

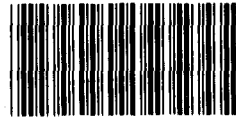
GAO

Report to the Chairman, Subcommittee
on Defense, Committee on
Appropriations, U.S. Senate

May 1991

ADP ACQUISITION

Defense Logistics Agency Has Not Justified Need for Additional Computer



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Information Management and
Technology Division

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May 23, 1991

The Honorable Daniel K. Inouye
Chairman, Subcommittee on Defense
Committee on Appropriations
United States Senate

Dear Mr. Chairman:

This report responds to your October 1990 request that we review the Defense Logistics Agency's (DLA) efforts to procure a large mainframe computer for its Columbus, Ohio, Information Processing Center. As agreed, we assessed whether the agency had adequately justified the need for the additional computer. Appendix I details our objectives, scope, and methodology.

Results in Brief

DLA has not justified the need to acquire another computer, estimated to cost about \$7.8 million, for its Columbus processing center. About half of the estimated work-load requirements used to justify this planned procurement are not supported. Using the same method DLA used to measure capacity, we found that the requirements that are supported can be met by existing computers at the Columbus processing center. Furthermore, the computers at Columbus could even handle the unvalidated work load, should it materialize, and computers at DLA's Boston and Philadelphia field locations could be used to handle unforeseen requirements.

Background

DLA established the Columbus processing center in 1988 to support consolidation of its payroll and Defense-contract payment systems. Prior to this, the payroll system was run at each of DLA's 23 field offices, and the contract payments system was run at 9 of these offices. By July 1991 DLA will have consolidated all contract and payroll payments work load onto four mainframe computers at the Columbus processing center, except for the payments work load processed at its Boston and Philadelphia field locations. Agency plans call for this work load to be transferred to Columbus by the end of 1993. At that time the Boston and Philadelphia computers will be released to surplus.

In 1990, DLA estimated its work load would increase when its Defense Contract Management Command assumed responsibility for processing Defense-contract payments made by the military services. DLA then

determined that an additional computer was needed to handle the increased work load and planned to release a Request for Proposals in January 1991, with the contract to be awarded in April 1991. A total of \$7.8 million was budgeted from DLA's fiscal year 1992 procurement appropriation request for this computer. In April 1991, senior agency officials said they had delayed initiating the procurement to reconsider the size of the computer that the agency would purchase. They projected a contract award date in the summer of 1991.

Additional Computer for the Columbus Processing Center Not Justified

Although the agency used an acceptable measure of computer capacity for its International Business Machines (IBM)-compatible computers, the capacity study done to support an additional computer contained invalid assumptions that resulted in overestimates of future work load.

Capacity Measure Used Is Adequate

We examined the method that DLA's Systems Automation Center used to measure the processing capability of the agency's computers. The agency used a generally accepted measure of computer processing power for IBM and IBM-compatible computers called a Machine Service Unit (MSU) rating.¹ This rating, together with actual transaction processing data, allows capacity management personnel to estimate the potential hourly transaction processing capability of each mainframe computer. Using this measure, the four mainframe computers at the Columbus processing center were rated as capable of processing over 222,000 transactions per hour. Two similar computers at the agency's Boston and Philadelphia field offices together were rated as capable of processing over 112,000 transactions per hour.

Future Work Load Is Overestimated

The DLA Systems Automation Center, which prepared the computer capacity study to support an additional computer, estimated the Columbus processing center needed another computer that could handle over 77,000 additional transactions during its highest peak-hour of processing. However, we found support for only about 40,000 peak-hour transactions. DLA's overestimate of required computer capacity was based on three factors:

¹An MSU is a measure of computer capacity per unit of time used in the IBM and IBM-compatible mainframe environment. MSU's are based on a table of ratings produced by vendors of performance and tuning software. These ratings are used because they represent an across-the-board evaluation of IBM and IBM-compatible mainframes on the market.

