

Leading commercial firms reached the point at which they knew that manufacturing processes would produce a new product conforming to cost, quality, and schedule targets before they began fabricating production articles. Reaching this point meant more than knowing the product could be manufactured; it meant that all key processes were under control, such that the quality, volume, and cost of their output were proven acceptable. Commercial firms relied on good supplier relationships, known manufacturing processes, and statistical process control to achieve this knowledge early and, in fact, had all their key processes under statistical process control when production began. The ability to establish control for key processes before production began was the culmination of all the practices employed to identify and reduce risk. All of the companies we visited agreed that knowledge about technology and design early in the process makes the control of processes possible.

One weapon system program that had been in production for nearly 9 years at the time of our 1998 review still had less than 13 percent of its key manufacturing processes in control. Another program had 40 percent of its key manufacturing processes in control 2 years before production was scheduled to begin, but was not scheduled to have all key processes in control until 4 years into production. Both programs experienced basic producibility problems that were not discovered until late in development or early in production. These risks went unrecognized even though the DOD had established criteria for determining whether risks were acceptable and whether enough knowledge had been gained to enter the next development phase.

Impediments to Adopting Best Practices

The most important factors in the adoption of best practices are the incentives the development or acquisition process offer to managers of technology and product developments. The differences in the practices employed by the leading commercial firms and DOD reflect the different demands imposed on programs by the environment in which they are managed. The way success and failure are defined for commercial and defense product developments differs considerably, which creates a different set of incentives and evokes different behaviors from the people managing the programs. Specific practices take root and are sustained because they help a program succeed in its environment.

Leading commercial firms launch a product development only when a solid business case can be made. The business case basically revolves around

the ability to produce a product that the customer will buy and that will provide an acceptable return on investment. The point of sale occurs in production after product development is complete; program success is determined when the customer buys the finished product. If the firm has not made a sound business case, or has been unable to deliver on one or more of the business case factors, it faces a very real prospect of failure—the customer may walk away. Also, when each program is delivered as promised, the company does not put at risk resources invested in other products. Because the match between technologies and product requirements is made before the product development is launched, the cost and schedule consequences associated with discovery are minimized.

Production is a dominant concern throughout the commercial product development process and forces discipline and trade-offs in the design process. This environment encourages realistic assessments of risks and costs; doing otherwise would threaten the business case and invite failure. For the same reasons, the environment places a high value on knowledge for making decisions. Program managers have good reasons to want risks identified early, be intolerant of unknowns, and not rely on testing as the main vehicle for discovering the performance characteristics of the product. By protecting the business case as the key to success, program managers in leading commercial firms are conservative in their estimates and aggressive in risk reduction. Ultimately, preserving the business case strengthens the ability of managers to say "no" to pressures to accept high risks or unknowns. Practices, such as maturing technologies to high readiness levels before inclusion in a program, having 90 percent of engineering drawings done by the CDR, and achieving statistical process control before production, are adopted because they help ensure success.

The basic management goal for a weapon system program in DOD is similar: to develop and deliver a product that meets the customer's needs. However, the pressures of successfully competing for the funds to start and sustain a DOD acquisition program make for a much different business case. Compared with commercial programs, the DOD environment encourages launching product developments that embody more technical unknowns and less knowledge about the performance and production risks they entail. Although DOD is attempting to create more flexibility in how technical requirements are set for programs, a new product development is encouraged to possess performance features that significantly distinguish it from other systems. Consequently, aspiring DOD programs have incentives to include performance features and design characteristics that rely on immature technologies. These unknowns place a much greater

reliance on maturing technology during product development than we found on commercial programs.

Even though less information about a new product development is available at the time of launch, the competition for funding requires detailed projections to be made from what information does exist. A product development deemed worthy cannot be launched unless the program's development and production cost, as well as timing, fall within available funding. Because DOD relies largely on forecasts of cost, schedule, and performance that are comparatively soft at the time, success in funding competition encourages the cost and schedule estimates to be squeezed into profiles of available funding. Additional requirements, such as high reliability and maintainability, serve to make the fit even tighter. As competition for funding will continue throughout the program's development, success is measured in terms of ability to secure the next installment.

