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Report to the Subcommittee on Readiness, Committee on Armed Services, House of Representatives

April 2003

DEPOT MAINTENANCE

Public-Private Partnerships Have Increased, but Long-Term Growth and Results Are Uncertain

GAO-03-423

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GAO Highlights

Highlights of GAO-03-423, a report to the Subcommittee on Readiness, Committee on Armed Services, House of Representatives

Why GAO Did This Study

For several years, the Department of Defense (DOD) and the Congress have encouraged the defense logistics support community to pursue partnerships with the private sector to combine the best commercial processes and practices with DOD's extensive maintenance capabilities. In January 2002, DOD issued policy encouraging the use of public-private depot maintenance partnerships to improve the efficiency and viability of its depots. GAO reviewed these partnerships and assessed the extent that DOD is participating in these partnerships, the characteristics needed to achieve effective partnerships and where DOD is in its ability to measure success, and the management challenges to DOD's planned expansion of partnerships.

What GAO Recommends

GAO recommends that DOD

- establish overarching goals for expected outcomes from its partnering initiative,
- refine current metrics for measuring partnership benefits, and
- require specific assessment and planning for new capability where partnerships are expected for new systems.

DOD partially concurred but indicated that it did not plan to implement these recommendations. Consequently, we are including matters for congressional consideration that address our recommendations.

www.gao.gov/cgi-bin/getrpt?GAO-03-423.

To view the full report, including the scope and methodology, click on the link above. For more information, contact Barry W. Holman at (202) 512-8412 or holmanb@gao.gov.

What GAO Found

While the number of public-private partnerships that DOD is participating in has increased from 19 to 93 from fiscal year 1998 through fiscal year 2002, the existing partnerships represented only 2 percent of DOD's fiscal year 2002 $19 billion depot maintenance program. Even with the small amount of expenditures and workload associated with partnerships, some partnerships that GAO reviewed either improved some aspects of repair performance or showed potential for doing so. On the other hand, 19 partnerships have generated no work thus far.

DOD and contractor officials have identified 14 characteristics that they believe over time will contribute to a partnership's success in achieving DOD's objective of improved depot efficiency and viability. However, DOD has a limited ability to measure the overall success of its partnering efforts because it has not yet developed measurable goals for the expected outcomes of the effort and the metrics that it has developed sometimes will not provide the data needed to fully assess the partnerships. Without initially establishing clear, measurable goals to define success in improving the efficiency and viability of its depots and metrics that provide the relevant data for the measurement, DOD has limited objective means to assess whether the partnerships are working as intended.

Furthermore, DOD faces challenges in its efforts to expand its use of public-private partnerships. For example, opportunities available for DOD to expand its use of these partnerships may be limited by external factors that the services cannot replicate or create at will, such as one-time business opportunities. Also, while DOD is expecting private sector funding to support the establishment of capability for depot partnerships for new systems, the amount of private-sector investment to date is only $6.9 million, and the extent to which the private-sector will make additional investments is uncertain.

Source: Corpus Christi Army Depot.

Under the Army's T700 partnership, the Corpus Christi Army Depot provides the necessary facilities and equipment and repairs the T700 helicopter engine while General Electric provides spare parts and technical, engineering, and logistics services. Left: Corpus Christi Army Depot and General Electric T700 partnership managers review a process improvement proposal. Right: Corpus Christi T700 assembly supervisor consults with General Electric partnership manager on the T700 engine assembly process.

Contents

Abbreviations

BRAC	base realignment and closure
CVN	nuclear aircraft carrier
DOD	Department of Defense
ICBM	intercontinental ballistic missile
JSTARS	Joint Surveillance Target Attack Radar System
LANTIRN	Low-Altitude Navigation and Targeting Infrared for Night
NBCRS	nuclear, biological, chemical reconnaissance
OSD	Office of the Secretary of Defense
PDM	programmed depot maintenance

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United States General Accounting Office
Washington, D.C. 20548

April 10, 2003

The Honorable Joel Hefley
Chairman
The Honorable Solomon P. Ortiz
Ranking Minority Member
Subcommittee on Readiness
Committee on Armed Services
House of Representatives

For the past several years, the Department of Defense (DOD) and the Congress have encouraged the defense logistics support community to pursue partnerships with the private sector. These public-private partnerships are arrangements through which the combined resources, risks, and rewards of a public agency and a private company are intended to provide greater efficiency, better access to capital, and improved compliance with a range of government regulations. In January 2002, DOD issued policy encouraging the use of such public-private partnerships in order to combine the best commercial processes and practices with DOD's extensive depot maintenance capabilities with the objective of improving the efficiency and viability of DOD's depots. DOD also expects these improvements to depot operations to ultimately improve support for war fighters.

Your subcommittee has supported the use of public-private depot maintenance partnerships with its support of enabling legislation and interest in DOD's use of such partnerships. This report addresses the following questions: (1) to what extent is DOD participating in public-private partnerships for depot maintenance; (2) what are the characteristics that need to be present to achieve effective partnerships, and where is DOD in its ability to measure success; and (3) what factors could affect DOD's planned expansion of public-private partnerships?

As part of our work, we reviewed 90 of the 93 partnerships DOD identified as ongoing during fiscal year 2002. We also visited 14 of DOD's 20 major maintenance depots where these partnerships are ongoing. A more complete discussion of our scope and methodology is included in appendix I. A listing of the services' partnerships we reviewed with relevant information about each is included in appendix II. We conducted our review from February 2002 through February 2003 in accordance with generally accepted government auditing standards.

Results in Brief

DOD has engaged in a growing number of public-private partnerships for depot maintenance, but to date, the number of such partnerships involves a relatively small portion of DOD's depot workload. Specifically, the number of such partnerships increased from 19 partnerships (13, Army; 3, Air Force; 2, Navy; and 1, Marine Corps) in fiscal year 1998 to 93 partnerships for all services in fiscal year 2002. [1] The Army still had the greatest number of ongoing partnerships in fiscal year 2002—42, a 3-fold increase from the 13 it had in 1998. In fiscal year 2002, the Navy had a total of 31 ongoing partnerships—a 15-fold increase, the Air Force had 19 ongoing partnerships—a 6-fold increase, and the Marine Corps still had 1 partnership. While the number of DOD's public-private partnerships for depot maintenance has increased since 1998, these partnerships represented only 2.2 percent of DOD's total depot maintenance program expenditures in fiscal year 2002. The partnerships at the depots we visited typically accounted for a small portion of each depot's total workload—0.01 to 2.5 percent of the hours worked in fiscal year 2002—or generally did not increase the workload to be performed at the depots. Nineteen—or about one fifth—of the 90 partnerships we reviewed had generated no workload for the depots, although many were expected to do so at some point. However, even with the small amount of expenditures and workload associated with partnerships, some partnerships provided promising results or good potential, such as reduced repair time or better parts availability.

DOD and contractor officials have identified 14 characteristics that they believe over time will contribute to a partnership's success in achieving DOD's objective of improved depot efficiency and viability; however, DOD has not developed a baseline and measurable goals for the expected outcomes needed to measure the overall success of its partnership initiative. Almost all of these officials cited long-term commitment, shared vision and objectives, and the right metrics as key elements for successful partnering. While the 14 characteristics are not in place in all partnerships, many depot partnership managers stated that they are working toward pursuing the characteristics in their partnerships and that, over time partnerships should evolve to include these characteristics. At the same time, the depot partnership managers agreed on the importance of having the right metrics (a key characteristic) in place early in the partnership to

[1] We compared current depot partnerships with those in place in 1998, the last time we reviewed such arrangements.

measure success. However, DOD has a limited ability to measure the overall success of its partnering efforts because it has not yet developed a baseline and measurable goals for expected outcomes for the effort and because the metrics that it has developed sometimes will not provide the data needed to fully assess the partnerships.

While DOD plans to expand its use of public-private partnerships, several factors could affect the department's expansion efforts. First, opportunities available for DOD to expand its use of public-private partnerships may be limited by various external factors that led to partnering arrangements in the past but that the services cannot necessarily replicate or create at will, such as one-time business opportunities. Second, while DOD is expecting private-sector partners to fund the establishment of capability to repair new or upgraded systems at military depots, it is uncertain to what extent the private-sector will make such investments. For example, the amount of partnership-related private-sector investment in military depots through fiscal year 2002 was $6.9 million, which, based on a commercial sector benchmark for such investments, is only about 1 percent of the $621 million investment needed by DOD to improve and maintain its depot infrastructure in fiscal year 2002. Finally, much publicity has been given to a recently considered DOD proposal to change provisions of title 10, United States Code, that currently limit the department's ability to outsource depot maintenance workloads. According to DOD and depot officials, these title 10 provisions currently provide the key impetus for the expansion of public-private partnerships.

We are making a number of recommendations to improve DOD's management, direction, potential for success, and assessment of its public-private partnerships.

In commenting on a draft of this report, DOD agreed with the report's information, findings and conclusions, and partially concurred with the report's recommendations; however, DOD's comments indicated that it does not plan to implement the recommendations. Consequently, we are including matters for congressional consideration that address the report's recommendations. DOD's comments and our evaluation of them are discussed in the agency comments section later in this report.

Background

DOD spends about $19 billion annually on depot maintenance, which includes repairing, rebuilding, and overhauling weapon systems such as ships, tanks, and aircraft. DOD estimates that approximately 53 percent of its fiscal year 2002 depot-level workload will be performed in DOD-owned facilities, and that the remainder will be performed by the private sector, mostly in private-sector facilities. DOD has 20 major depots:[2] 9 in the Navy (3 aviation depots, 4 shipyards, and 2 warfare centers), 5 in the Army, 4 in the Air Force (3 air logistics centers and 1 aircraft storage center), and 2 in the Marine Corps. The private sector operates numerous facilities where depot-level maintenance is performed on military and private (or nonmilitary) equipment and systems. Some of these facilities are manufacturing facilities where maintenance work is also performed, while others are used only for maintenance.

For many years, debate has occurred between the Congress and various administrations over who should perform depot work and where it should be performed. Central to this debate has been the interplay between DOD's efforts to rely more on the private sector for depot maintenance and title 10 provisions that (1) limit private-sector workloads to 50 percent of available funding in a fiscal year,[3] (2) require the government to maintain certain core capabilities in military depots,[4] and (3) require public-private competitions for certain workloads.[5] The public-private partnership concept for improving government operations provides a cooperative approach for resolving this debate.

[2] DOD defines "major depots" as those having 400 or more employees.

[3] 10 USC 2466.

[4] DOD is required under 10 USC 2464 to identify and maintain within government owned and operated facilities a core logistics capability, including the equipment, personnel, and technical competence required to maintain weapon systems identified as necessary for national defense emergencies and contingencies.

[5] 10 USC 2469.

The use of public-private partnerships to improve government operations was recently endorsed in 2002 by the report of the congressionally mandated Commercial Activities Panel chaired by the Comptroller General of the United States.[6] One sourcing principle adopted by the panel related to the need to create incentives and processes to foster high-performing, efficient, and effective organizations throughout the federal government. Commentary surrounding that principle stated that

> This principle recognizes that historically it has primarily been when a government entity goes through a public-private competition that the government creates a "most efficient organization" (MEO). Since such efforts can lead to significant savings and improved performance, they should not be limited to public-private competitions. Instead, the federal government needs to provide incentives for its employees, its managers, and its contractors to constantly seek to improve the economy, efficiency, and effectiveness of the delivery of government services through a variety of means, including competition, public-private partnerships, and enhanced worker-management cooperation.

In early 1998, we reviewed DOD's use of public-private depot maintenance partnering arrangements and concluded that contractors had become more interested in sharing repair and maintenance workloads with depots and depots were willing to enter into partnering arrangements with the private sector in an effort to reduce overhead costs and retain core capabilities.[7] We also reported that the Army had 13 partnerships ongoing at four of its depots, the oldest of which was initiated in fiscal year 1994. While we did not report any partnerships for the Air Force, Navy, or Marine Corps at the time of our review, by the end of 1998, the Air Force had three partnerships ongoing, the Navy had two, and the Marine Corps had one.

Historically, DOD has used public-private partnering arrangements for depot maintenance, such as work-share agreements and facility-use partnerships, under various legal authorities—although these arrangements generally were not referred to as "partnerships." Partnering with the private sector to (1) help sustain core depot maintenance capabilities, (2) use underutilized public facilities, and (3) leverage private-

[6] Section 832 of the Floyd D. Spence National Defense Authorization Act for Fiscal Year 2001 required the Comptroller General to convene a panel of experts to study the policies and procedures governing the transfer of commercial activities for the federal government from government to contractor personnel. The Commercial Activities Panel's report entitled *Improving the Sourcing Decisions of the Government* (CAP-02-01) was issued on April 30, 2002.

[7] See U.S. General Accounting Office, *Defense Depot Maintenance: Use of Public-Private Partnering Arrangements*, GAO/NSIAD-98-91 (Washington, D.C.: May 7, 1998).

sector investment in these military facilities is a relatively new concept that the department is pursuing on the basis of congressional direction under 10 USC 2474. The objectives of public-private partnerships under section 2474 are to

- maximize capacity use at depots,
- reduce or eliminate the depots' ownership costs in areas such as operations and maintenance and environmental remediation,
- reduce the cost of products made or maintained at depots,
- leverage private-sector investments in plant and equipment and promote commercial business ventures at depots, and
- foster cooperation between the military and private industry.

In response to section 2474, DOD issued policy governing the formation of public-private partnerships and incorporated the concept of these partnerships into its current departmentwide logistics reengineering initiative.

In January 2002, the Deputy Under Secretary of Defense (Logistics and Materiel Readiness) issued a policy memorandum on public-private depot maintenance partnerships. The memorandum outlined policy, provided a definition and directed the services to pursue partnerships to strengthen DOD's depot maintenance operations and, ultimately, to improve support to war fighters. The DOD policy focuses on using partnerships to improve the efficiency and viability of its depots. The policy memorandum noted that partnering can contribute to more effective DOD maintenance operations, to the introduction of innovative processes and technologies, and to the economical sustainment of depot capabilities. The department defines a public-private partnership as "an agreement between an organic [military] depot maintenance activity and one or more private industry or other entities to perform work or utilize facilities and equipment." According to DOD policy, depot maintenance public-private partnering arrangements generally include (but are not restricted to) one or more of the following forms:

- Use of public-sector facilities, equipment, and employees to perform work or produce goods for the private sector.

- Private-sector use of public-sector equipment and facilities to perform work for the public sector.

- Work-share agreements, using both public- and private-sector facilities and/or employees.

DOD included public-private partnerships in its June 2002 logistics reengineering initiative[8] to meet war fighters' sustainment needs and operational requirements of the National Defense Strategy. The initiative states that public-private partnerships should help address the many challenges facing military depots, which include facilities and equipment that have become severely degraded because of limitations in funds for recapitalization and an aging workforce that has shrunk by 51 percent in the past 10 years. The department's desired goal, according to this initiative, is a dramatic increase in public-private depot maintenance partnerships. The initiative reinforces the department's effort to improve the efficiency and viability of its depots, stating that partnerships will result in creating greater private-sector investment in facilities and equipment, better facility utilization, reduced costs of ownership, workforce integration, more efficient business processes, greater credibility, and a more collegial working relationship with the Congress.

DOD's public-private partnership policy is intended to help the services implement the department's performance-based logistics initiative for its weapon systems sustainment policy and still comply with title 10 provisions constraining the outsourcing of depot maintenance workload. The 2001 Quadrennial Defense Review mandated the implementation of performance-based logistics in order to improve readiness for major weapon systems and commodities. DOD's resulting performance-based logistics initiative seeks to achieve these improvements by using predetermined performance or readiness goals in evaluating a weapon system's logistics support provider. While performance-based logistics does not require the use of a contractor as the logistics provider, according to DOD officials, all of the performance-based arrangements thus far have used a contractor as the logistics provider, and they expect that this trend will continue. DOD officials anticipate that as the department implements

[8] The initiative is called the Future Logistics Enterprise and comprises six elements: (1) depot maintenance partnerships, (2) condition-based maintenance, (3) total life-cycle systems management, (4) end-to-end distribution, (5) executive agents, and (6) enterprise integration—see Deputy Under Secretary of Defense (Logistics and Material Readiness), *Future Logistics Enterprise: The Way Ahead* (Washington, D.C.: June 3, 2002).

more performance-based logistics arrangements with contractors as integrators, the contractors will have to partner with military depots for the services to comply with title 10 requirements, thus increasing the use of public-private partnering.

