



COMPTROLLER GENERAL OF THE UNITED STATES  
WASHINGTON, D.C. 20548

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JUN 01 1976

- C1 The Honorable John E. Moss ✓
  - C2 The Honorable Charles Rose ✓
- House of Representatives

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The December 4, 1975, letter from you requested that we obtain information concerning the "sole brand and model" acquisition by the Veterans Administration (VA) of an International Business Machines Corporation (IBM) 370-168 computer for the VA data processing center at Hines, Illinois. VA intends to lease the computer, which was installed on May 3, 1976, subject to final acceptance, from IBM for 36 months at a cost of about \$3.8 million, exclusive of certain peripheral equipment being acquired under a separate contract. VA plans to use the computer to assist in processing veterans' compensation, pension, and education claims until the proposed TARGET system, an advanced communications-based system currently being developed to replace the existing payment systems, has been fully implemented.

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We reviewed correspondence and other documentation prepared by VA, as well as a private consultant's study, justifying the acquisition of a sole brand and model computer. We also discussed the matter with officials at the VA central office and the Hines center.

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[We believe VA's decision to consider only an IBM-brand computer was reasonable. Transition to the interim system, which is intended to serve VA's needs only until the summer of 1978 when the TARGET system is planned to be fully implemented, would be facilitated by avoiding the potentially difficult and time-consuming effort of converting existing IBM-oriented programs to non-IBM equipment. However, VA has not adequately justified its specific need for an IBM 370-168 computer. Over the past several months, changes have been made in current and planned computer processing at the Hines center; however, VA has not reassessed its needs to determine whether a less costly model, such as an IBM 370-158, would have fulfilled its requirements and has continued to rely on a November 1974 study by a private consultant to justify the acquisition.]

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JUSTIFICATION FOR ACQUISITION OF IBM 370-168

During the summer of 1974, VA identified a need to procure a large-scale computer system for the Hines center. The center is responsible for processing of data related to veterans' claims for compensation, pension, and education benefits and producing computer tapes used by the Treasury Department to generate benefit checks. According to VA, the new system was needed because of critically short computer capacity occasioned by continual statutory and crisis demands, increasing workloads, and the need for computer support in developing the proposed TARGET system.

3 VA request for Office of Management  
and Budget assistance 27

In August 1974 VA informed the Office of Management and Budget of its need, citing the critical situation at the Hines center. VA stated that it needed to lease, on a short-term basis, a large-scale computer system, having (1) complete compatibility with VA's existing systems--two IBM 360-65s and an IBM 7080--and (2) higher performance characteristics than the IBM 360-65 computer. VA told the Office of Management and Budget it intended to hire a consultant to evaluate the current computer processing environment and needs at the Hines center. However, to reduce the time required to complete procurement, VA requested assistance in obtaining a Delegation of Procurement Authority from the General Services Administration.

The Office of Management and Budget denied the request, stating that General Services Administration policy precludes issuing a Delegation of Procurement Authority until the requirement for additional equipment has been completely developed and that Office of Management and Budget concurrence before VA validated the proposed procurement would be inconsistent with that policy. The Office of Management and Budget suggested that VA carefully evaluate the size of the equipment required and the feasibility of lower-cost alternatives.

Tests of IBM 370-168

In August 1974 VA advised IBM of its desire to test selected compensation and pension and/or education system programs on an IBM 370-168 computer system. The objective was to develop running times for comparison with the times required to process the same programs on the

IBM 360-65s at the Hines center. VA informed IBM that, after a complete test had been successfully run, a rerun for observation by a private consultant would be scheduled to provide an objective evaluation. VA did not request tests of any other computer models.

Review by private consultant

In October 1974 VA awarded a contract to a private consultant to include an evaluation of computer resources at the Hines center. The consultant's November 1974 report recommended that VA procure an IBM 370-168 to replace one of the existing IBM 360-65s and the IBM 7080. The three options considered were to (1) continue with the present configuration, (2) replace one IBM 360-65 and the IBM 7080 with an IBM 370-168, or (3) replace both IBM 360-65s and the IBM 7080 with two IBM 370-168s. The report considered no computer models other than an IBM 370-168 and the existing IBM 360-65s. The consultant's recommendation was based primarily on the following considerations.