Untempered by knowledge to the contrary, the risks associated with developing new technologies together with the product within tight estimates are deemed acceptable. Production realities, critical to matching technological capabilities with customer requirements on commercial programs, are too far away from the DOD launch decision to have the same curbing effect on technology decisions. Thus, the environment for managing weapon system programs is a particularly difficult environment for managing technology development. The ups and downs and resource changes associated with the technology discovery process do not mesh well with a program's need to meet cost, schedule, and performance goals. Problems with developing technologies, which are to be expected, can actually threaten the support for a program if they become known.

These pressures and incentives explain why the behavior of weapon system managers differs from that of managers of commercial product developments. Problems or indications that the estimates are decaying do not help sustain funding support for the program in subsequent years, and thus, their admission is implicitly discouraged. An optimistic cost estimate makes it easier to launch a product development and sustain annual approval; admission that costs are likely to be higher could invite failure. Rewards for discovering and recognizing potential problems early in a DOD product development are few. Less available knowledge makes it harder for program managers to say "no." In contrast with leading commercial firms, not having attained knowledge—such as on the full performance of a key technology or the true risks facing manufacture—can be perceived as

better than knowing that problems exist. For these reasons, the practices associated with managing to knowledge points—such as applying knowledge standards for technology, design, and production maturity—are not readily adopted in DOD.

Our ongoing work on technology inclusion shows that in addition to the incentives provided by the acquisition environment, some structural and budgetary impediments exist that make it difficult for technology to be matured to a high level of readiness before being included in a DOD weapon system development. First, it is not clear that organizations exist—other than program offices—that have the role to take technology from a readiness level of three or four, where new technologies are often put into a program, to the level seven needed to be readily included in a product development. We found that for the DOD cases in which high technology readiness levels were attained before program launch, organizations stepped in and played atypical roles in bridging the gap from science and technology to product development. Second, budget realities—the fact that programs attract much higher levels of funding than science and technology projects—make programs a favored venue for funding technology development through the higher and more expensive readiness levels. Third, if science and technology organizations became responsible for managing technology development to the higher levels, they most likely would need additional funding.

These observations about the differences between the commercial and DOD environments should not be interpreted to mean that commercial managers are somehow more skilled or knowledgeable than their DOD counterparts. Nor do DOD program managers act irrationally. They see the acquisition of the weapons under their purview as aligned with national interests, and they do what they believe is right, given the pressures they face. All of the numerous participants in the acquisition process play a part in creating these pressures. In fact, the weapon systems acquisition process asks much more of DOD program managers than commercial firms do. Perhaps they are asked to do too much: develop advanced technology, manage product design and production, and champion the program's cause through budget and other decisions over many years. In fact, one commercial executive observed that it is unreasonable to expect people to focus on a goal (such as production start-up) that is 4 or more years away. Commercial program managers are put in a better position to succeed; they have to worry only about product design and production within the cost, schedule, and performance demands of the business case.

Charting a Course for Adopting Best Practices to Get Better Outcomes

Commercial practices for gaining knowledge and assessing risks can help produce better outcomes on weapon systems. Collectively, such individual outcomes will help attain DOD's modernization goals and improve funding stability for programs. For such practices to work, however, the knowledge they produce must help a DOD program succeed in its environment. Thus, the DOD environment must become conducive to such practices. At least two factors are critical to fostering such an environment. First, program launch decisions must be relieved of the need to overpromise on performance and resource estimates. The pressure to amass broad support at launch creates incentives for new programs to embrace far more technology development than commercial programs do. Separating technology development so that it does not have to be managed within the confines of a weapon systems program would go a long way to relieving this pressure. The objectives of technology development, as well as what is demanded of knowledge and estimates, differ from those of product development. Clearly, DOD has to develop technology, particularly the technology that is unique to military applications. However, by separating technology development from weapon programs, DOD could insist on higher standards for knowledge on its programs and get better results when those programs transition to production.

