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DEPOT UTILIZATION AND COMMERCIALIZATION

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The excess capacity that currently exists within DoD maintenance depots presents an extra burden of overhead expenses. The remedies fall into two categories. The first represents what the Services have been doing through the base realignment and closure process: closing and moving workload to the fewer remaining depots. The second approach is to find a new use for the depots through commercializing their facilities, and bringing in work from outside the current DoD maintenance system. This article discusses both proposed solutions, their potential problems, and the changes needed to ensure their success.

During the past several years, the Department of Defense (DoD) has been involved in an ongoing effort to reduce costs across a broad range of functional areas. One of these has been the closure and consolidation of military repair depots, which has reduced the infrastructure and overhead costs associated with the facilities. But this process has not led to an even reduction across cost areas—the military workload at the depots has been reduced further than the depot overhead expenses (Figure 1 [Leiby, 1998]). While the work has gone away (variable costs), the facilities themselves still have expenses that are not tied one-to-one with the workload (fixed costs). Here we will explore this situation, and

discuss what can be done to reduce those costs.

Military repair depots, geared to perform unique functions that in many situations are not available in the private sector, provide specialized repair and support for defense systems. As such, their equipment and facilities are developed to support military hardware whose requirements are beyond commercial needs. The military has sought to save money primarily by closing existing depots and transferring the workload to remaining installations. This process has reduced the number of major Army repair depots from 10 to 5.

But the remaining Army depots are not working up to capacity, and so there is

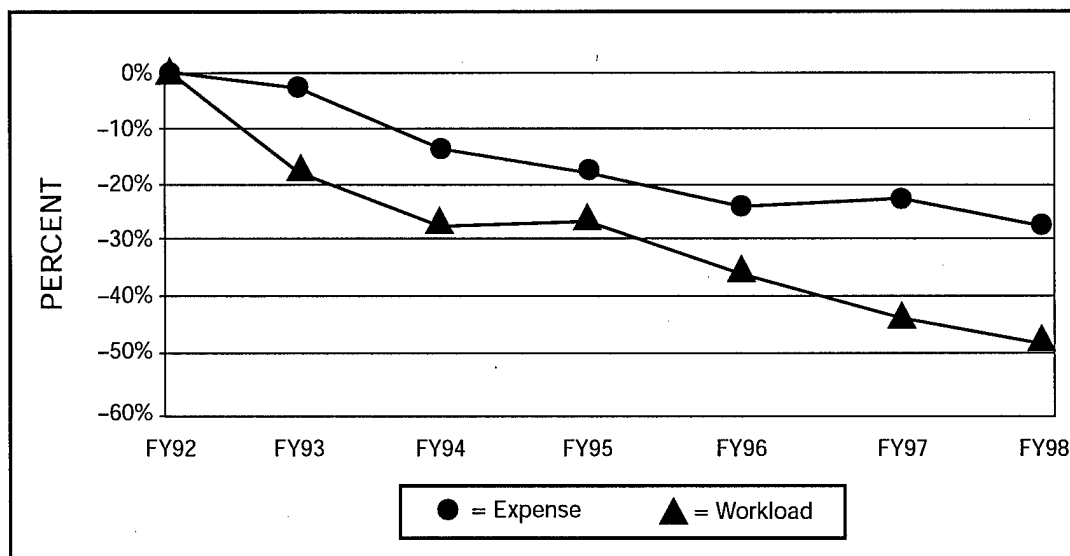


Figure 1. Depot Maintenance Cost and Workload Trends

room for additional savings. (Two depots are running at 60 percent utilization and the remainder are at 73–85 percent, as of February 1997 [Industrial Operations Command (IOC) Briefing, 1998]). These statistics will probably worsen with time, with the reduced need for military repair (i.e., reduced operations tempo and number of systems maintained), and the significant shift in new weapon system repair designation away from the depots. (From 1987 to 1997, the military has made a significant effort to have new weapons systems maintained by their developer [General Accounting Office (GAO) (2), March 1998].) The latter has led to a significant shift in responsibility: In 1987 75 percent of new weapons systems repairs were done at depots; in 1997, just 18 percent were.

That downward momentum is likely to continue; the gap between depot workload and capacity requirements will likely increase. The political reality is that further depot closings are not in

the cards, however; so we should consider expanding their use.