- The agency assumed that the Columbus processing center computers would be processing Defense-contract payment transactions, now processed on Air Force computers. However, a March 1990 user agreement between the Air Force and DLA says the Air Force will continue to process these transactions at Wright-Patterson Air Force Base in Dayton, Ohio, for another 2 to 4 years. This assumption overstated the average peak-hour processing work load by 23,800 transactions.
- The agency used inappropriate historical data to estimate the contract payment transactions that would be handled by the new computer. Future work load for DLA's smaller contract management field offices were estimated using historical data from larger field offices. This overstated average peak-hour processing work load by about 13,400 transactions.
- The agency assumed that all high peak-hour user demand from its 23 field locations around the country occurs at the same time for both payroll and contract payment transactions regardless of the user's geographic time zone. This unrealistic assumption contributed to the overestimates cited above.

DLA officials responsible for the capacity study offered a number of reasons for using the above assumptions. They stated that Air Force requirements were used when it first became known that DLA would be taking over the Air Force contract payment functions. However, DLA did not adjust the computation when its Defense Contract Management Command and the Air Force later agreed to continue processing this work load on Air Force computers for another 2 to 4 years.

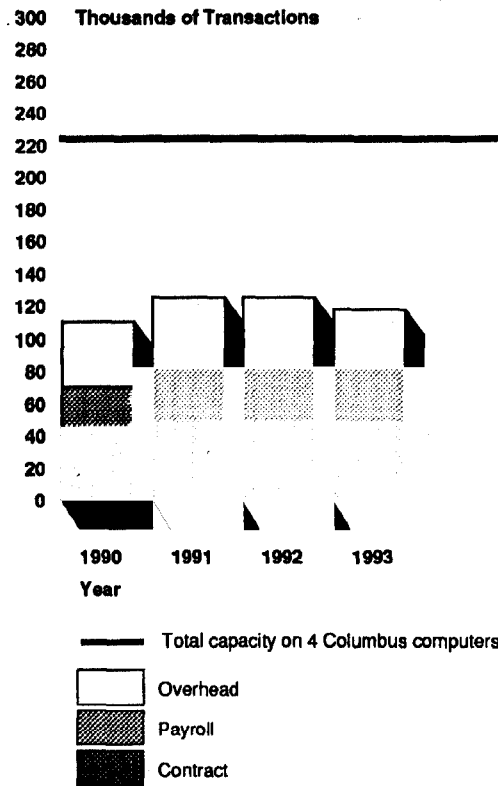
DLA officials said they used historical work-load data for its larger field office locations to represent the Air Force work load to be conservative and to provide capacity for unanticipated additional requirements. They also said they assumed all high peak-hour on-line transactions would occur at the same time, regardless of geographic time zone, as another means to keep their estimate conservative and to allow for additional unknown requirements. However, actual historical data on contract payments for DLA's field locations and the Air Force were available at the time the capacity study was done. Furthermore, while an allowance for unanticipated requirements should be made, it should be based upon some logical rationale. In our opinion, the assumptions used by DLA were unrealistic for administrative and management systems such as these.

Available Capacity Is Sufficient to Handle Current and Projected Work Loads

The capacity study that was used to support the decision to purchase an additional computer did not assess whether increased work load could be processed with the unused capacity on the Columbus processing center computers. Absent this crucial analysis, the agency study did not show that an additional computer was needed.

In order to determine if future estimated contract and payroll payments work load would require an additional computer, we analyzed current and future work-load requirements and available computer capacity. We used the same generally accepted rating measure used by DLA for estimating computer processing capacity. We calculated the actual capacity used in 1990 and estimated capacity that would be used for 1991 through 1993, assuming that (1) the work load in the Boston and Philadelphia field locations was transferred in 1993 to the Columbus processing center as planned, and (2) the increased work load that we could validate materialized. This analysis showed that utilization of the Columbus processing center computers would increase from about 25 percent of total capacity in 1990 to about 52 percent in 1993. Figure 1 shows the results of our analysis.

Figure 1: Total Capacity Versus Current and Projected Work Loads (Transactional Equivalent Per Hour)



The drop in overhead for 1993 is due to having fewer computers performing the overall work load. DLA officials indicated that in 1993 the Boston and Philadelphia work load will be transferred onto the Columbus processing center computers.