Second, once a program is underway, the participants in the acquisition process must make it acceptable for managers to identify unknowns as high risks so that they can be aggressively worked on earlier in development. Commercial firms insist on knowledge measured against a criterion for assessing risk. Firms then make decisions to preserve the business case by eliminating risks. The result is discipline provided from within. We believe that if the Congress and DOD weighed program launch decisions and subsequent progress on weapon systems by applying a common set of knowledge standards, like those gleaned from leading commercial firms, they could create a better "business" case for weapon systems. By developing technology separately to high readiness levels before including it in a program and by adhering to knowledge standards in product development, DOD program managers can be put in a better position to succeed in the timely design and production of weapon systems.

The real test of the participants' resolve to get better outcomes by applying best practices will be the decisions made on individual weapon systems, such as for launch and funding. These decisions define what success means in DOD and what practices contribute to success. Decisions made

by DOD or the Congress to advance or fund programs that do not have enough knowledge to meet agreed-upon standards send signals to managers that not having the necessary level of knowledge is acceptable. On the other hand, decisions to not start new programs that need technology advances to meet unforgiving requirements or to recognize early that a change in a program is necessary to attain desired knowledge levels merit support.

Managing technology development differently and applying knowledge standards to both technology development and product development will have implications for organizational roles and budgeting. For example, if DOD were to attempt to develop technologies to higher readiness levels before including them in a product development, then organizations other than weapon system program offices will have to be made responsible for bridging the gap from the traditional science and technology role to the redefined program manager's role. Likewise, the research and development funding attendant to those bridging responsibilities may have to be budgeted and accounted for differently. This does not necessarily mean more research and development money is needed in the aggregate. Rather, taking the foregoing actions could actually lower costs in the long run, thereby freeing funding for other needs.

The best practices we have described and the changes needed to adopt them are not concepts that are foreign to DOD. One of the recommendations from a 1996 Defense Science Board study called for DOD to aggressively pursue high-risk technology before inclusion in a weapon research and development program.[1] We found several instances—such as the photonics mast for the Navy's New Attack Submarine, propulsion and related technologies for the Marine Corps Advanced Amphibious Assault Vehicle, and the Air Force's Integrated High Performance Turbine Engine Technology Program—where DOD has put the organizations and funding in place to bring technologies to a high level of readiness before they were included in programs. Another program of interest is the Army's Future Scout and Cavalry System, which is being managed as an Advanced Technology Demonstration, a DOD initiative to demonstrate immature technologies so they can be more easily incorporated into a product development. Several other DOD initiatives,

[1] A Streamlined Approach to Weapon Systems Research, Development, and Acquisition: The Application of Commercial Practices, a Report from the Defense Science Board Task Force on Defense Acquisition Reform, May 1996.

like cost as an independent variable and integrated product teams, are attempting to draw lessons from commercial practices.

Ongoing Work of Interest to the Subcommittee

The Subcommittee also asked for information on several assignments we have underway. Most of this work deals with DOD initiatives related to acquisitions. Summaries follow.

Acquisition Workforce Training in Best Practices

DOD has a number of reform initiatives that are related to the best practices that we have reported are possible to adopt in the DOD environment. At the request of this Subcommittee, we are evaluating the role of DOD's training in getting best acquisition practices applied to weapon system programs and whether training could be improved.

We have focused our work on weapon system program offices because they are where the practices are applied. We selected six program offices cited as having been successful in applying one or more of the following practices: cost as an independent variable, past performance, performance specifications, integrated product teams, and supplier relations. We are assessing how DOD's training supported their use of the practices. For comparative purposes, we are meeting with four leading commercial firms noted for their excellence in workforce training. We expect to issue a final report in August 1999.

Best Practices for Test and Evaluation of Weapon Systems

At the request of this Subcommittee, we have recently begun reviewing best practices as they can be applied to the test and evaluation of weapon systems. The objectives of this work are to determine whether (1) the testing practices of leading commercial firms offer improvements to DOD's testing practices on weapon acquisition programs, (2) a particular area of best testing practices stands out as a leverage point that could offer a significant improvement for weapon acquisitions, (3) the role or purpose of testing in best commercial product developments shape actual testing practices and to what extent testing plays a different role in major weapon acquisitions, and (4) obstacles hinder the implementation of best practices on DOD weapon acquisition programs. We plan to complete the design phase of this assignment in June 1999.