PROBLEMS WITH CONSOLIDATION AND PRIVATIZATION

Previous depot consolidations and privatizations have experienced the following:

- The savings did not materialize.
- Sufficient information was not available to let a fixed-price contract for performing the mission.
- The government-furnished material needed for the repair process was not provided in a timely manner, thus causing contractor cost overruns and lawsuits for damages.
- The environmental costs of cleaning up the facility have been substantial, and have been difficult to accurately estimate.

In addition, one must review several considerations prior to closing a depot:

- Surge capacity must be retained for wartime requirements.
- Unique hardware can be expensive to move, and may not function properly in other geographic areas (such as outdoor test sites).
- Legal and policy barriers may prevent outsourcing the depot work.

Problems with privatization and outsourcing are perhaps the greatest drawbacks in trying to reduce depot costs, as several prior government privatization and outsourcing efforts show (Kitfield, 1998). For example, in 1995 the Air Force awarded contracts to outsource the Aerospace Guidance and Metrology Center at Newark Air Force Base, OH. The GAO study on this effort found that privatization of the center would not generate the projected 20–30 percent savings. In fact, the yearly savings were so minimal that it could take upwards of 100 years for the Air Force to achieve that magnitude of savings (Concannon, 1996, and GAO, December 1994).

Just recently, GAO was asked to review a new Air Force interim study on the project. This effort indicated the minimal expected savings had not materialized, and, in fact, the outsourcing was costing the Air Force 16 percent more than when it ran the center itself (GAO, December 1997). These results are further supported by a GAO study that reviewed public-private competitions on depot repair (GAO, April 1996). It found that the depots won 67 percent of the competitions,

with depot bids averaging 40 percent less than the private sector.

Further, GAO concluded that privatization of highly skilled technical maintenance performed at military depots may not generate the expected savings due to a number of factors, such as the specific technical nature of military equipment, the lack of competitive private sector companies that can perform these jobs, and that the reported savings on previous government outsourcings were overoptimistic and did not reflect subsequent cost overruns, modifications, or add-ons (GAO, July 1996; GAO, December 1996; and GAO, May 1997). As a product of the above uniqueness of military depots, GAO also discussed the lack of adequate competition to reduce costs.

In a review of public-private competitions on depot repair, the GAO (April 1996) found that for 23 percent of the competitions there were no offerers from the private sector, and for another 35 percent there was only one private sector bidder.

Further, a review of 240 depot maintenance contracts showed that 76 percent of them were awarded sole source. This trend seems to be worsening, with a new GAO report (June, 1998) indicating that DoD is now awarding 91 percent of the current depot contracts (fiscal year 1996–March 1997) noncompetitively, mostly to the original equipment manufacturers, since the government either did not have the data rights to that equipment, or could not precisely define the requirements for their repair.

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The Army's sole-source percentage appears to be even higher than the DoD average, with 95 percent of the depot contracts being let sole-source. This represents 99 percent of the total dollar value of all Army depot contracts. This situation is worsened by the fact that only 32 percent of those contracts were fixed price, leaving the majority of them subject to possible cost increases.

Part of the problem with the Newark outsourcing was that the Air Force lacked good pricing data on how much it would cost to perform the missions. As a consequence, the contractors would not accept a fixed-price contract, and required the Air Force to use a cost type of contract (Valley, 1997). Spaulding (1997) also pointed

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out that another reason that the cost type of contract was selected for Newark was so that equitable treatment of former government employees and unanticipated

contractor costs could be provided. This allowed the contractor to match the government benefits that existed previously for those employees, which were higher than what the contractor normally provided.

In terms of problems with moving depot facilities, the recent movement of the workload at Alameda Naval Aviation Depot to other depots (Jacksonville Naval Aviation Depot and San Antonio Air Logistics Center) produced delays and increased costs for the engine repair work that was transferred (GAO [1], March

1998). These problems were attributed to conflicting priorities between the gaining and losing facilities, unidentified equipment and retooling requirements, limited access to cross-service spare parts, outdated technical data, personnel and equipment certification requirements not being consistent, and shortfalls in the number of skilled workers.