Growing Number of Partnerships Involve a Relatively Small Portion of Depot Workload

DOD's public-private partnerships for depot maintenance increased from 19 to 93 from fiscal year 1998 through fiscal year 2002 and involved 2.2 percent of DOD's total depot maintenance program expenditures in fiscal year 2002. The Army had the largest number—42 partnerships in fiscal year 2002. The partnerships at the depots we visited typically accounted for a small portion of each depot's total workload—0.01 to 2.5 percent—or generally did not increase the workload to be performed at the depots. Two partnership arrangements resulted in large growth in workload at individual depots although service officials do not consider one of them as a typical increase because it was due to the closure of another depot.[9] Furthermore, about one-fifth of the partnerships have not yet produced any workload for the depots, although future workload is expected in many of these cases. However, even with the small amount of new workload generated and the partnerships' newness, some partnerships provided promising results or good potential.

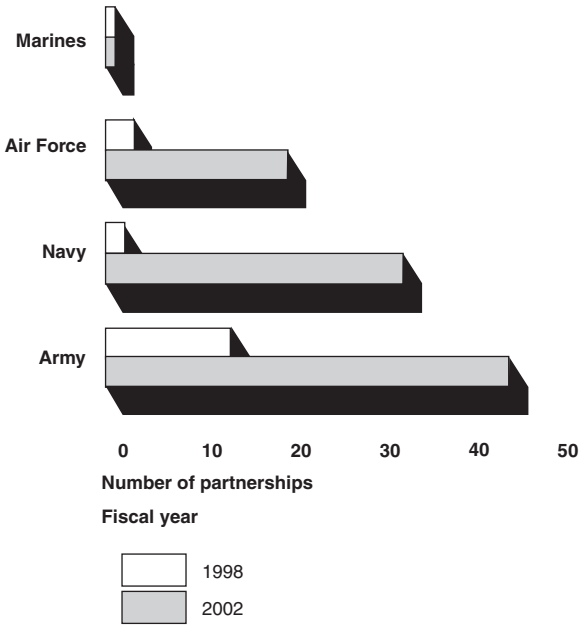
Services Expanding Use of Partnerships

The department's emphasis on the use of public-private partnerships for depot maintenance has resulted in increases in their use—from 19 in fiscal year 1998 to 93 in fiscal year 2002, an overall 4-fold increase. The partnerships were formed for a variety of reasons, such as the contractors seeking a depot's unique capabilities. According to depot officials, a key underlying factor for the increased use of partnerships has been the legislative requirement to use at least 50 percent of available funding for depot maintenance work in DOD depots. Simultaneously, long-term logistics support contracts with the private sector are being pursued as the preferred DOD support arrangement.

[9] In 1995, the Base Realignment and Closure process resulted in the closure of the Air Force's San Antonio depot. The Air Force conducted a public-private competition for the placement of much of the depot's engine workload. The Air Force's Oklahoma City depot teamed with a contractor to compete for a combined workload package, which once awarded, resulted in each partner working independently on different aircraft engine workloads at their own respective locations—an atypical partnering arrangement according to DOD officials.

While the department has experienced an increase in the use of partnerships, just over one-half of these were initiated during the last 2 fiscal years. In 1998 we reported that the Army had 13 ongoing partnerships, a number that expanded to 42 during fiscal year 2002—a 3-fold increase. The Navy's use of partnerships increased from 2 in 1998 to 31 in fiscal year 2002—a 15-fold increase. Similarly, the Air Force's use of partnerships increased from 3 in fiscal year 1998 to 19 in fiscal year 2002—a 6-fold increase. The Marine Corps' usage has remained constant with one partnership in fiscal year 1998 and the same one in fiscal year 2002.[10] Overall, partnership growth in the department represents a 4-fold increase from fiscal year 1998 to fiscal year 2002. Figure 1 shows the number of total partnerships by individual military service for fiscal years 1998 and 2002.

Figure 1: Number of Partnerships by Individual Service in Fiscal Year 1998 and Fiscal Year 2002



Source: DOD (data), GAO (analysis).

[10] The work being done as a result of the Marine Corps' partnership is scheduled to be completed in December 2003, although according to depot officials, the Marine Corps is looking for additional opportunities to partner.

These partnerships were formed for a variety of reasons and used differing approaches on the basis of the circumstances surrounding the specific partnering effort. For example, in a number of cases, the contractor sought out the depot for its unique capabilities or for its advantageous labor rates. In other cases partnerships formed to meet title 10 requirements to maintain military depot capabilities for key weapon systems.[11] Depot officials stated that a key underlying factor driving the use of partnerships has been the legislative requirement for at least 50 percent of available funds to be used for depot maintenance work in DOD depots.[12] At the same time long-term logistics support contracts with the private sector are being pursued as the preferred DOD support arrangement. The lease of underutilized depot facilities to a contractor and the sale of depot repair services to a contractor are examples of the approaches used to form partnerships. (See appendix II for summary data regarding the reasons cited and approaches used for the 90 partnerships we reviewed.)

Partnerships Account for a Small Portion of DOD's Depot Maintenance Expenditure and of Depots' Workload

While DOD has not established goals for the depot maintenance expenditures or workload it expects to be involved in public-private partnerships, currently, partnerships represent a small part of DOD's overall in-house depot maintenance expenditures and workload. Some partnerships had not yet resulted in work to be performed at their depot, but depot officials anticipate some in the future.

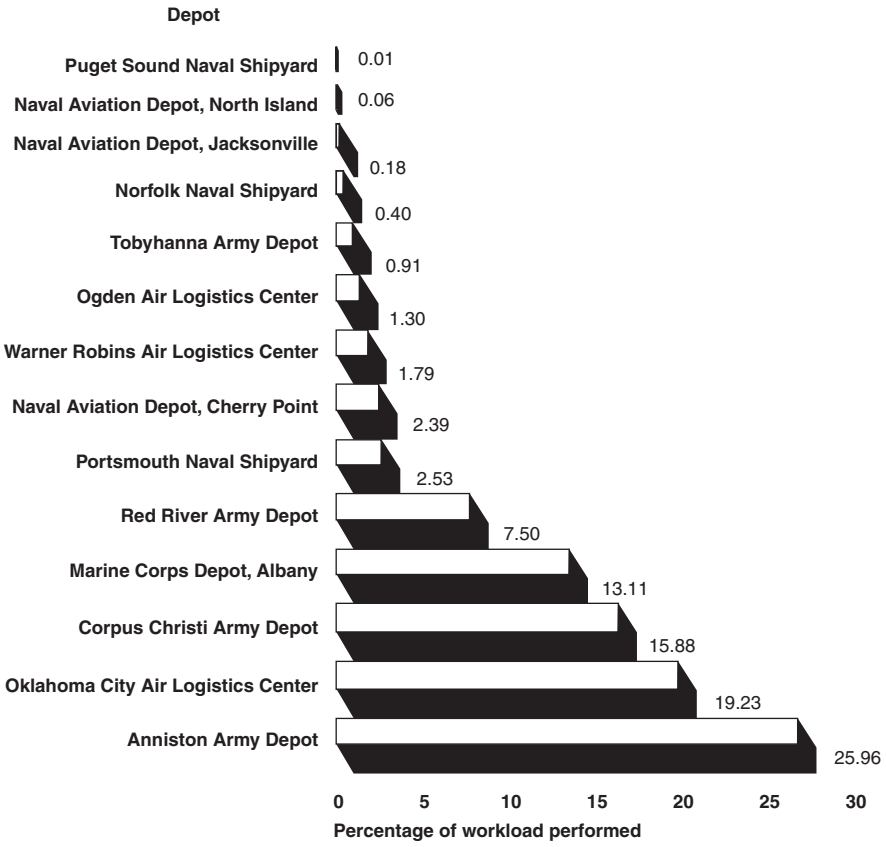
Maintenance performed in fiscal year 2002 by the depots under partnerships accounted for only $435 million—or 2.2 percent—of the $19.4 billion dollars that DOD reported spending on depot maintenance in that year. Within the services, the amount of depot maintenance expenditures involved in public-private partnerships varies from about 3.0 percent in the Army and 3.8 percent in the Air Force to about 0.5 percent for the Navy and Marine Corps combined.

[11] 10 USC 2464.

[12] 10 USC 2466.

Furthermore, in fiscal year 2002, the total of all depots' partnership workload was 4.6 percent of DOD's total military depot workload. However, as indicated by figure 2, the partnerships' workload at the 14 service depots we visited varied widely from 0.01 percent to nearly 26.0 percent.

Figure 2: Percentage of Workload Performed under Partnerships in Fiscal Year 2002 at 14 Depots That GAO Visited



Source: DOD (data), GAO (analysis).

Partnerships at 9 of the 14 depots we visited—which have 59 partnerships in total—involved workload that ranged from 0.01 to 2.53 percent of the depot's total workload. In addition, while partnership activity at the other 5 depots we visited—which have 31 partnerships in total—ranged from 7.5 to 26.0 percent of the depots' workload, the partnerships themselves

were not always the reason why this workload was placed at the depots. According to depot officials, with two exceptions, the placement of most of the partnership workload at these depots was based on program managers' decisions that occurred prior to the formation of the associated partnership. The program managers' decisions were based on reasons such as maintaining repair capability in military depots, using the most cost-effective maintenance source, or sustaining the viability of the industrial base.

The two instances where partnerships resulted in significant new workloads for a depot were the Army's Abrams Integrated Management XXI partnership—which accounts for about half of the Anniston workload shown in figure 2—and the Air Force's Propulsion Business Area partnership—which accounts for most of the Oklahoma City workload shown in figure 2. The propulsion workload at the Oklahoma City depot resulted from the closure of a major Air Force depot, and according to DOD officials, this workload volume does not represent the typical workload that a depot can expect as a result of a partnership.

In addition, as of December 2002, 19—or 21 percent—of the 90 partnerships we reviewed had generated no workload for the depot. For example, seven partnerships at Tobyhanna Army Depot created from fiscal year 1999 and through fiscal year 2001 for the depot to repair electronic equipment for a contractor have not resulted in workload at the depot, although workload was expected. Other partnering efforts, such as the Air Force's Flexible Acquisition and Sustainment Tool partnership and the Army's H-60 Helicopter Engineering Logistical Services and Supplies partnership, are too new to have generated workload, but the depots anticipate that workload will be forthcoming.

Experience Is Limited at This Time, but Some Partnerships Show Promise for Achieving Positive Results

While the small amount of workload and expenditures attributed to partnerships and the newness of many of the partnerships limited the availability of data to assess DOD partnerships' impact on the efficiency and viability of depots, some partnerships provide promising results or good potential for improving some aspects of repair performance. Of the 90 partnerships we reviewed, 28 either improved some aspects of repair performance or showed potential for doing so. Improvements from these partnerships included better parts availability, reduced repair time, reduced backorders, or reduced depot support costs. These improvements relate to DOD's objective of enhancing greater depot efficiency and viability. For example, reducing repair time results in improved business

processes—one approach for enhancing depot operations. Reducing depot support cost can result in reduced ownership costs of weapon systems—another approach for enhancing depot operations. Appendix IV provides six examples of partnerships that are achieving these improvements. On the other hand, 19 partnerships thus far have generated no work for the depots.

Characteristics for Effective Partnerships Identified, but DOD Is Limited in Its Ability to Measure Partnerships' Overall Success

DOD and contractor officials have identified 14 characteristics that they believe over time will contribute to a partnership's success in achieving DOD's objective of improved depot efficiency and viability, but DOD has not developed sufficient data and goals for assessing its partnering initiative. Many depot partnership managers stated that they are working toward pursuing these 14 characteristics in their partnerships, including having the right metrics in place early in the partnership to measure success. However, DOD's ability to measure the partnerships' overall success is limited because it has not yet developed baseline data and measurable goals for assessing the outcomes of its partnering efforts and the metrics that it has developed sometimes will not provide the clear data needed to fully assess the partnerships.

Characteristics Identified by DOD and Contractor Officials Needed to Achieve Effective Partnerships

While DOD continues to gain experience in partnering, senior-level DOD and contractor officials have identified 14 characteristics, or best practices, that they believe over time may be important for a partnership's success in contributing toward achieving DOD's objective. Almost all officials cited three characteristics as key—long-term relationship and commitment, shared vision and objectives, and the right metrics. The other 11 attributes were cited less frequently but, according to the identifying officials, will nonetheless improve the potential for success if present in a partnership. Table 1 summarizes the 14 characteristics cited by DOD and contractor officials as important to the success of partnerships.

Table 1: Characteristics That Partnerships Need to Achieve Success

Success characteristic	Reason for/Benefit of partnership
Long-term relationship and commitment	A long-term relationship and commitment (1) permits both contractors and depots to better plan future workload requirements and create a better business case for the contractor to make investments to improve depot repair capability and (2) allows the contractor to help manage parts obsolescence.
Shared partnership vision and objectives	Having partners share the same partnership vision and objectives helps ensure that the partners will not be working at cross-purposes.
The right metrics and incentives	The right metrics and incentives are needed to effectively measure that progress is being made and ensure that the partners are effectively motivated to achieve partnership goals and objectives.
Early acquisition community involvement	Developing the partnership with acquisition community involvement during the early phases of a weapon system's acquisition helps to ensure that any additional depot maintenance capability development needed is fully planned and funded.[a]
Complementary skills and abilities	Each partner should bring complementary skills and abilities to the partnership because if each partner's capabilities are the same, the relationship may result in a competitive and potentially adversarial relationship, not the cooperative synergistic relationship hoped for in a partnership.
Senior-level advocacy and support	DOD and contractor senior management support for a partnership is necessary to ensure that the effort receives the focus and resources needed to achieve success.
Sound business case analysis	A comprehensive business case analysis, including expected outcomes, should be conducted as part of the decision process for entering a partnership to ensure a sound result benefiting both the depot and the private-sector partners.
Mutual trust and shared risk	The partnership should be firmly grounded in mutual trust, open communications, and balanced risk among partners.
Flexibility to change partnership scope	To ensure the ability to adapt to changing circumstances or factors, the partnerships should have the flexibility to change the partnership scope.
Balanced workload	Workload should be balanced among the partners to ensure meaningful involvement for each partner and ensure that one partner does not receive only low-skilled work or no work at all.
Independent review and oversight	Independent review and oversight provides an objective assessment of whether each partnership is achieving the expected benefits and that each partner performs as expected. Such a review also provides a basis for correcting or redirecting partnership efforts if expectations are not being met.
Enforce partnership decisions and requirements	To ensure successful partnering efforts, the partners' senior management must provide a mechanism for enforcing compliance with partnership decisions and requirements.
Full coordination with all stakeholders	Public-private partnership efforts should include steps to get feedback from all stakeholders on planned efforts and adjust the partnering strategies to reflect legitimate concerns of these stakeholders.
Clearly documented objectives in partnering agreement	Once clear mutual partnering objectives are determined, they should be documented into a formal partnering agreement. The documentation can provide for dispute mediation and resolution, and also help delineate each partner's liability.

Sources: DOD and contractors.

[a]Recently, we reported that reducing the logistics costs for a weapon system is enhanced with early involvement among the acquisition and logistics community—see U.S. General Accounting Office, *Best Practices: Setting Requirements Differently Could Reduce Weapon System's Total Ownership Costs*, GAO-03-57 (Washington, D.C.: Feb. 11, 2003).