Pricing of Sole-Source Commercial Items

DOD, with the support of the Congress, is increasing its use of commercially available products and services. While the current level of commercial purchasing is relatively small and sole-source purchases even smaller, we expect commercial purchases to increase in the future. We are currently reviewing the price analysis tools DOD contracting personnel use to arrive at fair and reasonable prices for commercial sole-source items and the guidance and training available to assist them in determining price reasonableness. In March 1998, we reported our preliminary observations on the pricing of commercial sole-source spare parts during testimony before the former Subcommittee on Acquisition and Technology.[2] Currently, we are nearing completion of that work and plan to issue our report to you in June. Our tentative findings are summarized below.

The current contracting environment for sole-source commercial items presents negotiating challenges for DOD contracting personnel. While the Federal Acquisition Regulation grants DOD contracting officers wide latitude on the type and extent of price analysis techniques they can use, they are, nevertheless, required to perform sufficient price analyses to determine whether offered prices are fair and reasonable. Our review of the price analyses they perform found a number of weaknesses. For example, some contracting personnel accepted initially offered prices because they had a misperception that if the offered prices were the same as the catalog or list price, the offered prices were fair and reasonable. Some contracting personnel did not seem to use pertinent contract file information on historical pricing in their price analysis. Others did not appear to understand the makeup of catalog prices and paid prices that were based on rapid delivery service when it was not needed because the purchases were for restocking inventories.

DOD continues to provide training and guidance to assist contracting personnel in understanding the requirements of a sound price analysis in a commercial contracting environment. In addition, recent legislation requires increased guidance for contracting personnel on price analysis tools, the appropriate use of information other than certified cost or pricing data, and the role of support agencies. In time, as more contracting personnel are trained and additional guidance is provided, we expect to see improvement in the quality of price analyses for sole-source commercial items.

[2]Defense Acquisition: Improved Program Outcomes Are Possible (GAO/T-NSIAD-98-123, Mar. 18, 1998).

Spare Parts Price Trends

Recently, the services have been concerned that the prices they are paying for critical spare parts have been increasing above the rate of inflation. As a result, we have begun a review of the prices DOD end-users are paying for consumable spare parts and repairable items and the change in these prices over time relative to inflation. Where there are significant increases over and above the rate of inflation, we will attempt to ascertain the factors that most contribute to those increases.

Cost Accounting Standards Board

The Congress asked us to establish a panel of experts to review and make recommendations regarding the Cost Accounting Standards (CAS) Board and the CAS system in light of recent procurement reforms. More than 25 years ago, the Congress established the CAS Board to protect the government from certain risks inherent in cost-based contracts and to improve communications between the government and contractors with regard to those contracts. Cost-based contracts continue to represent the majority of all federal contracting dollars. The CAS Board Review Panel is expected to recommend that there is a continuing need for the CAS Board.

The Review Panel is also expected to recommend reforms to encourage the participation of new commercial companies in government procurement and to reduce the burden of government unique accounting system requirements on smaller companies. The Review Panel's report is expected to be released within the next few weeks with its recommendations aimed at significantly reducing the burdens and costs of the CAS system without diminishing its benefits.

Other Transactions

In 1993, the Congress passed section 845 of the National Defense Authorization Act for fiscal year 1994, which authorized the Defense Advanced Research Projects Agency to conduct prototype projects of weapons or weapon systems under the authority of 10 U.S.C. 2371. This is commonly referred to as "other transaction" authority. An other transaction is distinct from other instruments, such as contracts, grants, and cooperative agreements, and is generally not subject to the laws and regulations that apply to these instruments. Subsequently, section 804 of the fiscal year 1997 National Defense Authorization Act extended the authority to enter into other transaction agreements to the military departments and other DOD components. Other transactions can be used even if a contract would be feasible or appropriate. Further, contractors

are not required to share in the costs of the agreements. DOD's authority under section 845 is to expire on September 30, 2001.