--The IBM 370-168 has a much greater processing speed than the IBM 360-65. The tests indicated that programs could be expected to run 3.5 to 5.5 times faster on an IBM 370-168. Thus, the IBM 370-168 met VA's criterion that the new equipment perform better than existing equipment, but VA made no apparent attempt to determine how much increase in speed was required.

--The IBM 370-168 could be equipped with a special feature--an IBM 7080 integrated emulator--not available on other IBM models currently in production. An emulator enables a computer to execute a program written for an earlier, or dissimilar, computer. At the time of the consultant's study, many of the programs used at the Hines center were written for the IBM 7080. Although the IBM 360-65 has IBM 7080 emulation capability, operation in that mode requires that the computer be dedicated to processing the program being emulated, preventing concurrent processing of other programs. The integrated emulator permits processing of programs written for the IBM 370-168 concurrently with an IBM 7080 program being emulated, greatly increasing workload capacity. According to officials in VA's Department of Data Management, the integrated emulation capability of the IBM 370-168, which would cost about \$141,000 during the term of the lease, was an important

consideration in their determination to acquire that particular model.

HARDWARE AND SOFTWARE CHANGES;  
REVISION OF PLANNED WORKLOAD DISTRIBUTION  
AND PROCESSING FREQUENCY REQUIREMENTS

In determining computer requirements, the consultant relied on a number of assumptions concerning the processing environment at the Hines center and the distribution of workload planned for the new configuration. Since that time, significant hardware and software changes have been made, and the planned workload distribution and processing frequency requirements have been revised.

In May 1975 the Department of Data Management established a task force to review the computer processing environment at the Hines center and identify actions to improve the current situation. One important action resulting from the task force's efforts was the conversion of the programs used at the Hines center (except those related to the vocational rehabilitation and education system) from IBM 7080 mode to a language compatible with the IBM 360 and 370 computers. The conversion enables VA to take greater advantage of the IBM 360-65's capability to process several programs concurrently and permits such concurrent processing on an IBM 370-168 without the integrated emulator feature. More importantly, other less costly IBM computer models not capable of being equipped with the emulator would be able to concurrently process the converted VA programs. The workload proposed for the remaining IBM 360-65 at the Hines center indicates that it could absorb vocational rehabilitation and education system processing.

VA was aware in September 1975--4 months before issuing the Request for Proposals for the interim system--that the IBM 7080 programs would be converted before the anticipated installation of the IBM 370-168.

Other actions taken as a result of the task force's efforts included:

- Acquiring faster core storage for the IBM 360-65 to replace previous storage, thereby increasing processing speed.
- Removing about 1 million inactive records from the education system master file volume, thereby reducing processing time requirements.

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--Reducing the number of magnetic tapes needed for compensation and pension and education system master files by acquiring higher-density magnetic tapes and drives, thereby also reducing processing time requirements.

--Greatly reducing the core storage previously needed for the education system main program.

VA also revised the planned workload distribution by deciding to use the IBM 360-65 to support TARGET system development rather than the IBM 370-168, as previously assumed by the consultant in determining processing requirements for the new computer.

[The consultant based its recommendation that VA acquire an IBM 370-168 in part on the assumption that education system processing frequency would be increased from 2 to 5 cycles per week, or from 8 to 20 cycles per month. However, officials in VA's Department of Veterans Benefits and Department of Data Management informed us that agreement had been made to run six cycles of education system processing per month and indicated that such a frequency would meet minimum requirements, i.e., handle the normal workload. Therefore, the assumption in the consultant's report that a processing frequency of 20 education system cycles per month would be required was greatly overstated.]