While we observed the presence of these characteristics in some of the partnerships we reviewed, we did not attempt to validate the extent to which the characteristics were present in all partnerships reviewed, given the newness of many of the partnerships. (See appendix V for examples of how some of the partnerships we reviewed exhibited these characteristics.) Nonetheless, many of the depot officials responsible for managing partnerships stated that the characteristics identified by senior-level contractor and DOD officials will contribute to making partnership efforts successful. They also stated that while the characteristics are not currently present in all partnerships, over time, more partnerships will evolve to include these characteristics. The officials agreed that the characteristic of having long-term commitment should permit both contractors and depots to better plan future workload requirements and create a better business case for the contractor to make investments to improve depot repair capability. The officials agreed that the characteristic of sharing the same partnership vision and objective helps ensure that the partners will not be working at cross-purposes. Additionally, these officials pointed out that another of the characteristics—having the right metrics—is critical to develop early in a partnership. Without establishing sound metrics for partnerships early, the services cannot effectively measure that progress is being made toward achieving the partnerships' goals and objectives. The officials added that in such instances a partnership risks making no progress toward its goal or possibly even having an impact that is counter to the partnership's goals and objectives.

DOD's Ability to Measure Success Is Limited by Lack of Measurable Goals for Outcomes and Unclear Metrics

DOD is limited in its ability to measure the overall success of its partnering efforts because it has not yet developed baseline data and measurable goals for the expected outcomes of the effort. Furthermore, the metrics that DOD has developed sometimes will not provide the data needed to assess the partnerships' results.

While some partnerships have produced positive results, such as reduced repair time, DOD has neither established a baseline regarding efficiency and viability for where the depots are today nor developed measurable goals for the expected outcomes that would define success for achieving improved depot efficiency and viability. Such goals could include measurable targets for the amount of reductions in general and administrative expenses, degree of increased utilization of depot capacity, number of jobs created at depots, and amount of private-sector investment in depot infrastructure and equipment. Establishing such goals would provide DOD and the Congress with a measuring stick against which to

determine the progress that DOD's partnering initiative is making toward improved depot efficiency and viability.

Without the goals, DOD's existing metrics—the data that DOD is collecting to measure individual partnership performance—do not provide the clear information needed to assess a partnership's progress in improving a depot's performance. DOD is collecting data to measure individual partnership performance—revenue generated, capital investment, jobs created, cost avoidance, increased facility utilization, improved business processes, and improved responsiveness to customers. However, these metrics are not tied to overarching goals for DOD's partnership initiative. Consequently, DOD does not have a clear means for assessing the accomplishments of its individual partnerships toward meeting its overarching objective and therefore risks not achieving the improvements to depot operations expected from public-private partnership efforts. For example, investments made by the private sector in military depots to date have been about $6.9 million in total at all DOD depots. However, without an established goal for such investments based on each depot's strategic capital investment needs, DOD does not have a means of evaluating how effective these investments are toward improving a depot's viability or efficiency.

Furthermore, in some cases, the metrics that DOD has developed may not indicate whether improvements in depot performance are due to a partnership or to other factors. This is because some partnerships coincide with changes to a weapon system program (such as adopting a new repair approach) that may cloud the service's ability to measure whether the partnership is responsible for any of the measured impacts. For example, metrics for the Army's T700 helicopter engine partnership will measure changes in an engine's reliability. However, the Army began a recapitalization effort shortly after the start of the partnership, and according to a program management official, the recapitalization effort will affect the reliability of the metrics. An Army depot official stated that it is not possible to separate the impact of the recapitalization from the impact of the partnership, since the two initiatives were implemented concurrently. Eleven of the partnerships we reviewed involved similar recapitalization or other major weapon system modifications and improvements that likewise have the potential for distorting the metrics for these partnerships.

Several Factors Could Affect DOD's Planned Partnership Expansion

While DOD plans to expand its use of public-private partnerships to improve the efficiency and viability of its depots, several factors could affect the department's expansion efforts. The opportunities for increased partnering may be limited by external factors that the services cannot create at will, and uncertainties over the extent to which the private sector will invest to improve or develop new capabilities at DOD depots to support partnerships. In addition, should the Congress change title 10 provisions pertaining to depot maintenance, the changes could affect the impetus for public-private partnerships.

Partnering Opportunities May Be Limited by External Factors

The opportunities available for DOD to expand its use of public-private partnerships may be limited by external factors that the services cannot replicate or create at will. Indeed, the creation of some partnerships resulted from the occurrence of one-time business opportunities arising from external factors, such as contractors' decisions to divest themselves of repair capabilities.

Such one-time opportunities may be critical to developing successful partnerships, but their occurrence is unpredictable. For example, Northrop Grumman made a business decision to discontinue its in-house composite repair capability for B-2 aircraft flight control surfaces. This created an opportunity for the Air Force's Ogden depot to develop repair capability for the flight control surfaces and enter into a partnership with Northrop Grumman, which retained the overarching contract responsibility for the B-2's airframe maintenance. This partnering opportunity between the Ogden depot and Northrop Grumman was wholly contingent on the contractor's decision to divest itself of this repair capability.

Expected Private-Sector Investments to Establish New Capabilities Are Uncertain

Expanding the use of partnerships to new or upgraded systems where depots do not currently have the capability to accomplish the work will require investment directly from system program offices or from the private-sector partner to develop new system capabilities in the depot. Although DOD expects private-sector partners to contribute to developing these capabilities, the extent to which the private sector will make such investments is uncertain.

The department's January 2002 partnership policy encourages public-private partnerships to be structured to improve the deteriorating condition of depot facilities and equipment by "leveraging private-sector investments, such as facilities and equipment, to contribute to re-capitalization of depot maintenance activities." However, DOD's data on the investments made by the private sector in military depots to support partnership as of the end of fiscal year 2002 show only about $6.9 million in private-sector investment at all DOD depots. Ninety-six percent of this total occurred at one depot—the Army's Anniston depot—and the remaining 4 percent occurred at one other depot—the Air Force's Warner Robins depot. For fiscal year 2002, DOD invested about $330 million in the depots through its defense working capital fund's capital investment program. This funding was for equipment replacement, productivity improvements, environmental compliance, computer equipment and software, and minor construction. Additional investments are made in depots by program management offices for establishing new system capabilities, and while DOD does not quantify the amount of this investment, we reported in 2001 that program management offices had invested $403 million over a 10-year period ending in 2000—about $40 million annually.[13] The department recognizes that adequate funding has not been made available to revitalize the depots and incorporate new systems capabilities, and is looking to private-sector investments by its partners to mitigate this shortfall.

In its recently issued depot maintenance strategy plan, the Air Force states that a commercial-sector benchmark for adequate investment levels in depots is from 6 to 7 percent of revenue per year. Assuming that this represents a reasonable target for the services, investments in depots' infrastructure would equate to about $621 million for fiscal year 2002. However, at its fiscal year 2002 level, private-sector depot investments resulting from partnerships equated to about 1 percent of this investment level. While the department has not established specific goals for the share of private-sector investments, the extent to which DOD will be able to rely on the private-sector investments is uncertain.

[13] See U.S. General Accounting Office, *Defense Logistics: Actions Needed to Overcome Capability Gaps in the Public Depot System*, GAO-02-105 (Washington, D.C.: Oct. 12, 2001).

Changes to Title 10 Could Limit Impetus for Expanding Use of Partnerships

Recently, DOD considered proposing changes to title 10 provisions that limit the outsourcing of depot maintenance workloads. Should the Congress make such changes, the impetus for expanded use of public-private partnerships could be reduced.

While DOD recognizes that some of its partnerships have resulted from external factors beyond the services' control, the department expects that its initiative to expand contractors' involvement in logistics support for weapon systems will increase partnering opportunities for depots. According to DOD officials, this will occur because the services will require contractors to partner with depots for some depot maintenance work to satisfy title 10 provisions that limit the amount of depot maintenance work that can be performed by the private sector. Recently, however, much publicity has surrounded discussions within DOD over its tentative proposal to change title 10 by repealing six provisions in order to create greater flexibility in determining the most effective and efficient sources for depot maintenance.[14] At the time we completed our review, DOD had discontinued this current effort to repeal these provisions, but the department has proposed repeal of depot-related provisions in the past and could again in the future. If the Congress were to repeal these provisions, private-sector contractors might not consider public-private partnering as an attractive alternative to performing the work themselves or to subcontracting the work to another private-sector entity.

Our work found that these provisions have fostered the use of partnerships. For example, 11 percent of the 90 partnerships we reviewed cited compliance with title 10 provisions as the reason for partnering (see fig. 3 in app. III), and depot officials indicated it was an underlying factor influencing the decisions to form other partnerships. According to depot officials, these title 10 provisions currently provide the key impetus for the expansion of public-private partnerships and removal of these title 10 provisions could have an adverse impact on partnering opportunities.

[14] The sections DOD considered proposing for repeal were 2460, 2464, 2466, 2469, 2470, and 2472.

Conclusion

Even with the significant increase in the number of DOD's public-private partnerships from fiscal year 1998 through fiscal year 2002, the existing partnerships represent only 2.2 percent of DOD's $19 billion depot maintenance program. DOD does plan to greatly expand the use of public-private partnerships to help achieve the partnership initiative's objective of improving the efficiency and viability of its military depots. However, it has neither established a baseline regarding depots' efficiency and viability for where they are today nor developed measurable goals for expected outcomes to define the degree of the improved depot efficiency and viability desired. Additionally, the metrics that DOD has developed will not, in certain circumstances, provide the relevant data needed to assess individual partnership results. Without initially establishing both clear and measurable goals to define success in improving the efficiency and viability of its depots and the metrics that provide the relevant data for the measurement, DOD has limited objective means to assess whether the partnerships are working as intended. Furthermore, while DOD is expecting private-sector investment in public depots to support the creation of capability to support new systems the extent to which this investment is likely to occur is uncertain. Absent additional planning, this situation could result in capability shortfalls or lead to delays in establishing needed capabilities.

To improve DOD's management, direction, potential for success, and assessment of its public-private partnerships, we provided DOD with a number of recommendations in a draft of this report. In commenting on the draft, DOD indicated that it does not plan to implement our recommendations because it found them to be too general and thus not actionable. However, the department's reluctance to establish overall goals for partnerships makes it unclear as to the overall role that DOD envisions for partnerships in its depots—even though DOD's focus on partnering was intended as one means of fostering improvements in government owned and operated depot facilities. We have long reported on weaknesses in DOD's processes for identifying core capabilities to be accomplished in government-owned depot maintenance facilities, continuing deterioration in depot facilities with inadequate recapitalization plans, and a smaller but aging workforce with inadequate human capital plans in place to preserve depot capabilities for the future. Such conditions place at risk the role of these facilities in ensuring the existence of a ready and controlled source of in-house technical competence and resources so that the military can respond to mobilizations, national defense emergencies, and

contingencies. Clear goals for partnership arrangements are important if they are expected to play a role in improving depot operations.

Recommendations for Executive Action

To improve the management, direction, potential for success, and assessment of its public-private partnerships, we recommend that the Secretary of Defense direct the Under Secretary of Defense for Acquisition, Technology and Logistics to

- establish baseline data and overarching goals for expected outcomes of partnership efforts, including the partnership initiative's desired improvements to depot operations and
- develop or refine metrics as needed to provide a more complete basis to assess the results of the depot partnering arrangements as well as ensuring that they differentiate between improvements to a weapon system's support resulting from partnering and from other factors or changes affecting the weapon system.

To support the expansion of partnership arrangements for new systems, we recommend that the Secretary of Defense require the Under Secretary of Defense for Acquisition, Technology and Logistics

- to require specific assessment and planning for new capability in military depots where partnership arrangements for new systems are expected and
- as part of this planning, assess the likelihood of private-sector investment in new systems capability in military depots and other alternatives as needed.

Matters for Congressional Consideration

To encourage the Department of Defense to more clearly identify its long-term goals for its depot facilities and the role of public-private partnerships in meeting those goals, the Congress should consider requiring DOD to develop measurable goals for improving future operations of its depot facilities to include (1) facilities recapitalization, (2) retention of specific depot capabilities, and (3) human capital plans for preserving a viable workforce. In doing so, the Congress should also consider requiring DOD to establish time frames against which it will periodically assess and report to the Congress on progress in each of

these areas, including the contribution of partnering arrangements to those goals.

Agency Comments and Our Evaluation

In commenting on a draft of this report, the Deputy Under Secretary of Defense for Logistics and Material Readiness agreed with the report's information, analysis and conclusions but only partially concurred with the report's recommendations. Overall, he expressed the view that the recommendations were so generally drawn that they are not actionable as a practical matter. We disagree and continue to believe that they are needed actions. The department's comments are included in this report in appendix VI.

With regard to our first recommendation to establish baseline data and overarching goals for expected outcomes of partnerships, DOD stated that it has already established baseline data and goals. However, these baselines and goals relate to individual partnerships rather than to the partnership program as a whole. We agree that baseline data and goals are needed to measure the progress of individual partnership initiatives; however, our intent was to have the department establish overarching goals with measurable outcomes to help gauge the success of DOD's overall partnership initiative toward strengthening DOD's depot maintenance operations. Such goals would be key to measuring progress toward achieving the expectation identified in DOD's partnership policy memorandum, which was to have partnerships "contribute to more effective depot maintenance operations, the introduction of innovative processes or technologies, and the economical sustainment of organic capabilities." We do not agree that the goals stated in the policy memorandum in and of themselves are specific enough to provide measurable outcomes against which to assess the collective effectiveness of the department's efforts to improve depot efficiency and viability.

Regarding our second recommendation to develop or refine metrics as needed to provide a more complete basis to assess the results of depot partnering arrangements, DOD said it will be difficult, if not impossible, to differentiate between improvements solely resulting from partnering versus other factors. While we agree that it may be difficult, we nonetheless believe that it will be critical in assessing the department's partnering initiative. Unless the department develops meaningful metrics that reasonably determine relative contributions of various factors contributing to changed conditions in weapon system support, it will not be in a position

to determine the results of ongoing partnerships and the conditions under which additional partnerships should be undertaken.

Regarding our third recommendation to require specific assessment and planning for new capability in military depots where partnership arrangements for new systems are expected, the department stated that it currently requires assessment and planning for new weapon systems but agreed that more emphasis could be placed on determining the role that public-private partnerships may play in establishing new depot capabilities. However, it did not identify any specific action planned to do so—we believe it is important for the department to identify steps to be taken to give this increased emphasis.

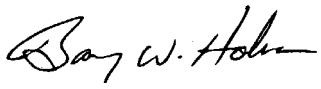
Regarding our fourth recommendation to assess as part of planning, the likelihood of private-sector investment in new systems capability in military depots, the department stated that capital investment by the private sector across the broad spectrum is unrealistic, stating that it was never the department's intention for its public-private partnership program to supplant the need for capital investment and funding by the services. We did not intend to suggest that partnerships supplant service funding but rather give visibility to a goal established by the department in its public-private partnership policy memorandum, which states that one objective of public-private partnerships is "leveraging private-sector investments such as facilitates and equipment to contribute to re-capitalization of depot maintenance activities." We continue to believe that the assessment called for in our recommendation is important both to help assess the contribution of partnerships in achieving this partnering objective as well as to more clearly assess capital investment needs from other sources.

Finally, we disagree with the department's statement that our recommendations are not actionable as a practical matter. A key element needed for the department to achieve its objective of more effective military depot maintenance operations through public-private partnerships is the ability to measure and assess the contribution of partnerships toward meeting that objective. As a practical matter, without establishing clear and

measurable goals for its partnering program, the department is limited in its ability to assess whether the partnerships are working as intended to produce positive results or, conversely, are having a negative effect on military depot maintenance operations.

We are sending copies of this report to interested congressional committees; the Secretary of Defense; the Secretaries of the Army, the Navy, and the Air Force; the Commandant of the Marine Corps; and the Director, Office of Management and Budget. We will make copies available to others upon request. In addition, the report will be available at no charge on the GAO Web site at http://www.gao.gov.

If you or your staff have questions regarding this report, please contact me at (202) 512-8412 or holmanb@gao.gov. Other major contributors to this report are listed in appendix VII.