In response to a Subcommittee request, we are determining (1) the extent to which DOD has used its section 845 authority, (2) why other transactions were selected as the procurement instrument, and (3) the extent to which other transactions address key areas of risk normally covered by Federal Acquisition Regulations. The scope of our review includes all other transactions that DOD entered into under the authority of section 845, as amended, between fiscal years 1994 and 1998 and two other transactions that were awarded in October 1998 for the Evolved Expendable Launch Vehicle. Our concerns on the potential risks of using other transactions for that program were discussed in a prior report.[3] We will issue our report this summer.

Governmentwide Information Technology Contracts

We were asked to examine selected governmentwide agency contracts, typically for various information technology resources, to determine whether competition requirements were being met. In 1994, the Congress directed that agencies consider awarding these task and delivery order contracts to multiple firms—rather than a single firm—to provide for competition in ordering.[4] Federal agencies are to provide each of the multiple contractors a fair opportunity to be considered for orders placed under the contracts.

In September 1998, we reported that efforts to provide a fair opportunity—and thereby promote competition—varied among the six organizations reviewed.[5] Four agencies had experienced difficulty obtaining competition, while two had achieved consistent competition. Because multiple award task and delivery order contracts are a relatively new contracting mechanism, and because of the large size of some orders that had been awarded pursuant to the new authority, we were requested to continue a review of the implementation of these provisions. We have

[3] Evolved Expendable Launch Vehicle: DOD Guidance Needed to Protect Government's Interest (GAO/NSIAD-98-151, June 11, 1998).

[4] A task- or delivery-order contract provides for an indefinite quantity, within stated limits, of supplies or services to be furnished during a fixed period, with deliveries or performance to be scheduled by placing orders with the contractor.

[5] Acquisition Reform: Multiple-Award Contracting at Six Federal Organizations (GAO/NSIAD-98-215, Sept. 30, 1998)

selected four organizations that have awarded multiple award contracts for information technology products and services that are available for governmentwide use. Our work will provide a perspective on how agencies ensure contractors a fair opportunity to be considered for interagency orders.

Three of the four organizations were included in our prior work and have attempted to strengthen their processes for providing contractors a fair opportunity. The Department of Transportation—which sometimes accepted unconvincing rationales for placing sole-source orders—now provides customers placing interagency orders specific guidance about acceptable rationales to justify sole-source orders. The National Institutes of Health—which had identified preferred contractors when announcing plans to place orders—has eliminated any reference to a preferred contractor from such announcements. In addition, a proposed change to the governmentwide procurement regulations would prohibit designating preferred contractors. Finally, the Defense Information Systems Agency—which had not required that all multiple award contractors be notified of planned competitive orders—modified its procedures to require that all contractors be notified of orders.

Although our current review is now in its initial phases, our preliminary work shows that competition for the largest orders under multiple award contracts has not been routinely achieved. During our work, we will identify factors that might have deterred contractors from competing for these orders and assess how changing agencies' fair opportunity processes might broaden competition for orders.

This concludes our statement. We appreciate the opportunity to have it placed in the record.

GAO Products on Best Practices Applicable to Weapon Acquisitions

Best Practices: Commercial Quality Assurance Practices Offer Improvements for DOD (GAO/NSIAD-96-162, Aug. 26, 1996).

Major Acquisitions: Significant Changes Underway in DOD's Earned Value Management Process (GAO/NSIAD-97-108, May 5, 1997).

Best Practices: Successful Application to Weapon Acquisitions Requires Changes in DOD's Environment (GAO/NSIAD-98-56, Feb. 24, 1998).

Best Practices: DOD Can Help Suppliers Contribute More to Weapon System Programs (GAO/NSIAD-98-87, Mar. 17, 1998).

Defense Acquisition: Improved Program Outcomes Are Possible (GAO/T-NSIAD-98-123, Mar. 18, 1998).