Another problem the Services would want to avoid is what occurred at Red River Army Depot (RRAD), where the Base Realignment and Closure (BRAC) process stripped all the non-Bradley Fighting Vehicle workload from the depot. This left RRAD initially with about 86 percent excess capacity, which substantially increased their operating costs by \$15 per hour, due to fixed costs remaining the same with a much lower workload over which to spread the costs (Newby, 1997). Some of these costs have been brought down by closing or tearing down several of the buildings on the installation, but it still remains the most expensive Army repair facility.

A similar situation occurred at Newark (Spaulding, 1997) when it was privatized-in-place, causing its rates to increase. These findings are supported by several reports (Defense Science Board [DSB], 1996; GAO, April 1996; GAO [1], September 1996; GAO [2], September 1996) that also stress the problems of increased capacity as a result of privatization-in-place. For instance, the GAO found that for 79 percent of the contract items in the Newark privatization, the costs had actually increased, causing the overall costs to have a net increase in rates of \$6 million (GAO, April 1996).

Lastly, as former Rep. Earl Hutton, then subcommittee chairman for the House

Readiness Panel, commented on the move to dismantle the depot system: "The organic maintenance capability [of the Defense Dept.] is far too important to the readiness of the forces to be susceptible to the difficulties being experienced by the defense industrial base." "We need to be careful not to dismantle a capability that will risk readiness and cost billions to reconstruct" (Morrocco, 1994). A similar note was struck by former Secretary of the Air Force Sheila E. Widnall ("Widnall clarifies depot decision," March 1995), who stated that "undertaking large, unbudgeted efforts like depot closures would jeopardize future re-capitalization and modernization of Air Force programs."

Given these considerations, the closure, outsourcing, or privatization of depot facilities may not be the best approach to rectify the problem of underused capacity at this time.

COMMERCIALIZATION OF DEPOTS

A better alternative to these practices, in our current environment, would be to look at options that would change the function of the depot, so that we would retain surge capacity but still reduce costs by fully utilizing existing facilities. This alternative is in keeping with the DoD guidance to promote commercialization of military depots (DoD, 1996), and could be two forms.

The first is commercial work. A recent GAO Report (May, 1998) discusses that these types of arrangements are legal under Title 10 of the *U.S. Code*, and have been successful in bringing new funds to the depots, through direct sales (in which the government facility acts as a subcontractor

for private industry), and through work-share (in which the program manager sends funds directly to the depot for part of the work, and awards a contract to private industry for the remaining portion).

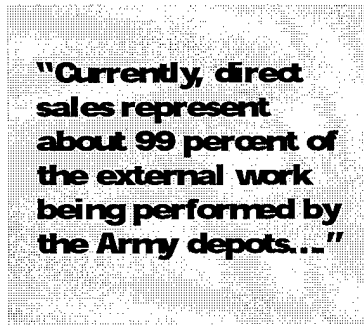
The second is cooperative research and development agreements (CRADAs) for teaming or technology transfer projects with small businesses receiving government grants, universities, and government laboratories.

Currently, direct sales represent about 99 percent of the external work being performed by the Army depots (Kopp, 1998); other alternatives could provide additional work for the depots that, in turn, would bring in additional funding, and reduce overhead costs for all the depot's customers, both military and commercial. However, in order to fairly implement a commercialization of the depots, we would need to institute something similar to activity-based costing (ABC) in order to assure that the commercial customers would not be subsidized by the government. This is because of the way the depots currently keep

track of costs, which allocates the costs of services across all the separate repair actions performed, and does not allow

for pricing of specific work (this concern about adequate pricing of depot repairs has also been voiced by the Defense Science Board's *Report on Outsourcing and Privatization* [DSB, 1996]).

ABC focuses on identifying the activities that are responsible for the costs associated with a product. As such, activity



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costs are passed on to products or services only if the product or service uses that particular activity. For instance, as the number of activity measures increase (i.e., functions that contribute a cost to a product, such as multiple processing steps, multiple skill levels from different functional areas, multiple machine or tooling

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requirements, allocation of overheads to products and services according to the demand by each activity), ABC is better able to capture the underlying economics of the organization's operations, and

identify the "true" costs (true expenses and unit costs by service line, function, and client) for producing a product or repair action.