Barry W. Holman
Director, Defense Capabilities
and Management

Scope and Methodology

To determine the extent to which the Department of Defense (DOD) is participating in public-private partnerships for depot maintenance; we met with officials from the Office of the Secretary of Defense (OSD) and from service logistics offices to identify recent, ongoing, and planned partnerships within each service and identified the military depots associated with these partnerships. We also reviewed partnership data maintained in the Joint Depot Maintenance Activities Group partnering database. We visited 14 of DOD's 20 major military depots (see appendix II for the depots visited and the partnerships reviewed) to examine in more depth the partnerships associated with these depots. We selected depots that had the greatest volume of partnership activity, also ensuring that we included each service. Of the six depots we did not visit, four did not have any partnerships reported in the Joint Depot Maintenance Activities Group partnering database—the Marine Corps Maintenance Center Barstow, Barstow, California; the Naval Surface Warfare Center, Crane Division, Crane, Indiana; the Naval Undersea Warfare Center, Keyport Division, Keyport, Washington; and the Aerospace Maintenance and Regeneration Center, Tucson, Arizona—the other two depots—Pearl Harbor Naval Shipyard and Letterkenny Army Depot—reported two partnerships and one partnership, respectively. We did not assess why these sites had this low volume of partnership activity. To collect information on the partnerships we reviewed, we developed a data collection instrument for each depot to complete for each partnership. The information collected on each partnership included the type of partnership, reasons why the partnership was formed, roles and responsibilities of each partner, and the legislative authority or basis for the partnership. We did not, however, validate the data provided by the depots or attempt to assess whether or not the tasks and responsibilities assumed by the contractor and military depot partners represented the best division of work for achieving success within the partnership.

To calculate the growth in public-private partnerships, we used our 1998 work reviewing the use of public-private partnerships in DOD as a baseline, tallied the number of partnerships by service, and compared these numbers with the partnerships reported in the Joint Depot Maintenance Activities Group partnering database as of December 4, 2002. To determine the relative size or scale of the partnership efforts within DOD, we analyzed fiscal year 2002 data on (1) the workload that each partnership brought to the each depot compared with the total ongoing workload for each depot, (2) the total workload that the partnerships brought to the depots compared to the total combined workload for all depots visited, and (3) the total dollar value of depot maintenance performed under the partnerships

at the depots we visited compared with the department's total depot maintenance expenditures.

To determine the characteristics that need to be present to achieve effective partnerships and where DOD is in its ability to measure success, we met with OSD logistics officials, service logistics officials, high-level contractor officials, and officials at each depot visited. We discussed evaluating the effectiveness of ongoing partnerships—measuring success against DOD's objective of improved depot efficiency and viability—with these officials and collected relevant data and also discussed the characteristics of successful partnerships with the senior-level DOD and contractor officials. To identify the characteristics of successful partnerships, we reviewed the information collected through structured interviews with senior-level DOD and contractor officials and grouped the characteristics into categories based on the similarities of responses. We also discussed the extent to which depot partnership managers expect these characteristics to be present in current partnerships or will be present in future partnerships. To determine whether DOD has developed a sufficient framework for measuring success, we reviewed the metrics that DOD has developed to gauge the performance of its partnerships and assessed whether these metrics included measurable goals and outcomes tying the partnerships' performance to DOD's public-private partnership policy objective. We also assessed the relevance of the department's metrics to DOD's public-private partnership policy objective. We did not test or validate the accuracy of the reported performance data related to the public-private partnerships but instead considered the structure of the metrics to assess their relevance to DOD's partnership policy objective. To analyze the sufficiency of data for evaluating the extent to which partnerships improved the economy and efficiency of depot operations and improved the viability of the depots, we compared the relative volume of each depot's partnership workload with the ongoing workload at each depot visited and assessed the age of the partnerships to determine if enough data existed to make an evaluation. To determine the amount of investments made by the private sector in military-depot plant and equipment, we extracted information from a database on partnerships developed by the Joint Depot Maintenance Activities Group at OSD's request. We also used this database to identify the expected annual value of depot work for each partnership and presented this data in appendix II. When no annual estimate was identified in the database, we calculated an annual work value by dividing the total expected value for the partnership by the expected partnership life, where possible. In those instances where this was not possible, we presented the total revenue generated by the

partnership to date. We did not perform a reliability assessment on this Joint Depot Maintenance Activities Group database. Through discussions with depot officials and reviews of individual partnerships, we identified instances where the partnering efforts produced promising outcomes as related to DOD's objective of improved depot efficiency and viability.

To determine what future management challenges face DOD's planned expansion of public-private partnerships, we relied on our discussions with OSD logistics officials, service logistics officials, high-level contractor officials, and officials at each depot visited to identify challenges that may inhibit the department's expansion efforts. To assess the potential impact of proposed legislative changes on limiting DOD's planned expansion of public-private partnerships, we discussed the impact of removing title 10 provisions that currently limit the outsourcing of military depot maintenance and repair workload with OSD maintenance policy officials, depot officials, and contractor officials and discussed how these title 10 provisions affect contractors' and military depots' decisions to form public-private partnerships. To assess whether the opportunities for partnering are limited, we reviewed the reasons why ongoing partnerships developed and then discussed with these officials the services' ability to control or create opportunities that can lead to successful partnerships. We also discussed the relationship between the expansion of public-private partnerships and DOD's implementation of performance-based logistics with OSD officials and reviewed the services' performance-based logistics implementation plans. To assess the potential impact of DOD's new policy calling for private-sector investment in depots on establishing and funding needed depot capabilities, we reviewed and compared the new public-private partnership policy with DOD's overarching acquisition policy, and discussed the partnering policy's implementation with depot and OSD officials.

We conducted our review from February 2002 through February 2003 in accordance with generally accepted government auditing standards.

Depot Maintenance Public-Private Partnerships Reviewed and Depots Visited

Depot/Partnership (year initiated)	Private-sector partner	Reason(s) for partnership	Expected annual value of work in depot	Partnership type—description of partnership tasks
Anniston Army Depot				
Stryker-1 (2001)	General Dynamics Land Systems	Contractor sought out depot for its unique capabilities and advantageous labor rates.	$2 million	Direct sale/government-furnished resources—Depot performs finishing operations, paints the vehicle and provides production services. The contractor performs vehicle test and acceptance and supplies all parts and material for the production of the vehicle. Both the depot and the contractor perform vehicle assembly.
Stryker-2 (2001)	General Motors Defense	Contractor sought out depot for its unique capabilities and advantageous labor rates.	$40,000	Direct sale—Depot performs hull and component modification and repair. The contractor performs vehicle assembly, test and acceptance, and provides all parts and material.
Fox Vehicle Upgrade-Services and Facility Use (1996)	General Dynamics Land Systems	Contractor sought out depot for its unique capabilities and advantageous labor rates.	$1 million	Direct sale/lease—Depot performs vehicle hull upgrade, tail upgrade, paints vehicle, disassembles engine, and removes asbestos. The contractor performs vehicle disassembly and reassembly, sub assembly/component rework, and systems integration and test.
Fox Vehicle Maintenance-Facility Use (1996)	General Dynamics Land Systems	Provided collocation with related Fox vehicle upgrade partnership.	$30,000	Lease—Depot provides use of a facility. Contractor uses facility to receive, store, and issue Fox vehicle subassemblies, components and parts for fielded vehicles.
Gunner's Primary Sight Manufacturing (1997)	General Dynamics Land Systems	Depot had available production facilities needed by the contractor.	$85,000	Lease—Depot provides use of a facility. Contractor performs manufacture of a new gunner's primary site.
M113 Family of Vehicles Overhaul and Conversion (1997)	United Defense Limited Partnership	Program manager directed work share and contractor sought out depot for its unique capabilities.	No annual estimate available, but total revenue reported since partnership's inception in January 1997 through March 2002—$15.9 million.	Work share/lease—Depot performs vehicle disassembly, hull overhaul and conversion, and provides the "dismate" power pack. The contractor overhauls subassemblies and components, performs engine and suspension modification, vehicle assembly, systems integration and test, and final paint.

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Depot/Partnership (year initiated)	Private-sector partner	Reason(s) for partnership	Expected annual value of work in depot	Partnership type—description of partnership tasks
M1/M1A2 Upgrade (1994)	General Dynamics Land Systems	Program manager directed work share.	$15.3 million	Work share—This is a partnership for the upgrade of the M1 tank to the M1A2 version. Depot performs vehicle receipt, disassembly, hull rework and upgrade, demilitarization of the turret, overhaul of major subassemblies and components, and then ships tank parts to the contractor in Lima, Ohio. Contractor performs vehicle reassembly, turret installation and systems test and integration.
Partnership for Reduced Operation and Support Cost—Engine (1999)	Honeywell	Program developed by program manager, contractor, and depot to enhance current depot engine overhaul programs, and reduce operations and support costs.	$31,000	Lease—Depot provides use of underutilized facility to contractor. Contractor uses facility to supply parts and material to support the depot's turbine engine repair/overhaul line.
Recuperator Plate Manufacturing (1998)	Honeywell	Base realignment and closure (BRAC) process closed a government-owned facility where contractor performed work.	$200,000	Direct sale/lease—Depot provides material handling and movement, and the contractor manufactures recuperator plates.
Abrams Integrated Management for the 21st Century (1996)	General Dynamics Land Systems	Program manager directed work share.	$47 million	Work share—This is a partnership for a recapitalization of the M1A1 tank. Depot performs vehicle receipt, disassembly; overhaul of hull, turret, and major subassemblies and components; and ships the tank to contractor in Lima, Ohio. The contractor performs vehicle reassembly and systems test and integration.
Hercules (1998)	United Defense Limited Partnership	Program manager directed work share.	No annual estimate available, but total revenue reported since partnership's inception in January 1998 through March 2002—$9 million.	Work share—Depot performs vehicle disassembly, structural repair of the hull and front blade repair. Contractor performs modification, reassembly, and systems test and integration.

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Depot/Partnership (year initiated)	Private-sector partner	Reason(s) for partnership	Expected annual value of work in depot	Partnership type—description of partnership tasks
Paladin (1998)	United Defense Limited Partnership	BRAC process closed a government-owned facility where contractor performed work.	No annual estimate available, but total revenue reported since partnership's inception in January 1998 through March 2002—$1.6 million.	Work share—Depot performs overhaul and conversion of chassis assembly and armament system, and provides turret kit components. Contractor fabricates and assembles the new cab, performs vehicle reassembly and systems test and integration.
Wolverine (1998)	General Dynamics Land Systems	Program manager directed work share.	$1.6 million	Work share—Depot performs vehicle disassembly, hull rework, demilitarization of turrets, overhaul of major subassemblies and components, and ships the vehicles to the contractor in Lima, Ohio. Contractor performs chassis assembly, procures and installs bridge systems, and conducts inspections and testing.
Opposing Forces Surrogate Vehicle (1999)	United Defense Limited Partnership	Contractor sought out depot for its unique capabilities and advantageous labor rates.	$8.2 million	Work share—Depot fabricates unique parts and spares; disassembles vehicle; cleans, machines, and repairs hull; repairs, converts and paints; and assembles and integrates turret. Depot also performs program management functions. Contractor overhauls subassemblies and components, modifies engine and suspension, assembles and paints vehicle, and performs final systems integration and testing.
Corpus Christi Army Depot				
T700 Engine Overhaul and Repair (2000)	General Electric	Desire to reduce repair turnaround time.	Partnership involves reengineering of ongoing workload that annually has a value of about $87.7 million.	Teaming—Depot provides the labor, facilities and equipment for the overhaul and repair of airframes and components. Contractor provides technical, engineering and logistical support, and spare parts to improve repair turn around time.
H-60 Overhaul and Repair of Airframe and Structural Components (2000)	Sikorsky Aircraft Corporation	Desire to reduce repair turnaround time.	Partnership is in initial phase of development and implementation, and depot work has not yet begun—no annual estimate yet available.	Teaming—Depot will provide the labor, facilities and equipment for the overhaul and repair of airframe and components. Contractor will provide technical, engineering and logistical support to improve repair turn around time.

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Depot/Partnership (year initiated)	Private-sector partner	Reason(s) for partnership	Expected annual value of work in depot	Partnership type—description of partnership tasks
AH-64 Apache and CH-47 Chinook Overhaul and Repair of Airframe Structures and Components (2000)	Boeing	Desire to reduce repair turnaround time.	Partnership is in initial phase of development and implementation, and depot work has not yet begun—no annual estimate yet available.	Teaming—Depot will provide the labor, facilities and equipment for the overhaul and repair of airframes and components. Contractor will provide technical, engineering and logistical support, and some parts on an emergency basis.
T55/T53 Engines Overhaul and Repair Activities (2000)	Honeywell	Desire to reduce repair turnaround time.	Partnership is in initial phase of development and implementation, and depot work has not yet begun—no annual estimate yet available.	Teaming—Depot will provide the labor, facilities and equipment for the overhaul and repair of engines. Contractor will provide technical, engineering and logistical support, and some parts to depot workstations.
Red River Army Depot				
Bradley Fire Support Team Vehicle (2000)	United Defense Limited Partnership	Program manager directed work share.	$17.5 million	Work share—Depot modifies and overhauls the A2 configuration of the Bradley fighting vehicle and transports the vehicle to the contractor's York, Pennsylvania facility. Contractor integrates the Bradley Fire Support Team capability into the vehicle.
Heavy Expanded Mobility Tactical Truck (2001)	Oshkosh Truck Center	Program manager directed work share.	$7.5 million	Work share—Depot and contractor overhaul or recapitalize a complete vehicle and each partner performs work on an equal number of vehicles.
Multiple Launch Rocket System M270A1 (2000)	Lockheed Martin	Program manager directed work share.	$700,000	Work share—Depot is overhauling vehicle chassis and components and transports completed chassis to contractor's overhaul facility. Contractor integrates and upgrades the Loader Launcher and its related components.
Multiple Launch Rocket System Hoist Assembly (2001)	Lockheed Martin	Contractor sought out depot for its unique capabilities.	$347,200	Direct sale—Depot repairs the hoist assemblies and ships them to the contractor's plant in East Camden, Arkansas. Contractor installs the hoist on the vehicle.
M915A4 Glider Program (2001)	Lear Sielgler	Contractor sought out depot for its unique capabilities.	No annual estimate available but total revenue reported since partnership's inception in March 2001 through March 2002—$157,000.	Direct sale—Depot provides support for testing qualifying and painting the engine and cleaning and painting the axel.

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Depot/Partnership (year initiated)	Private-sector partner	Reason(s) for partnership	Expected annual value of work in depot	Partnership type—description of partnership tasks
Small Emplacement Excavator (2002)	Stewart & Stevenson Tactical Vehicle Systems	Contractor sought out depot for its unique capabilities.	Partnership is in initial phase of development and depot work has not yet begun—no annual estimate yet available.	Teaming—Depot and contractor have agreed to cooperate in potential partnerships on mutually beneficial programs and solicitations.
Patriot Missile Conduit Cover Shields (2001)	Lockheed Martin	Contractor sought out depot for its unique capabilities.	Partnership completed and total revenue generated during the partnership's 2 month period of performance—$4,600.	Direct sale—Depot provides all raw material and labor to manufacture Patriot missile conduit cover shields for the contractor. Contractor incorporates the shields into the Patriot missile.
Tobyhanna Army Depot				
Communications Security Cryptographic Equipment (2002)	Titan Systems	Contractor sought out depot for its unique capabilities.	No annual estimate available, but total revenue reported since partnership's inception in June 2002 through December 2002—$4,900.	Direct sale—Depot repairs circuit cards, which contractor uses in repair of communications security cryptographic equipment.
Brackets and Racks, Local Area Network Box and Panel Display (2001)	TRW	Contractor sought out depot for its unique capabilities.	Partnership ended but total revenue reported for partnership's 6-month period—August 2001 to February 2002—$137,000	Direct sale—Depot fabricated six items—Local Area Network Box Assembly, Remote TAU Radio Box Assembly, Flat Panel Display Assembly, V1 RWS Rigid Kit, and Router Adapter Plate Assembly. Contractor installed these parts in communications shelters as part of retrofit program.
FIREFINDER Block II Program (1999)	Raytheon	Contractor sought out depot for its unique capabilities and advantageous labor rates.	$305,000	Direct sale/teaming—Depot designed, manufactured, and tested two engineering development model Prime Power groups for the program; and provided cabling and interfaces needed to mount Portable Operations Suite in vehicles and power transfer boxes, as well as integration, test and logistics support at the system level. Contractor is responsible for overall design and manufacture of the weapon system.
FIREFINDER AN/TPQ-37 Radar (2001)	Raytheon	Contractor sought out depot for its unique capabilities and advantageous labor rates.	$300,000	Teaming—Depot produces modular azimuth positioning system kits. Contractor incorporates kits into AN/TPQ-37 FIREFINDER radars.