Even if the future estimated work load that we could not validate materialized, only 63 percent of total capacity would be used in 1993. Furthermore, additional unforeseen requirements could be processed on the Boston and Philadelphia computers that are not scheduled to be released to surplus until 1993.

Conclusions

We believe DLA has not justified buying an additional computer for the Columbus processing center. A multimillion dollar commitment for an additional computer should not be made unless there is a solid base of information on which to make an informed decision. The agency's current and projected work loads, which we believe to be overstated, can be met by the existing capacity of computers at the Columbus processing

center. Furthermore, if future work load increases beyond that projection, additional capacity would still be available on agency computers at the Boston and Philadelphia field offices.

Recommendations

We recommend that the Secretary of Defense instruct the Director, DLA, to cease procurement actions for additional computer capacity for the Columbus, Ohio, Information Processing Center, until the agency

- validates its anticipated work loads, and
- assesses its current and future work loads against all available capacity when justifying future procurements.

In accordance with your office's wishes, we did not obtain official agency comments on a draft of this report. We did, however, discuss its contents with representatives of the Office of the Assistant Secretary of Defense for Command, Control, Communications and Intelligence; DLA's Assistant Director, Office of Information Systems and Technology; the DLA Comptroller; DLA Systems Automation Center officials; and Columbus processing center officials. Their views are included in this report where appropriate. We conducted our review between October 1990 and April 1991, in accordance with generally accepted government auditing standards.

As arranged with your office, unless you publicly release the contents of this report earlier, we plan no further distribution until 30 days from the date of this letter. At that time we will send copies to the appropriate Senate and House committees, and other interested parties. Should you have any questions or require additional information, please call me at (202) 275-4649. Other major contributors are listed in appendix II.

Sincerely yours,



Samuel W. Bowlin
Director, Defense and Security
Information Systems

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Figure 1: Total Capacity Versus Current and Projected
Work Loads (Transactional Equivalent Per Hour)

Abbreviations

ADP	automated data processing
DLA	Defense Logistics Agency
GAO	General Accounting Office
IBM	International Business Machines
IMTEC	Information Management and Technology Division
MSU	Machine Service Unit

Objective, Scope, and Methodology

In October 1990, the Chairman, Subcommittee on Defense, Senate Appropriations Committee asked us to review DLA's plans to procure an additional computer at DLA's Columbus, Ohio, Information Processing Center. Our objective was to assess whether the agency had adequately justified the need for an additional computer.

To assess the validity of DLA's requirements for an additional computer and determine if additional capacity was needed we,

- reviewed the study developed by DLA to justify additional computer processing capacity for its Columbus processing center;
- reviewed the utilization rates of the existing computers at the Columbus processing center, and the Boston and Philadelphia field offices responsible for Defense-contract payments;
- developed estimates of the computer capacity needed to handle the additional work load; and
- determined the feasibility of allocating additional work load to the existing computers at the Columbus processing center.

Further, to obtain the views of Defense and agency officials, we interviewed DLA's Office of Information Systems and Technology staff concerning the alternative approaches that were considered and the benefits associated with each alternative.

We derived our estimates of valid computer work load by using actual 1989 historical data for the contract payment offices identified in this report. The Air Force Acquisition Management Information System program office, DLA's Defense Contract Management Command, and the Secretary of Defense's Corporate Information Management program office were contacted to determine their participation in the DLA computer capacity study and the validity of DLA's plans to transfer Air Force contract management work load from Air Force to DLA computers.

Our review was conducted at the DLA System Automation Center and the Columbus Information Processing Center. Both of these centers are located at DLA's Defense Construction Supply Center facility in Columbus, Ohio. We also contacted the DLA Office of Telecommunications and Information Systems located at Cameron Station, Alexandria, Virginia, to discuss DLA's top management involvement and oversight of plans to procure an additional computer.

Appendix I
Objective, Scope, and Methodology

Our review was performed from October 1990 through April 1991. We conducted our review in accordance with generally accepted government auditing standards. We discussed the results of our analysis and the contents of this report with DLA officials and have reflected their views in the report where appropriate.

Major Contributors to This Report

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