This increased visibility into the cost of performing a service or manufacturing an item has been very popular in private industry, with hundreds of articles written on its use and benefits. In other words, there should be a firewall between projects performed for private industry and regular Service repair workload, so that the "true" costs of performing "outside work" can be determined.

The teaming and technology transfer projects might involve several aspects, ranging from just commercial work to projects with technology transfer incubators, small business innovation research (SBIR), and small business technology transfer (STTR). This approach could serve as a bridge between commercial,

government and university research, and development and production applications (Washington, 1997); and could incorporate existing federal, state and local funding initiatives on promoting small businesses (which in 1988 represented \$550 million to promote technology innovation [Peterson, 1993]). It might also tie into the Services' Centers of Excellence Programs or the OSD-funded university research initiatives.

These programs have been expanding somewhat to now also include joint university-industry research projects (Gaumond, 1994), and the Army Research Laboratory's "federated laboratory" concept (Army Research Laboratory, 1994). The Advanced Research Projects Agency (ARPA) is also funding engineering programs through its Technology Reinvestment Project (TRP) initiative, in conjunction with the National Science Foundation (Wax, 1995). Through these programs, the Services leverage the best universities in the nation to advance the state of science in areas of interest to the military. It would make sense for our depot system to join in this process, and benefit not only these existing programs but our depots as well.

OTHER CONSIDERATIONS

Dennis Urban (Urban, 1998) at the U.S. Army Industrial Operations Command (IOC) has mentioned several possible actions that might also be taken to reduce costs in depots:

- Modernize facilities, so they are more cost effective to operate.

- Move processes into smaller buildings on the depot property, and close the larger buildings.
- Increase training, so that depot personnel have cross-skill carryover to work on multiple types of projects.
- Sell excess equipment that is not used, or only marginally used (if outside resources exist that can perform the function at less cost than maintaining the equipment [cost plus depreciation]).

SUMMARY AND DISCUSSION

The commercialization of the depots would provide small businesses and universities with an applied engineering program, advanced manufacturing knowledge, and state-of-the-art laboratory and manufacturing resources. It would bring to the depots outside work and money that would lower their costs by fully utilizing existing personnel and facilities. Further, through working with other government and Service programs to promote technology transfer and areas of science of interest to the military, it would help both these programs and the depots.

In order for the commercialization of the depot process to proceed, however, it will be necessary to institute an ABC program in the depots, to assure that government funds are not subsidizing commercial businesses, especially contractors who are competing with one another for government contracts. In addition, commercialization will have some up-front costs. They would take the form of costs for the new (ABC) accounting system and the costs associated with

attracting business to the depots (e.g., advertising, transaction costs).

Lastly, there could be a concern about the government competing with private industry, which has been voiced over the past couple of years, as other government commercialization efforts have ventured into performing outside work. However, taking these considerations into account, it still seems that the most viable solution is for the Services to commercialize their depots. This effort should be achievable with minimum costs to the Services and should not receive significant private industry criticism if the process were handled as a cooperative versus a competitive venture with them.

Several of the DoD laboratories have pursued this strategy over the past few years, though not always successfully. So significant lessons can be gleaned from their efforts to commercialize their facilities, such as what media (e.g., trade shows, journals, etc.) have served as the best mechanism for attracting industry participation. Secondly, it may be easier to interest outside

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participants in having work performed at depots than in the laboratories, for depots deal with the basic process of manufacturing, rather than the more complex world of developing new systems and materials. The feasibility of this approach is exemplified by several initial efforts

where the depots have already formed contractual agreements to manufacture components for industry (Kopp, 1998).

How do we avoid criticism from private industry? If the projects brought into the depot are cooperative ventures with private industry, rather than competitions with them, criticism should be minimized. These cooperative ventures could also offer significant cost benefits to industry, for, as mentioned earlier, depots have been successful in their competitions with private industry, winning 67 percent of the

competitions, and with costs averaging 40 percent less (GAO, April 1996).

Commercialization of military depots would seem to be a viable solution to the problem of increasing overhead costs and underuse of depot facilities. The commercialization of the depots could also provide both industry and universities with several benefits, such as an applied engineering program, advanced manufacturing knowledge, and state-of-the-art laboratory and manufacturing resources.



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