(Continued From Previous Page)

Depot/Partnership (year initiated)	Private-sector partner	Reason(s) for partnership	Expected annual value of work in depot	Partnership type—description of partnership tasks
Prophet Block I Cable Assemblies (2001)	Titan Systems	Contractor sought out depot for its unique capabilities.	No annual estimate available, but total revenue reported since partnership's inception in June 2001 through March 2002—$209,000.	Teaming—Depot manufactures cable assemblies. Contractor is prime for electronic warfare system that uses these cable assemblies.
Area Common User System Program (1998)	CMC Electronics	Contractor sought out depot for its unique capabilities.	$500,000	Direct sale/teaming—Depot designed and manufactures modification installation kits that are installed by Laguna Industries at the depot and Fort Hood. The contractor provides the radio that is connected to existing systems using the depot's installation kit.
Weapon Systems Omnibus-1 (1999)	Blackhawk Management, Inc.	Contractor sought out depot for its unique capabilities.	No annual estimate available, but total revenue reported since partnership's inception in December 1999 through March 2002— $941,000.	Direct sale/teaming—Depot participated in program to secure repair workload on critical systems in order to help maintain critical capabilities and skills at the depot. The contractor markets the team's capabilities to potential customers and provides depot and other subcontractors with components for repair.
AN/PRC-112 Modernization (2001)	EPS	Contractor sought out depot for its unique capabilities and to meet new weapon system title 10 core depot maintenance requirements.	$100,000	Direct sale/teaming—Depot assembles and warrants the field radio. Contractor manages overall contract and provides depot components needed to assemble the radio.
CECOM Field Support Services-1 (2000)	EPS	Contractor sought out depot for its unique capabilities and advantageous labor rates.	Although depot initially expected workload from this partnership, none has materialized and none is currently expected.	Direct sale/teaming—Depot participated in program to secure repair workload on critical systems in order to help maintain critical capabilities and skills at the depot. The contractor markets its team's capabilities to potential customers and provides depot and other subcontractors with components for repair.

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Depot/Partnership (year initiated)	Private-sector partner	Reason(s) for partnership	Expected annual value of work in depot	Partnership type—description of partnership tasks
CECOM Field Support Services-2 (2000)	Logistics, Engineering & Environmental Support Services, Inc.	Contractor sought out depot for its unique capabilities and advantageous labor rates.	Although depot initially expected workload from this partnership, none has materialized and none is currently expected.	Direct sale/teaming—Depot participated in program to secure repair workload on critical systems in order to help maintain critical capabilities and skills at the depot. The contractor markets the team's capabilities to potential customers and provides depot and other subcontractors with components for repair.
Rapid Response to Critical System Requirements (1998)	ARINC	Contractor sought out depot for its unique capabilities.	Although depot initially expected workload from this partnership, none has materialized and none is currently expected.	Direct sale/teaming—Depot participated in program to secure repair workload on critical systems in order to help maintain critical capabilities and skills at the depot. The contractor markets its team's capabilities to potential customers and provides depot and other subcontractors with components for repair.
Rapid Response to Critical System Requirements (1998)	Lear Siegler	Contractor sought out depot for its unique capabilities.	Although depot initially expected workload from this partnership, none has materialized and none is currently expected.	Direct sale/teaming—Depot participated in program to secure repair workload on critical systems in order to help maintain critical capabilities and skills at the depot. The contractor markets its team's capabilities to potential customers and provides depot and other subcontractors with components for repair.
Rapid Response to Critical System Requirements (1998)	Lockheed Martin	Contractor sought out depot for its unique capabilities.	No annual estimate available, but total revenue reported since partnership's inception in October 1998 through March 2002—$2,600.	Direct sale/teaming—Depot participated in program to secure repair workload on critical systems in order to help maintain critical capabilities and skills at the depot. The contractor markets its team's capabilities to potential customers and provides depot and other subcontractors with components for repair.

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Depot/Partnership (year initiated)	Private-sector partner	Reason(s) for partnership	Expected annual value of work in depot	Partnership type—description of partnership tasks
Navy Tri-Service (1999)	ARINC	Contractor sought out depot for its unique capabilities.	Although depot initially expected workload from this partnership, none has materialized and none is currently expected.	Direct sale/teaming—Depot participated in program to secure repair workload on critical systems in order to help maintain critical capabilities and skills at the depot. The contractor markets its team's capabilities to potential customers and provides depot and other subcontractors with components for repair.
Weapon Systems Omnibus-2 (1999)	Information System Support Inc.	Contractor sought out depot for its unique capabilities.	Although depot initially expected workload from this partnership, none has materialized and none is currently expected.	Direct sale/teaming—Depot participated in program to secure repair workload on critical systems in order to help maintain critical capabilities and skills at the depot. The contractor markets the team's capabilities to potential customers and provides depot and other subcontractors with components for repair.
Satellite Communications Equipment (2002)	Signal Corporation	Contractor sought out depot for its unique capabilities.	Although depot initially expected workload from this partnership, none has materialized and none is currently expected.	Direct sale/teaming—Depot participated in program to secure repair workload on critical systems in order to help maintain critical capabilities and skills at the depot. The contractor markets its team's capabilities to potential customers and provides depot and other subcontractors with components for repair.
Naval Aviation Depot Cherry Point				
P-3, S-3, C-2, and F/A-18 Auxiliary Power Units (2000)	Honeywell	To satisfy title 10 core depot maintenance requirements for the workload involved and contractor sought out depot for its unique capabilities.	$5.3 million	Direct sale/teaming—Depot repairs power units providing repair facilities, skilled labor, support equipment, production engineering, and logistics support. Contractor provides failed power units, spare parts, engineering support, inventory management, and packaging and shipping.
F/A-18E/F Integrated Readiness Support Teaming (2001)	Boeing	To meet new weapon system title 10 core depot maintenance requirements.	$885,000	Direct sale/teaming—Depot repairs components providing touch labor and depot maintenance logistics support. Contractor provides overall program execution, and customer and engineering support.

(Continued From Previous Page)

Depot/Partnership (year initiated)	Private-sector partner	Reason(s) for partnership	Expected annual value of work in depot	Partnership type—description of partnership tasks
AV-8B Remanufacture Program (1996)	Boeing	Program manager directed work share.	$6.5 million	Work share—Depot disassembles the AV-8B aircraft, repairs and/or modifies 287 components, and ships repaired components to contractor. Contractor installs components into new fuselage and delivers remanufactured aircraft to the Navy.
SR-61/AS-61 Blades (1999)	Aviation Blade Services	Program manager directed work share.	$22,000	Work share—Depot dynamically balances turbine engine blades providing facilities, skilled labor, and logistics support. Contractor provides unbalanced blades.
Naval Aviation Depot Jacksonville				
LAU-7, PP-2581A/A Power Supply (2000)	Associated Aircraft Manufacturing & Sales, Inc.	Contractor sought out depot for its unique capabilities.	Partnership began in July 2000, ended in August 2001 and generated total revenue of $7,000.	Direct sale—Depot repaired components providing repair facilities, skilled labor, support equipment, spare parts, and technical data. Contractor provided failed components and shipping.
Test and Repair Components on P-3, F/A-18, H-3 and H-60 (2002)	Aeronautical Systems, Inc.	Contractor sought out depot for its unique capabilities.	$27,042	Direct sale—Depot repairs components providing repair facilities, skilled labor, support equipment, and technical data. Contractor provides failed components, packaging, and shipping.
AN/ALQ126B Countermeasures Set (2002)	BAE Systems	To satisfy title 10 core depot maintenance requirements for the workload involved and contractor sought out depot for its unique capabilities.	$771,428	Direct sale—Depot repairs components providing repair facilities, skilled labor, support equipment, and technical data; and collects and provides contractor with failure data. Contractor provides total asset management, failed components, repair parts, configuration management, technical and engineering support, and packaging and shipping; and investigates and incorporates reliability improvements.

(Continued From Previous Page)

Depot/Partnership (year initiated)	Private-sector partner	Reason(s) for partnership	Expected annual value of work in depot	Partnership type—description of partnership tasks
CF-18 Boresight (2002)	Boeing	Contractor sought out depot for its unique capabilities.	$12,000	Direct sale—Depot responsible for boresight calibration, shipment preparation, maintenance of inspection and test records, and reporting schedule and funding expenditures. Contractor responsible for inventory and asset tracking, preparation for shipping, repair parts, and technical support.
F/A-18E/F Integrated Readiness Support Teaming (2001)	Boeing	To meet new weapon system title 10 core depot maintenance requirements.	$130,600	Direct sale—Depot repairs components providing repair facilities, skilled labor, and support equipment; and collects and provides contractor with failure data. Contractor provides total asset management, failed components, repair parts, configuration management, technical and engineering support, and packaging and shipping.
F404 High Pressure Turbine Rotors (2001)	General Electric	Contractor sought out depot for its unique capabilities.	$350,000	Direct sale—Depot repairs components providing repair facilities, skilled labor, support equipment, and technical data; and collects and provides contractor with failure data. Contractor provides failed components, repair parts, and packaging and shipping.
J52 Engines (2000)	General Electric	Contractor made business decision to close facility where work was previously done	$66,667	Direct sale—Depot repairs engines providing repair facilities, skilled labor, support equipment, spare parts, and technical data. Contractor provides failed engines and shipping.
Calibration, Metal Processing, and Engineering Support (2001)	Logistic Services International	Contractor sought out depot for unique its capabilities.	$61,111	Direct sale—Depot calibrates test stands, and provides metal processing and engineering support services. Contractor provides access to test stands requiring calibration and items requiring metal processing, and shipping to and from the depot.
Various F-14, EA-6B, AH-1 and F-22 Antenna and Radome Testing (2000)	Neptune Technical Services, Inc.	Contractor sought out depot for its unique capabilities.	This partnership began in December 2000 and ended in October 2001 but did not produce any workload.	Direct sale—Depot was to provide antenna and radome testing, autoclave processing, coordination of measuring machine inspection, and technical data. Contractor was to provide components for testing and shipping.

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Depot/Partnership (year initiated)	Private-sector partner	Reason(s) for partnership	Expected annual value of work in depot	Partnership type—description of partnership tasks
LAU-7, AN/APG-65, and AN/ARA-48 (2002)	S&K Technologies, Inc.	Contractor sought out depot for its unique capabilities.	$81,081	Direct sale—Depot repairs components providing repair facilities, skilled labor, support equipment, and technical data. Contractor provides failed components, and packaging and shipping.
AN/AWG-9 Fire Control Radar Components (1999)	System & Electronics, Inc.	Contractor sought out depot for its unique capabilities.	No annual estimate available, but total revenue reported since partnership's inception in February 1999 through November 2002—$19,000.	Direct sale—Depot repairs components providing repair facilities, skilled labor, support equipment, and technical data. Contractor provides failed components and shipping.
Naval Aviation Depot North Island				
F/A-18E/F Integrated Readiness Support Teaming (2001)	Boeing	To meet new weapon system title 10 core depot maintenance requirements.	$10 million	Direct sale/teaming—Depot repairs components providing touch labor, facilities, equipment, production engineering, technical data, and packaging. Contractor provides failed components, repair parts, obsolescence management, and shipping.
Aircraft Painting (2002)	San Diego Aircraft Carrier Museum	Contractor sought out depot for its unique capabilities.	$150,000	Direct sale—Depot will paint aircraft providing touch labor, facilities and equipment. Contractor will provide ready-for-paint aircraft, specifications, and paint.
Norfolk Naval Shipyard				
USS Enterprise Nuclear Aircraft Carrier (CVN 65) FY02 Extended Drydock Selected Restricted Availability (2001)	Northrop Grumman Newport News	Contractor sought out depot for its unique capabilities.	$4.5 million	Direct sale/government-furnished resources—Depot is providing a drydock and related facilities, and skilled labor. Contractor is providing skilled labor and overall management responsibility for this overhaul.
USS Nimitz (CVN 68) and *USS Ronald Reagan* (CVN 76) Production Services (2000)	Northrop Grumman Newport News	Contractor sought out depot for its unique capabilities.	$1.8 million	Direct sale—Depot sold general production services—including pipefitting, sheet metal, and insulation—to contractor for these two overhauls. Contractor had overall responsibility for these overhauls.

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Depot/Partnership (year initiated)	Private-sector partner	Reason(s) for partnership	Expected annual value of work in depot	Partnership type—description of partnership tasks
USS Dwight D. Eisenhower (CVN 69) and *USS Ronald Reagan* (CVN 76) Production Services (2001)	Northrop Grumman Newport News	Contractor sought out depot for its unique capabilities.	$440,000	Direct sale—Depot sold general production services—including pipefitting, sheet metal, electrician, and machinist—to contractor for these two overhauls. Contractor had overall responsibility for these overhauls.
Portsmouth Naval Shipyard				
USS Memphis (SSN 691) FY02 Selected Restricted Availability/ Restricted Availability (2002)	General Dynamics	Contractor sought out depot for its unique capabilities.	Partnership expected to generate a total of $28.9 million between January 2002 and December 2002.	Work share/teaming—Depot is providing manpower (60 percent) and has overall responsibility for submarine overhaul. Contractor is providing manpower (40 percent) and facilities—including a drydock.
High Performance Brush (2000)	Noesis, Inc.	Contractor sought out depot for its unique capabilities.	$486,487	Direct sale—Depot provides equipment, technical support, and knowledge for testing services. Contractor provides program management, technical data, engineering expertise, and research and development expertise.
Lease of Portsmouth Naval Shipyard Former Prison (1999)	Seavey Island, L.L.C.	Contractor sought out depot for its unique facility.	Partnership has terminated without producing revenue for the depot.	Lease—Depot provided facility. Contractor's intent was to refurbish facility and sublet as office space. Lease termination negotiations in process because of death of lessee.
Puget Sound Naval Shipyard				
Nuclear Aircraft Carrier Maintenance Benchmarking (2001)	Todd Pacific Shipyards Corporation	Contractor sought out depot for its unique capabilities.	The sharing of processes under this partnership will not produce workload or revenue for the partners, instead the partners are benefiting from improved repair processes.	Teaming—The partnership's intent is to study (benchmark) similar depot and contractor processes associated with nuclear aircraft carrier overhauls, which will contribute to a mutually beneficial goal of achieving the most timely and cost effective ship repair processes.

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Depot/Partnership (year initiated)	Private-sector partner	Reason(s) for partnership	Expected annual value of work in depot	Partnership type—description of partnership tasks
Nuclear Aircraft Carrier Maintenance Work Resource Sharing (1999)	Todd Pacific Shipyards Corporation	Partnership established to gain consistent planned and anticipated workload on nuclear aircraft carriers.	This partnership establishes a framework for resource sharing that will be used for carrier overhaul partnerships—resulting revenue to the depot will be reported under these resulting partnerships; however, depot has not reported any revenue to date.	Direct sale/government-furnished resources—Depot subcontracts segments of its aircraft carrier to contractor owing to resource shortfalls. Contractor also does this in reverse. Depot supports contractor by accomplishing work in propulsion spaces owing to security classification. Contractor supports depot by providing resources such as painters, welders, and pipe fitters.
USS John C. Stennis (CVN 74) Planned Incremental Availability (2000)	Northrop Grumman Newport News	Contractor sought out depot for its unique capabilities.	Partnership completed and between partnership's inception in October 2000 and November 25, 2002 generated total revenue of $156,000.	Direct sale—Depot performed work in propulsion plant owing to security classification. Contractor was responsible for overhaul.
Explosion Bulge Plate Testing Services (2000)	Northrop Grumman Newport News	Contractor sought out depot for its unique capabilities.	Partnership completed between partnership's inception in October 2000 and January 2001 generated total revenue of $31,000.	Direct sale/government-furnished resources—Depot provided explosion bulge testing services. Contractor provided high-strength-low-alloy plates for testing.
Puget Sound and Pacific Railway Contract (1944)	Puget Sound and Pacific Railway	1944 triggering event is unknown.	$375,000	Government-furnished resources—Contractor allowed use of Navy owned railway in exchange for normal maintenance to rails and roadbed. Depot provides funding for major maintenance and capital improvements.
Guided Missile Attack Submarine (Nuclear Powered) Design Conversion (2001)	Electric Boat Corporation	Contractor sought out depot for its unique capabilities.	No annual estimate available, but total revenue reported since partnership's inception in October 2001 through November 2002—$67,000.	Teaming—Depot will develop work packages for installation on submarine on the basis of contractor provided conversion drawings. Contractor will also provide all standard material, engineered components, and manufactured assemblies.