In our opinion, the revision of the planned workload distribution and processing frequency requirements and the changes described above alter the computer processing environment anticipated at the time of the private consultant's study.)

[According to Department of Data Management officials, it would be difficult to quantify the effects of the recent changes.) Although they acknowledged that the private consultant's study was the primary justification for acquiring an IBM 370-168, they expressed the opinion that performance improvements since that time have not warranted further studies of the equipment needs at Hines. The officials also cited the increase in workload since the consultant's report as support for not reassessing their needs. [VA has not determined the specific performance characteristics required to support the increased workload.]

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[The Department of Data Management also advised us that, although other computer models might be able to meet the requirements, it was acquiring such a large machine in order to provide for all eventualities.] To illustrate the impact that selection of a less costly computer model would have, the next most powerful IBM computer below the one acquired is an IBM 370-158, which would cost VA about \$1.2 million less over a 3-year period.

#### ACQUISITION OF IBM 370-168

4 A Request for Proposals for an IBM 370-168 was issued by VA on January 29, 1976, and the General Services Administration granted a Delegation of Procurement Authority on March 10, 1976. The contract was awarded to IBM, the only bidder, on March 11, 1976. 13

The IBM 370-168 was installed, subject to final acceptance, at the Hines center on May 3, 1976. [The lease provides for replacing the computer with a less costly model at any time during the term of the contract. Such a downgrade would decrease the monthly lease charge, although VA would incur an initial charge for the replacement action.]

#### CONCLUSIONS

VA's decision to consider only an IBM computer was reasonable; however, it did not adequately justify the acquisition of a specific computer.

VA has relied primarily on a private consultant's November 1974 evaluation of the computer resources at the Hines center to justify the procurement of an IBM 370-168. The consultant's study was based on certain assumptions concerning the computer processing environment and the planned distribution of workload at Hines. However, as a result of recent computer hardware and software changes and revision of the planned workload distribution and processing frequency requirements, many of the original assumptions appear no longer valid. In particular, conversion of most programs previously written for the IBM 7080 to IBM 360-370 series mode eliminates the need for the integrated emulator feature and, more importantly, indicates that a sole-model procurement was not justified. Despite these changes, VA has not made any subsequent studies to verify the need for an IBM 370-168 as opposed to other less costly IBM models.

Because of the recent changes affecting the computer processing environment at Hines, we believe that VA should have reassessed its equipment requirements to determine whether less costly computer models would have satisfied the interim needs until the TARGET system is implemented. Since such a study was not made and since the contract provides for model downgrades, we believe that VA should study the requirements for an interim system to ascertain whether a more cost-effective configuration is indicated.

RECOMMENDATIONS TO THE  
ADMINISTRATOR OF VETERANS AFFAIRS

R [ We recommend that the Administrator initiate a study to (1) determine the specific computer performance characteristics required at the Hines center and (2) relate these characteristics to the capabilities of an IBM 370-168 and other IBM computer models. We also recommend that, if the study indicates a more cost-effective configuration is warranted, the Administrator have the IBM 370-168 removed and install the configuration indicated. ]

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As requested, the Veterans Administration has not been asked to formally comment on the information contained in this report; the contents of the report have, however, been discussed with VA central office officials, and their comments, where appropriate, have been considered.

As you know, section 236 of the Legislative Reorganization Act of 1970 requires the head of a Federal agency to submit a written statement on actions taken on our recommendations to the House and Senate Committees on Government Operations not later than 60 days after the date of the report and to the House and Senate Committees on Appropriations with the agency's first request for appropriations made more than 60 days after the date of the report.

As you are aware, the Senate Committee on Veterans' Affairs and the Subcommittee on HUD-Independent Agencies, House Committee on Appropriations, have also expressed interest in receiving copies of this report. We also believe that the Office of Management and Budget and the General Services Administration should receive copies.

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We will be in touch with your office in the near future to arrange for release of the report to all interested parties and to set the requirements of section 236 in motion.

*A. J. Kellum*  
ACTING Comptroller General  
of the United States