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Depot/Partnership (year initiated)	Private-sector partner	Reason(s) for partnership	Expected annual value of work in depot	Partnership type—description of partnership tasks
Ogden Air Logistics Center				
Composites Umbrella Agreement (2002)	Alliant Techsystems	Contractor sought out depot for its unique capabilities.	Partnership is in initial phase of development and depot work has not yet begun—no annual estimate yet available.	Direct sale/work share/lease—Depot provides touch labor, non-destructive inspection, and support equipment operators. Contractor provides engineering, supply chain management, and oversight.
Digital Analog Test Station (2002)	Westest Engineering	Contractor sought out depot for its unique capabilities.	$10 million	Work share—Test station design is a joint engineering effort between depot and contractor. Contractor will fabricate test stations. Depot and contractor will share effort to rehost software test programs on new test station.
F-16 Block 40 Avionics Software Maintenance/Upgrade (2001)	Lockheed Martin	Contractor sought out depot for its unique capabilities.	$610,169	Work share/government-furnished resources—Depot performs software maintenance tasks. Contractor integrates products associated with these tasks into the avionics system.
Global Positioning System Metric Tracking Program (2002)	Boeing and TRW	Contractor sought out depot for its unique capabilities and advantageous labor rates.	$1.2 million	Work share/government-furnished resources—Depot provides labor for program installation, and share responsibility for the development of program hardware and software requirements with the contractors. Contractor provides program management and engineering support.
Sacramento Competition Workload for KC-135 Programmed Depot Maintenance (PDM) and A-10 PDM and Commodities (1998)	Boeing	BRAC process closed a government-owned facility where work was performed.	Because this partnership is terminated, there is no continuing annual workload expected.	Teaming—Depot performed analytical inspection and painted A-10 aircraft, overhauled components and subcontracted KC-135 PDM workload to contractor. Contractor overhauled KC-135 aircraft. The Air Force transferred the contract management out of the depot; therefore, the depot no longer considers this a partnering effort—there is no ongoing partnering interaction between the depot and the contractor.
Intercontinental Ballistic Missile Automatic Test Systems (2001)	TRW	Program manager directed work share.	$4.1 million	Work share—Depot provides labor to replace antiquated automatic test station. Contractor maintains overarching ICBM system integration responsibilities and oversight.

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Depot/Partnership (year initiated)	Private-sector partner	Reason(s) for partnership	Expected annual value of work in depot	Partnership type—description of partnership tasks
B-2 Advanced Composite (1998)	Northrop Grumman	Contractor sought out depot for its unique capabilities.	$3.0 million	Direct sale/work share/government-furnished resources—Depot provides maintenance and repair for 413 different B-2 bomber panels, doors, and surfaces. Contractor provides engineering services and technical assistance.
Oklahoma City Air Logistics Center				
B-2 Defensive Management System Tools Program Set (1999)	Northrop Grumman	Contractor sought out depot for its advantageous labor rates.	$800,000	Work share/lease—Depot performs specified development and software maintenance tasks. Contractor maintains total system performance responsibility for this support effort.
Propulsion Business Area partnership (1999)	Lockheed Martin	BRAC process closed a government-owned facility where work was performed.	$270 million	Teaming—Depot performs overhaul and repair of F100 engines, modules, components, and fuel accessories. Contractor performs overhaul and repair of T56 and TF59 engines, modules, components, and fuel accessories.
F100 Engine Test Cell (2002)	Pratt and Whitney	Contractor sought out depot for its unique capabilities.	$276,933	Direct sale—Depot performs jet engine testing. Contractor provides jet engines.
F100 Eddy Current Workload (2002)	Pratt and Whitney	Contractor sought out depot for its unique capabilities.	$697,894	Work share—Depot inspects and polishes F100 engine parts. Contractor provides F100 engine parts.
F100 Special Technologies Coating Facility (2002)	Pratt and Whitney	Contractor made business decision to close facility where work was previously done.	$57,000	Lease—Depot provides depot space and support to contractor. Contractor performs proprietary spray coating processes in depot spray booth.

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Depot/Partnership (year initiated)	Private-sector partner	Reason(s) for partnership	Expected annual value of work in depot	Partnership type—description of partnership tasks
Warner Robins Air Logistics Center				
C-130 Integrated Weapon System Support Program (2001)	Boeing	To meet new weapon system title 10 core depot maintenance requirements and contractor sought out depot for its unique capabilities.	$397,000	Work share/government-furnished resources—Depot provides software development and integration support for new components being added to aircraft, which increases the depot's software capabilities. Contractor maintains its overarching C-130 system integration responsibilities and oversight under the Air Force's Total Systems Support Responsibility contract; therefore, specific contractor tasks will vary depending on the specific subsystem.
C-17 Analytical Condition Inspection (1999)	Boeing	To meet new weapon system title 10 core depot maintenance requirements and contractor sought out depot for its advantageous labor rates.	$1.6 million	Direct sale—Depot identifies hidden defects, deteriorating conditions, corrosion, fatigue, overstress, and other conditions that affect structure of C-17 aircraft. Contractor provides the depot with engineering, parts, and equipment support.
Flexible Acquisition and Sustainment Tool (2001)	Boeing, Lockheed Martin, MTC Inc., SSAI, and SAIC	Contractor sought out depot for its unique capabilities.	No workload has materialized yet and because of the variable and unpredictable frequency of task orders no annual estimate of workload value is available.	Work share—Depot will provide labor to support delivery or task orders issued to one of five contractors under the Air Force's flexible acquisition sustainment tool contract. Contractor will manage the delivery or task orders to ensure performance, however, the specific contractor tasks will vary depending on the specific delivery or task order.
Low Altitude Navigation Targeting Infrared for Night (LANTIRN) Phase I (1997)	Lockheed Martin	Contractor made business decision to close facility where work was previously done.	$123,000	Lease—Depot provides facility where contractor repairs LANTIRN components.

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Depot/Partnership (year initiated)	Private-sector partner	Reason(s) for partnership	Expected annual value of work in depot	Partnership type—description of partnership tasks
LANTIRN Phase II (2001)	Lockheed Martin	Contractor made business decision to close facility where work was previously done, and contractor sought out depot for its unique capabilities and advantageous labor rates.	$796,000	Direct sale—Depot repairs 155 different components and delivers repaired components to contractor. Contractor provides failed components for repair.
C-130 Avionics Modernization Program (2001)	Boeing	To meet new weapon system title 10 core depot maintenance requirements and contractor sought out depot for its unique capabilities and advantageous labor rates.	$1.4 million	Work share—Depot upgraded two laboratories to accommodate testing of upgraded avionics, and provides software engineering support to rehost operational flight software into upgraded avionics. Contractor provides upgraded avionics components for testing and rehosting.
Joint Surveillance Target Attack Radar System (JSTARS) Total Systems Support Responsibility Partnership (2000)	Northrop Grumman	To satisfy title 10 core depot maintenance requirements for the workload involved.	$9.7 million	Work share—Depot performs prime mission equipment repair, system and ground support software maintenance, and various backshop functions. Contractor determines depot's work requirements, and provides depot with sustaining engineering and other support functions.
Marine Corps Maintenance Center—Albany				
Amphibious Assault Vehicle Reliability, Availability, and Maintainability/Rebuild to Standard (1998)	United Defense Limited Partnership	Program manager directed work share.	$22 million	Work share/lease—Depot disassembles and reassembles vehicle; rebuilds transmission, electronics, generators, and other components; installs new engine; and blasts and paints vehicle. Contractor provides labor expertise and equipment to modify vehicle hulls.

Source: DOD.

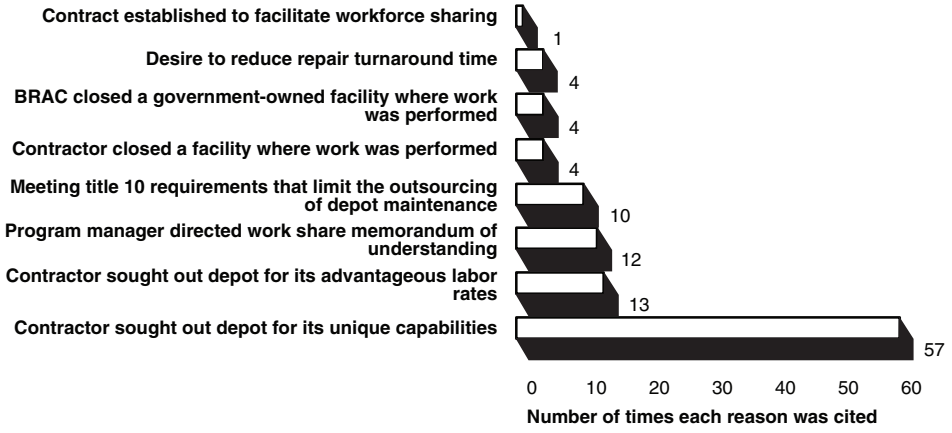
Summary Data Regarding the Reasons Cited and Approaches Used for the 90 Partnerships Reviewed

Partnerships were formed for a variety of reasons such as to allow industry to take advantage of depots' unique capabilities and advantageous labor rates, to take advantage of industry's engineering capabilities and accessibility to spare and repair parts, and to help meet title 10 requirements while increasingly relying on the private sector for logistics support activities. Depending on the specific circumstances surrounding the work to be performed, the services used various arrangements—such as work share and teaming—to form their partnerships. Although the partnerships involve many logistics functions performed in various combinations by both public- and private-sector partners, in general, contractors perform more spare parts, engineering, and technical data functions, while the military depots provide more repair labor, facilities, and equipment.

Reasons for Partnering

Partnerships between military depots and contractors were formed for a variety of reasons. Service depot officials identified nine reasons for entering into partnerships as indicated in figure 3.

Figure 3: Reasons Cited for Entering Public-Private Partnerships



Source: DOD (data), GAO (analysis).

Notes: Figures represent the number of partnerships citing a particular reason for partnering.

More than one reason may have been cited for each partnership.

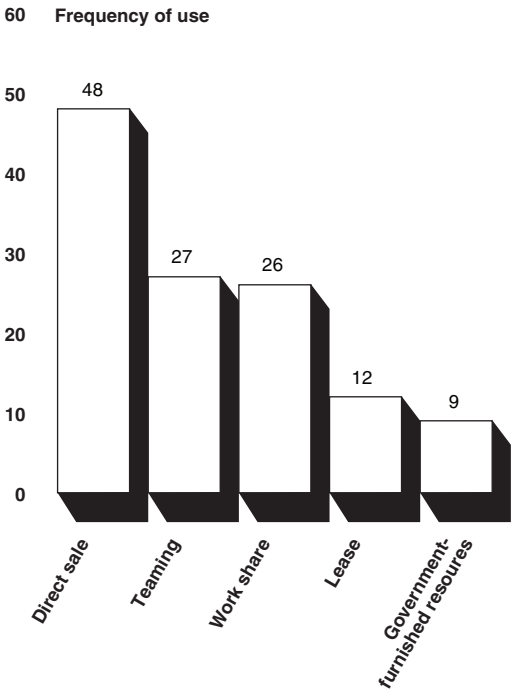
In some instances, a combination of these reasons motivated the parties to form a partnership. As shown by figure 3, the largest category involved contractors seeking out a depot for its unique capabilities—57 times for the partnerships we reviewed. Other reasons frequently cited were contractors seeking out a depot for its advantageous labor rates—13 times, program mangers directing work share arrangements—12 times, and meeting title 10 requirements that limit the outsourcing of depot maintenance—10 times.[1] As discussed in the body of the report, DOD expects these title 10 requirements to increasingly become an important driver to expanding partnerships as the department increases contractors' involvement in logistics support for weapon systems because the contractors will often be required to partner with depots in order to satisfy title 10 provisions that limit the outsourcing of depot workload.

Partnership Approaches Used Vary

The reasons for partnering discussed above and the circumstances surrounding a depot's workload shape how the services develop the approach used for each of their partnerships, including the selection of a partnership type and how they divide responsibilities for the performance of logistics functions. The depot maintenance partnerships we reviewed used one or a combination of five partnering approaches: work share, direct sale, lease, government-furnished resources, and teaming. Figure 4 illustrates how frequently the five partnership types were used for the partnerships we reviewed.

[1] While specifically mentioned 10 times by depot officials, title10 requirements are generally recognized by DOD and service officials as providing a major impetus for partnering.

Figure 4: Types of Partnerships



Source: DOD (data), GAO (analysis).

As indicated by figure 4, "direct sale" was the most frequently used approach. According to DOD officials, that approach is expected to increase in number with the expansion of contractor-managed logistics-support arrangements for weapon systems. The five public-private partnership approaches are described below.

1. *Direct sale.* An arrangement whereby military and commercial entities enter into a contractual relationship for the use of military depot maintenance facilities and employees to provide the private sector with articles and/or services. Forty-eight—53 percent—of the 90 partnerships we reviewed used the direct sale approach, making it the most frequently used partnering arrangement. DOD expects the use of direct sale arrangements to increase as DOD expands contractor involvement in logistics support for weapon systems in order to comply with title 10 provisions that limit the outsourcing of depot maintenance. The Navy's F-18 Integrated Readiness Support Team and the Air Force's B-2 Advanced Composite partnerships are examples of the direct sale

approach to partnering. These examples each involve one partner—the depot—performing work directly for, and receiving payment from, the other partner—the contractor. (See appendix II for more detail on these and other partnerships.)

2. *Work share*. An arrangement whereby a combination of military and commercial facilities and/or employees is used to execute a program manager's work package—including tasks such as weapon systems remanufacture, modification, or upgrade. Under the work share arrangement, the program manager issues a work order to the military participant and a contract to the private-sector participant. The relationship between the participants to accomplish the work package is usually coordinated with a memorandum of understanding or memorandum of agreement instead of a contract. Twenty-six—29 percent—of the 90 partnerships we reviewed used the work share approach, and this approach was typically used to form the services' larger partnerships. The Army's M1/M1A2 Abrams Tank upgrade partnership and the Navy's Harrier Aircraft remanufacturing partnership are examples of work shares. These examples involve each partner's performing its designated share of the workload directly for the weapon system's program office and the paying of each partner by the program manager.

3. *Teaming*. An arrangement whereby military and commercial entities enter into a contractual relationship to accomplish a deliverable stipulated in a contract. The relationship between the participants is usually initially outlined in a teaming agreement during the proposal's preparation and then formalized as a contractor/subcontractor relationship subsequent to contract award. Twenty-seven—or 30 percent—of the 90 partnerships we reviewed used the teaming approach. Most of the teaming arrangements occurred in the Army—19, with the Navy using the teaming approach for six of its partnerships and the Air Force using teaming for two of its partnerships.

4. *Lease*. An arrangement whereby military and commercial entities enter into a contractual relationship for the private sector's use of public depot maintenance facilities and/or its equipment to perform work for either the public or private sector. Twelve—13 percent—of the 90 partnerships we reviewed used the lease approach, often in conjunction with other partnering approaches. For example, the upgrade partnership for the Army's Fox Nuclear, Biological, Chemical Reconnaissance System vehicle uses a lease arrangement in

conjunction with a direct sale arrangement. The lease portion of the Fox partnership involves the depot's providing underutilized facilities at Anniston Army Depot and the contractor's paying for facility upkeep and utilities. The Air Force's partnership for the F100 aircraft engine special technologies coating facility is an example of a stand-alone lease arrangement not involving other partnering arrangements. In this example, the Air Force's Oklahoma City depot provides underutilized facilities, while the contractor pays the depot for the use of the facilities, provides facility upkeep, and pays utilities.

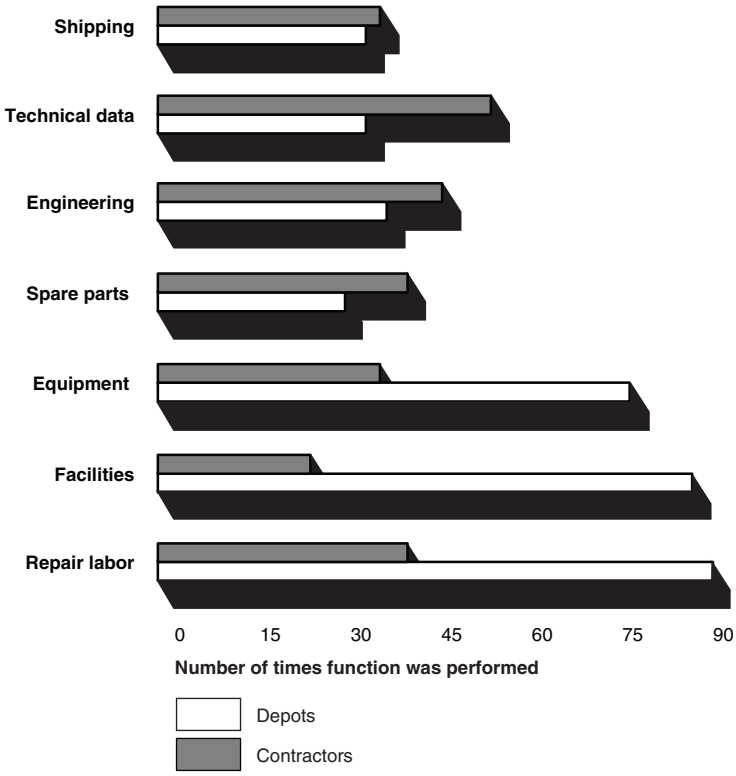
5. *Government-furnished resources*. An arrangement whereby military and commercial entities enter into an agreement for private-sector use of public depot maintenance facilities and/or its equipment and employees at no cost in connection with and under the terms of a contract. Nine—10 percent—of the 90 partnerships we reviewed used the government-furnished resources approach, which was also often used in conjunction with other partnering approaches. The Air Force's F-16 block 40 avionics software maintenance/upgrade and the Navy's Puget Sound railway partnerships are examples of the government-furnished resources approach to partnering. Under the F-16 partnership, the government performs F-16 component software maintenance tasks for the contractor without charge as a government-furnished resource, while the contractor performs final software integration. In the railway partnership, the government provides the contractor with access to a Navy-owned railway in exchange for the contractor's performing normal maintenance on the railway.

According to DOD and contractor officials, the type of partnership selected is based on what approach or combination of approaches best served the objectives of the partnership. For example, in the case of the Army's Fox vehicle upgrade partnership, the Army contracted with General Dynamics to upgrade its Fox vehicle. To improve the economy and efficiency of the upgrade, the contractor elected to partner with the Army's Anniston depot for a portion of the work and to colocate its segment of the upgrade with Anniston's segment at the Anniston depot. Consequently, the contractor's approach used a combination of two partnership types—direct sale and lease.

Functions Performed Vary between Public- and Private-Sector Partners

Depot maintenance involves not only the application of labor to repair and maintain military equipment but also several other logistics elements or functions such as supply support, production engineering, facilities, and equipment. For the partnerships we reviewed, these logistics elements or functions were performed or provided by both public- and private-sector partners in various combinations on the basis of the characteristics of the workload and the abilities of the partners. In the case of the Navy's auxiliary power unit repair effort, for example, the depot was repairing power units but did not have all the spare parts needed to complete repairs in a timely manner. To improve the availability of overhauled power units, the Navy awarded a contract for the power unit program's overall system support and performance. As a condition of the contract, the contractor partnered with a Navy depot to perform depot repairs to comply with title 10 requirements that limit the outsourcing of depot maintenance. The partnership that developed for this workload involved the depot's providing labor, facilities, and equipment, while the contractor provides technical data and spare parts. Figure 5 compares the frequency with which logistics functions are performed by depots and contractors for the partnerships we reviewed. As indicated by figure 5, the contractors' contribution to the partnerships consisted of performing or providing more of the spare parts, engineering, and technical data functions than the other functions; and the depots' contribution to partnerships consisted more of providing repair labor, facilities, and equipment.

Figure 5: Frequency of Depots' and Contractors' Performance of Logistics Functions



Source: DOD (data), GAO (analysis).

Note: The numbers in the figure represent how many of the 90 partnerships involved the depot's or the contractor's providing the indicated logistics function.

Examples of Partnerships That Are Achieving Positive Results

Some partnerships provide promising results or good potential for results related to improvements in parts availability, reduced repair time, reduced back orders, or reduced support costs. These improvements align with some of the partnership approaches included as a part of DOD's logistics reengineering initiative—more efficient business processes, better facility utilization, workforce integration, and reduced cost of ownership—and may therefore contribute to enhancing depot efficiency and viability. The following examples provide illustrations of some of the improvements the partnerships achieved:

T700 Engine. Corpus Christi Army Depot wanted to reduce the repair time and improve reliability for the Army's T700 helicopter engine. Consequently, it entered into a partnership with General Electric to achieve these improvements. (See fig. 6 on p. 53.) Under the partnership, Corpus Christi provides the needed facilities and equipment and repairs the engine. General Electric provides spare parts, and technical, engineering, and logistics services. According to depot officials, this effort has resulted in the introduction of General Electric's best practices at the depot, which in turn has resulted in the T700 engine repair line's realizing a 26 percent reduction in engine turnaround time and a 40 percent increase in test cell pass rates. Depot and contractor officials both attribute the T700 engine's improved depot repair times to better parts availability and improvements to the depot's repair processes, although they also recognize that the related T700 recapitalization effort begun shortly after the formation of the partnership may also be a factor influencing these improvements.

Figure 6: Depot and Industry Partnership Consultations at Corpus Christi Army Depot

Source: Corpus Christi Army Depot.

Left: Corpus Christi Army Depot and General Electric T700 partnership managers review a process improvement proposal. Right: Corpus Christi T700 assembly supervisor consults with General Electric partnership manager on the T700 engine assembly process.

Auxiliary Power Unit. Cherry Point Naval Aviation Depot was repairing auxiliary power units for four aircraft[1] but was experiencing production delays owing to poor spare parts support. To improve the availability of overhauled power units, the depot formed a partnership with Honeywell—the auxiliary power units' manufacturer. (See fig. 7 on p. 54.) Under the partnership, the depot provides labor, facilities, and equipment, while the contractor provides production engineering and spare parts. According to depot officials, the number of units' awaiting depot repair because of lack of parts went from 118 when the partnership began in July 2000 to zero in October 2002. According to the auxiliary power units users in the fleets, the resulting improvement in support has been outstanding. For example, the back orders for the power units were reduced from 125 in July 2000 to 26 in October 2002. Depot officials attribute these improvements to better parts support and the introduction of more efficient business practices to the

[1] The four aircraft are the C-2, F/A-18, S-3 and P-3.

repair process that include replacing rather than repairing worn components.

Figure 7: F/A-18 Auxiliary Power Unit Being Repaired Under a Partnership Between the Naval Aviation Depot Cherry Point and Honeywell

Source: Naval Aviation Depot, Cherry Point.

USS Enterprise. Northrop Grumman Newport News shipyard was scheduled to overhaul the nuclear-powered aircraft carrier *USS Enterprise* in fiscal year 2002 but lacked the necessary capacity at its facility to perform the work as scheduled. (See fig. 8 on p. 55.) Consequently, Northrop Grumman formed a partnership with the Navy wherein the Norfolk Naval Shipyard provided drydock space and the Navy's four shipyards provided 108,000 man-days of labor to augment Northrop Grumman's overhaul of the aircraft carrier, which resulted in the overhaul's

completion as scheduled. Northrop Grumman retained overall responsibility for the overhaul and also contributed labor, equipment, production engineering, and technical data. According to shipyard officials, this partnership allowed the contractor and the shipyards to share their labor resources, which along with the drydock space, increased the Navy's maintenance ability and therefore increased its production, making carriers available to the fleet sooner than would otherwise have been feasible.

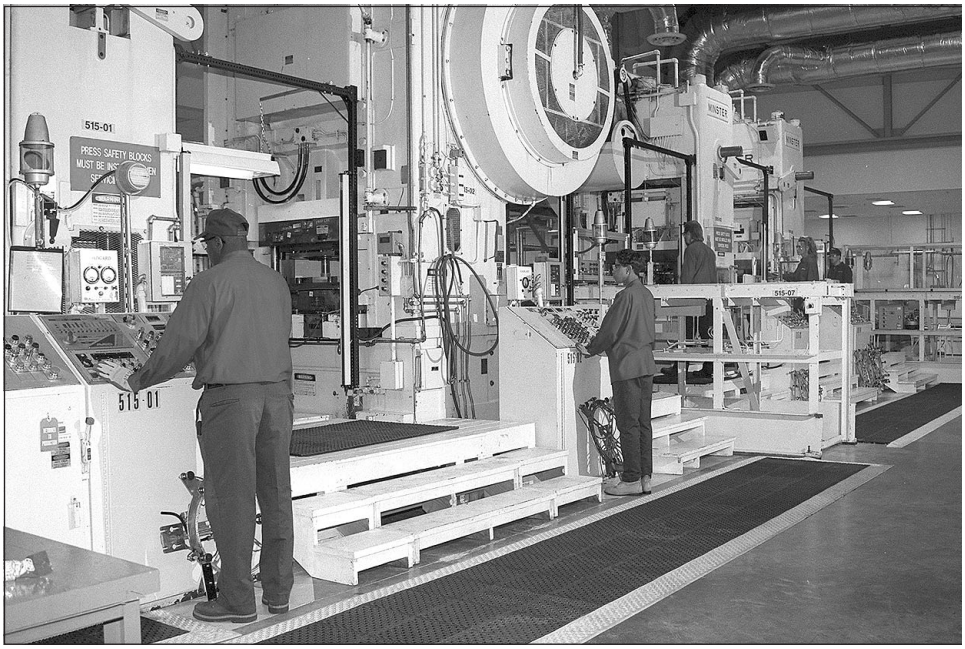
Figure 8: The Nuclear-Powered Aircraft Carrier *USS Enterprise* Entering Norfolk Naval Shipyard

Source: Norfolk Naval Shipyard.

AGT1500 Recuperator.[2] The Abrams Tank Recuperator production was formerly located at the Army's Stratford Engine Plant in Connecticut, which was closed by BRAC in 1995. Honeywell relocated the capability to Anniston Army Depot in 1998 and entered a partnership with the depot at that time. (See fig. 9 on p. 57.) According to depot officials, this partnership is an example of a "pure" facility lease arrangement in which production has been colocated with its primary user—Anniston's M1 tank engine repair line. The production operation benefits from base operations support provided by the depot. On-site production eliminates the need for a parts manager at the depot. It also eliminates the need for the Defense Logistics Agency to stock and issue recuperators, which means Anniston avoids Defense Logistics Agency surcharges. The minimal supply chain also reduces the need for raw material inventory and on-hand finished-goods inventory. Production is adjusted to meet customer demand on a near "just-in-time" basis. According to depot officials, these benefits resulted from Honeywell's recuperator production operation's proximity to the depot.

[2] The recuperator is a heat exchanger for the Abrams tank used for warming inlet air for the engine.

Figure 9: Honeywell's M1 Tank Engine Recuperator Manufacturing Line at the Anniston Army Depot



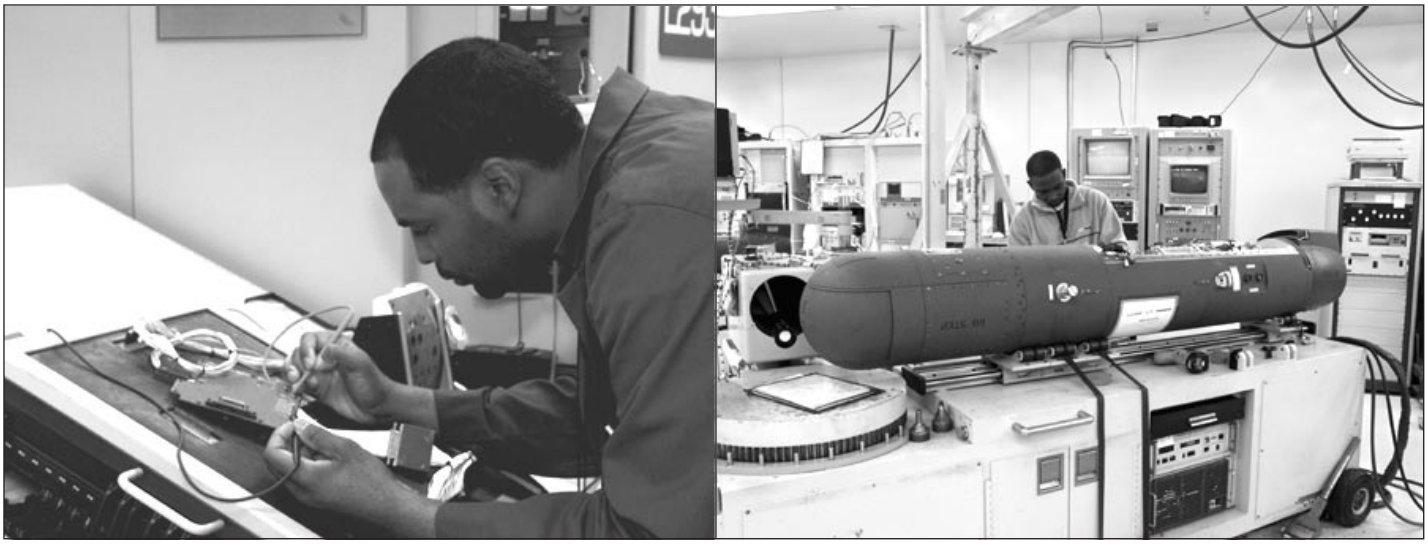
Source: Anniston Army Depot.

LANTIRN Phase II. Lockheed Martin was under contract for the depot maintenance and repair of the Air Force's LANTIRN[3] system, but its vendors were not providing timely turnaround on the repair of certain LANTIRN components. To improve component support, Lockheed Martin and the Air Force's Warner Robins depot negotiated a direct sale agreement for the depot to repair various quantities of 155 LANTIRN components. (See fig. 10 on p. 58.) According to Warner Robins officials, since the start of partnership in August 2001, the depot's performance in repairing the components has been very good. For example, the depot's average component repair turnaround time of 18 days under the partnership is much better than the average turnaround time of 93 days under Lockheed Martin's prior vendors and also better than the negotiated turnaround time of 45 days agreed to under the partnership. Depot officials attributed these

[3] The LANTIRN system—Low-Altitude Navigation and Targeting Infrared for Night—is used on the Air Force's F-15E and F-16C aircraft for targeting enemies.

improvements to (1) Lockheed Martin's colocation at the depot, which reduced the shipping time between Lockheed Martin and its vendors—some of which were overseas—and (2) ongoing Warner Robins' operations that historically were more efficient in the repair of the LANTIRN components than were Lockheed Martin's prior vendors.

Figure 10: Depot and Contractor Employees Repairing and Testing LANTIRN System

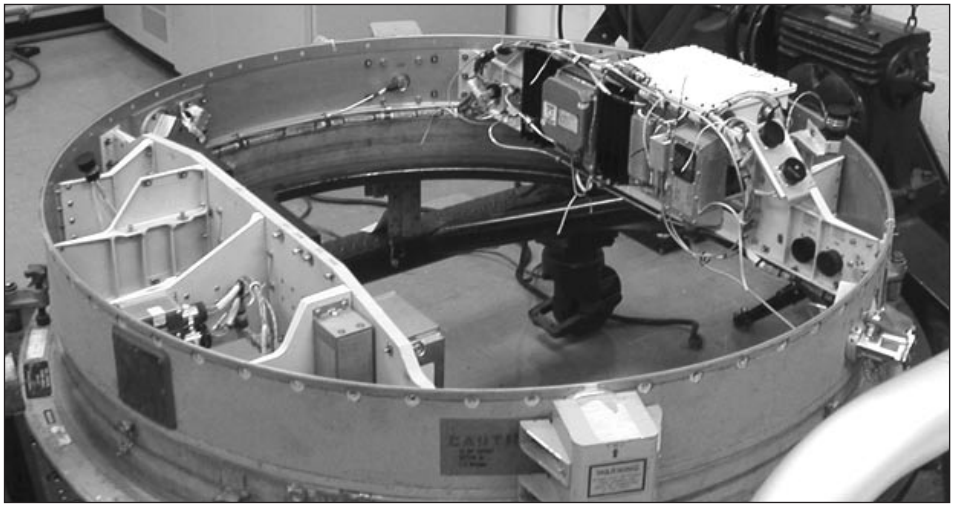


Source: Warner Robins Air Logistics Center.

Left: Warner Robins Air Logistics Center employee repairing a LANTIRN component. Right: Lockheed Martin employee testing LANTIRN System.

ICBM Global Positioning System. As the Air Force's intercontinental ballistic missile (ICBM) logistics integrator, TRW Inc. had a requirement to arrange for the modification of ICBMs to add satellite global positioning capability. (See fig. 11.) However, TRW's component manufacturing subcontractor's estimate for the modification was too costly. To achieve the required modification at less cost, TRW Inc. formed a partnership with the Air Force's Ogden depot to replace the old tracking system with the required global positioning system capability. Under the partnership, Ogden provides the labor for the modification installation, while TRW Inc. performs its integration and engineering support responsibilities. As a result of the partnership, the depot estimates that the program will save about $11 million in 4 years, thereby reducing the overall support cost of ICBMs. According to depot officials, the savings will result from the depot's ability to produce and install the guidance modification for less than the original equipment manufacturer.

Figure 11: ICBM Global Positioning System Modification Showing Developmental Configuration Module



Source: Ogden Air Logistics Center.

Fourteen Characteristics Identified by DOD and Contractor Officials Needed to Achieve Effective Partnerships

DOD and contractor officials have identified 14 characteristics that they believe over time will contribute to a partnership's success in achieving DOD's objective of improved depot efficiency and viability. The following describes these characteristics and provides examples of how some of the partnerships we reviewed exhibited these characteristics.

1. *Long-term relationship and commitment.* A long-term relationship and commitment (1) permits both contractors and depots to better plan future workload requirements and create a better business case for the contractor to make investments to improve depot repair capability and (2) allows the contractor to help manage parts obsolescence. For example, the F/A-18 partnership involves a long-term relationship between the Navy and Boeing to provide logistics support for the F/A-18E/F aircraft over the life cycle of the weapon system. Boeing and the depots are projecting partnering workloads for the Navy depots for the next 30 years, allowing the partners to create a phased plan to move from providing maintenance and repair on limited aircraft components to eventually encompass the entire weapon system.

2. *Shared partnership vision and objectives*. Having partners share the same partnership vision and objectives helps ensure that the partners will not be working at cross-purposes. The Navy ship depot maintenance partnerships involving shipyard work and workforce sharing—*USS Memphis*, *USS Enterprise*, and *USS John C. Stennis*—exemplify this characteristic. With the downsizing of the Navy, a corresponding decrease in the Navy and contractor shipyard workforces occurred. To manage the resulting downsized workforces and avoid the unnecessary duplication of skills, Navy and private shipyard officials developed and implemented a workforce-sharing initiative whereby shipyard workers are assigned to public or private workloads depending on the skills needed to perform the work and the Navy's ship maintenance priorities. The partners view the shipyards as a shared resource that needs to be effectively managed in order to provide the Navy with the needed overhaul capability and cost and schedule performance while minimizing the collective workforce requirements.

3. *The right metrics and incentives*. The right metrics and incentives are needed to effectively measure that progress is being made and that the partners are effectively motivated to achieve partnership goals and objectives. For example, the prime reason why the Navy entered into its auxiliary power unit partnership at its Cherry Point depot was the

shortage of power units within the fleets. To ensure that this problem was addressed by the partnership, the metrics that the Navy uses to evaluate the partners are the same metrics used to assess the quality of auxiliary power unit support to the fleet—e.g., depot turnaround-time, testing acceptance rates, and system availability.

4. *Early acquisition community involvement.* Developing the partnership with acquisition community involvement during the early phases of a weapon system's acquisition helps to ensure that any additional depot maintenance capability development needed is fully planned and funded. The C-17 partnership efforts under way at Air Force depots illustrate that not building the partnership concept into the acquisition process early enough can lead to funding challenges. Until the Air Force recently determined that a significant portion the C-17 depot maintenance was core under 10 USC 2464 and would involve a public-private partnership, the system acquisition strategy was focused on contractor-provided depot maintenance. Consequently, the acquisition community had not planned or budgeted for the development of depot capability to support the currently planned partnering efforts. The Air Force is exploring ways of dealing with the potential shortfall.

5. *Complementary skills and abilities.* Each partner should bring complementary skills and abilities to the partnership because if each partner's capabilities are the same, the relationship may result in a competitive and potentially adversarial relationship, not the cooperative synergistic relationship hoped for in a partnership. The Air Force's Low Altitude Navigation Targeting Infrared for Night (LANTIRN) partnering approach provides an example in which each partner brought complementary abilities to the effort. The contractor managed the repair of the LANTIRN system but did not have the ability within its supplier network to repair subcomponents in a timely manner. The Air Force's Warner Robins depot already had an ongoing repair line for these components and was able to easily supply the contractor's requirements for maintaining the LANTIRN system.

6. *Senior-level advocacy and support.* DOD and contractor senior management support for a partnership is necessary to ensure that the effort receives the focus and resources needed to achieve success. The Air Force's Joint Surveillance Target Attack Radar System (JSTARS) partnership, for example, illustrates the value of this characteristic. Senior Air Force and contractor leaders endorsed the partnership,

requiring their managers to be innovative in overcoming the obstacles created by years of competitiveness and the associated tension. The partners responded by putting the right people in place with the mindset and leaderships skills necessary to make the partnership work.

7. *Sound business case analysis*. A comprehensive business case analysis, including expected outcomes, should be conducted as part of the decision process for entering a partnership to ensure a sound result benefiting both the depot and the private-sector partners. The Air Force's ICBM Automatic Test Systems partnership, for example, was formed after the Air Force conducted an analysis to assess the cost-benefit of the effort. As a result, the Air Force documented its expected savings of approximately $30 million over the 5-year partnership.

8. *Mutual trust and shared risk*. The partnership should be firmly grounded in mutual trust, open communications, and balanced risk among partners. For example, according to the business development office at the Corpus Christi Army Depot, the T700 partnership involved both parties' investing the necessary time to understand each other's goals and develop a level of trust so that both parties were willing to share risks in order to make their partnering effort successful.

9. *Flexibility to change partnership scope*. To ensure the ability to adapt to changing circumstances or factors, the partnerships should have the flexibility to change the partnership scope. The Air Force's F100 partnership illustrates this characteristic. For example, the partnership currently involves two types of F100 workload—the inspections of selected engine components and engine testing—but the partnership agreement provides for adding additional F100 workloads and other engine workloads.

10. *Balanced workload*. Workload should be balanced among the partners to ensure meaningful involvement for each partner and ensure that one partner does not receive only low-skilled work or no work at all. The AV-8B Harrier Remanufacturing partnership demonstrates a balanced division of workload among the partners. Both the depot and the contractor were responsible for segments of the remanufacturing effort that involved challenging tasks requiring highly skilled labor. For example, the depot partner modified and rewired the aircraft wing and rebuilt complex aircraft components, while the contractor built and provided new aircraft components and then incorporated these components along with the wing and components from the depot into

the remanufactured aircraft. The division of tasks helped each partner maintain and improve its respective technical expertise.

11. *Independent review and oversight*. Independent review and oversight provides an objective assessment of whether each partnership is achieving the expected benefits and that each partner performs as expected. Such a review also provides a basis for correcting or redirecting partnership efforts if expectations are not being met. To this end, OSD has begun a process to provide review and oversight of depot maintenance partnering efforts throughout the department. For example, OSD has directed its Joint Depot Maintenance Analysis Group[1] to collect and maintain data on the conduct and performance of service partnerships. OSD plans to use these data to redirect and improve partnering efforts toward achieving DOD's goals and objective.

12. *Enforce partnership decisions and requirements*. To ensure successful partnering efforts, the partners' senior management must provide a mechanism for enforcing compliance with partnership decisions and requirements. The Air Force's JSTARS partnership effort, for example, incorporates the partnership agreement and requirements into the overarching system logistics support contract. According to depot officials, the contract is the most effective means for compelling partner compliance with partnership decisions and requirements.

13. *Full coordination with all stakeholders*. Public-private partnership efforts should include steps to get feedback from all stakeholders on planned efforts and adjust the partnering strategies to reflect the legitimate concerns of these stakeholders. The Army's Multiple Launch Rocket System Hoist Assembly partnership exemplifies full coordination among the depot; the contractor; and the major command's general counsel, business operations office, and acquisition community.

14. *Clearly documented objectives in partnering agreement*. Once clear mutual partnering objectives are determined, they should be documented into a formal partnering agreement. For example, the

[1] The Joint Depot Maintenance Activities Group is a DOD organization created to support the department's Joint Depot Maintenance Program by providing DOD with staff support in depot maintenance areas such as studies and analyses, business planning and evaluation, and performance metrics development and tracking.

Army's Tobyhanna depot follows a standard procedure of documenting all partnering arrangements with formal agreements. This documentation typically includes a nondisclosure agreement, which protects shared information that is proprietary or otherwise business sensitive, and a partnering agreement that includes the partnership's objectives, a statement of work to be performed, the partners' roles and responsibilities, and other terms and conditions as needed.

Comments from the Department of Defense

DEPUTY UNDER SECRETARY OF DEFENSE FOR
LOGISTICS AND MATERIEL READINESS
3500 DEFENSE PENTAGON
WASHINGTON, DC 20301-3500

MAR 31 2003

Mr. Barry W. Holman
Director, Defense Capabilities and Management Issues
U.S. General Accounting Office
Washington, DC 20548

Dear Mr. Holman:

This is the Department of Defense (DoD) response to the GAO draft report, "DEPOT MAINTENANCE: Public-Private Partnerships Have Increased, but Long-Term Growth and Results Are Uncertain," dated March 7, 2003 (GAO Code 350160).

The Department has reviewed the draft report and agrees with the information, analysis and conclusions. However, we believe the recommendations are so generally drawn that they are not actionable as a practical matter. An explanation of the DoD position is enclosed.

Sincerely,

Allen W. Beckett

Enclosure:
As stated

GAO DRAFT REPORT DATED MARCH 7, 2003
GAO-03-423
(GAO CODE 350160)

"DEPOT MAINTENANCE: PUBLIC-PRIVATE PARTNERSHIPS HAVE INCREASED BUT LONG-TERM GROWTH AND RESULTS ARE UNCERTAIN"

DEPARTMENT OF DEFENSE COMMENTS TO THE GAO RECOMMENDATIONS

RECOMMENDATION 1: To improve the management, direction, potential for success, and assessment of its public-private partnerships, the GAO recommended that the Secretary of Defense direct the Under Secretary of Defense for Acquisition, Technology and Logistics to establish baseline data and overarching goals for expected outcomes of partnership efforts, including the partnership initiative's desired improvements to depot operations. (p. 24/GAO Draft Report)

DOD RESPONSE: Partially concur.

The Department believes that it has already substantially established baseline data and overarching goals for expected outcomes of partnership efforts. Baseline data has been collected and published for depot maintenance public-private partnering through fiscal year 2001. The data base reflects, for each partnership, expected benefits to include capital investment by both private and public sectors, revenue to the depot, workforce impacts, business process improvements, cost avoidance, and facility utilization. Efforts are now underway to collect data for fiscal year 2002. In our policy memorandum of January 30, 2002, *Public-Private Partnerships for Depot Maintenance*, we believe that our overarching goals have been stated.

We agree with the GAO in the report that there needs to be clearly documented objectives in individual partnering agreements and the right metrics and incentives needed to measure progress. This does not translate into the ability to set overall detailed overarching departmental goals beyond those that have already been set. The GAO acknowledges that partnerships are formed for a variety of reasons and using differing approaches on the basis of the circumstances surrounding the specific partnering effort. These may include lease and use agreements for facilities and equipment, direct sales of articles or services, teaming arrangements, subcontractor relationships, base operations support relationships, and performance based logistics arrangements. There is also a significant difference in the nature and employment of partnerships based on the commodities and technologies involved. For example, a partnership involving a nuclear shipyard is dramatically different than one involving an aviation depot.

We believe it is far more practical to assess individual partnerships based on their stated goals and metrics than it would be to go beyond the currently established goals and measures in place for the overall DoD program.

RECOMMENDATION 2: To improve the management, direction, potential for success, and assessment of its public-private partnerships, the GAO recommended that the Secretary of Defense direct the Under Secretary of Defense for Acquisition, Technology and Logistics to develop or refine metrics as needed to provide a more complete basis to assess the results of the depot partnering arrangements as well as ensuring that they differentiate between improvements to a weapon system's support resulting from partnering and from other factors or changes affecting the weapon system. (p. 24/GAO Draft Report)

DOD RESPONSE: Partially concur. We agree that refinements can be made to the Department's data gathering efforts. While we agree we must identify and track metrics to assess the results of depot partnering arrangements, it will be difficult if not impossible to differentiate between improvements solely resulting from partnering and other factors. Industrial operations are complex and the numerous interrelationships are difficult to untangle. It may never be possible to differentiate between improvements resulting from partnering and from other factors or changes effecting the weapon system. Partnerships are part of complex business relationships, not controlled situations where direct cause and effect relationships may be established.

RECOMMENDATION 3: To support the expansion of partnership arrangements for new systems, the GAO recommended that the Secretary of Defense require the Under Secretary of Defense for Acquisition, Technology and Logistics to require specific assessment and planning for new capability in military depots where partnership arrangements for new systems are expected. (p. 24/GAO Draft Report)

DOD RESPONSE: Partially concur. The Department currently requires assessment and planning for new capability in military depots for new weapon system, whether or not partnering arrangements are expected. We agree that more emphasis can be placed on determining the role that depot maintenance public-private partnerships may play in this planning.

RECOMMENDATION 4: To support the expansion of partnership arrangements for new systems, the GAO recommended that the Secretary of Defense require the Under Secretary of Defense for Acquisition, Technology and Logistics as part of planning, assess the likelihood of private sector investment in new systems capability in military depots and other alternatives as needed. (p. 24/GAO Draft Report)

DOD RESPONSE: Partially concur. It was never the intention of the depot maintenance public-private partnership program to supplant the need for the services to conduct planning and funding for required capital investment. Partnerships may create unique opportunities in certain circumstances that result in private sector investment, but these instances tend to result from unique situations. Expecting capital investment by the private sector across the broad spectrum is unrealistic. A capital investment made as the result of a partnership is a secondary effect. As any potential for private sector investment depends on conducting a business case analysis for a specific situation, these assessments must be made on a system-by-system basis at the appropriate phase of acquisition planning, not on an across-the-board basis as recommended by GAO.

GAO Staff Acknowledgments

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Julia Denman, Larry Junek, Robert Malpass, M. Jane Hunt, Jack Edwards, Robert Ackley, and John Strong also made significant contributions to this report.

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