

GAO

Report to the Chairman, Subcommittee on  
Defense, Committee on Appropriations,  
House of Representatives

March 1989

## ADP SYSTEMS

# Army Decision to Use Air Force Military Pay System Appears Advantageous



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

**Information Management and  
Technology Division**

B-231233

March 1, 1989

The Honorable John P. Murtha  
Chairman, Subcommittee on Defense  
Committee on Appropriations  
House of Representatives

Dear Mr. Chairman:

On September 15, 1988, your predecessor requested information on our ongoing review of the Army's military pay redesign project. He was particularly interested in how well the Army was managing the project, and the possibility of the Army adopting the Air Force pay system instead of continuing the redesign project.

The Army's redesign of its pay system was started in 1980 and was intended to replace the Army's Joint Uniform Military Pay System (JUMPS) that is used to pay active and reserve members. In July 1988, the Army estimated that the redesign project would cost about \$82 million (developmental costs only) and be fully operational in 1993. During the course of our work in the spring of 1988, we became concerned that the Army had not adequately considered using an existing military pay system as an alternative to a total redesign, as required by Department of Defense policy. At your predecessor's request, in April 1988 we provided information on the status of the project for the fiscal year 1989 congressional budget process. We also discussed our concerns about the management of the project with the Army in May 1988.

In June 1988, the House Appropriations Committee recommended a \$12-million reduction in the fiscal year 1989 appropriation request until the project was reviewed by Defense. Prior to final budget action by the House and Senate, the Under Secretary of the Army directed that a task force study the feasibility of adopting the Air Force military pay system. The task force concluded that adopting the Air Force's pay system (rather than continuing the redesign project) would substantially reduce costs, shorten development and implementation time, and reduce the risks associated with a major redesign. The Under Secretary was briefed on a recommended implementation approach on November 21, 1988, and made the decision to implement the Air Force pay system for both the active Army and reserve components. On that same date, the Under Secretary sent a letter to the Chairman, House Committee on Appropriations, notifying him of the decision.

On the basis of our discussions with the head of the Army task force and Air Force officials, and a review of numerous Federal Managers' Financial Integrity Act and Air Force Audit Agency reports on the Air Force system, the Army's decision to adopt the Air Force system, if properly implemented, offers significant advantages such as lowering development and operating costs, and shortening implementation and development time schedules. In addition, the use of a single pay system by both services is in line with Office of Management and Budget and Department of Defense objectives to reduce the number of pay systems within Defense.

Our review, which began in November 1987, was undertaken to evaluate the Army's compliance with life cycle management principles and requirements established by applicable federal standards and Defense regulations. During the review we identified a number of concerns in these areas, which are outlined in this report. However, we believe that the risks associated with the Army's military pay redesign have been substantially reduced by the Army's decision to adopt the Air Force military pay system.

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## Background

The current Army JUMPS was designed in the late 1960s. According to Army officials, while it has been improved and upgraded several times, it is considered inefficient and obsolete.

In 1980 the Army developed a strategic plan to improve Army military pay administration. The plan called for a major modernization of the Army JUMPS for both active duty and reserve components, and central control over other Army pay functions such as West Point, Reserve Officers Training Corps, and the Health Services Professions Scholarship Program. In January 1982, a mission element need statement—the primary document to initiate an automated system development effort in Defense—was approved by the Assistant Comptroller of the Army for Finance and Accounting. This document cited specific deficiencies and concluded that to correct these deficiencies, the Army's military pay system needed to be completely redesigned.

These deficiencies were noted:

- System maintenance and enhancements were backlogged because of equipment limitations.
- Managerial information was not automated.
- Programs were extremely complex and difficult to maintain.

- The system did not interface with other systems.
- Bonuses were not paid and accounted for at a central location, as required by Defense directives.
- Reserve component pay was fragmented, not totally automated, and therefore difficult to administer and control.
- Final separation payments were not centralized, as required by Defense directives.

The November 1980 strategic plan estimated that the redesign project would be completed in September 1984 at a cost of \$14.6 million. An economic analysis approved in August 1982 increased the estimate for the redesign project development to \$15.5 million, with implementation in fiscal year 1986. Between 1982 and 1988 the Army's cost estimates continued to increase as completion target dates slipped. As of July 1988, the Army estimated the development costs to be \$82 million, and the target date for system implementation to be September 1993.

## Concerns With Management Practices in the Redesign Project

Several deviations from life cycle management requirements and principles became evident during our review, as did potential developmental problems. These included the following:

- The Army could not provide documentation to support several milestone extensions, cost increases, and a major change in the project's direction. Such documentation (system decision papers, economic analyses, and other approval documents) is required by Defense directives and Army technical bulletins.<sup>1</sup>
- Department of Defense (DOD) Directive 7920.1 requires review by the Office of the Assistant Secretary of Defense (Comptroller) for projects whose total costs, through full implementation, exceed \$100 million. Defense components are required to inform the Defense Comptroller when a project meets these criteria. The redesign project did not receive such a review, even though Army documents show that total project costs through final site implementation (including \$82 million in development costs) would have been about \$110 million. Project officials indicated that they did not think they had to inform the Defense Comptroller until development costs—rather than total project costs—exceeded \$100 million.
- As mentioned, part of the redesign project involved centralizing several Army pay functions such as West Point, Reserve Officers Training

<sup>1</sup> A system decision paper provides the primary documentation for obtaining approval of major decisions at milestone points during the development of a system.

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Corps, and the Health Services Professions Scholarship Program. Centralization of these functions, however, was not substantiated on the basis of mission need or operational deficiency, as required by Army Technical Bulletin 18-100.

- Since 1986 the Army has been reporting to the Assistant Secretary of Defense (Comptroller) that the project had completed the concept development phase, when in reality it had not. Army project officials indicated that since the pay redesign involved modernizing an existing automated information system, there was confusion on how to report the project's status in terms of its life cycle phase.
- Army Finance and Accounting Center officials indicated that they planned to implement the military pay redesign in functional increments, whereby the replacement functions would be required to work with the existing JUMPS. However, these officials admitted that there was not a one-to-one relationship between the replacement functional increments and the individual computer programs in the existing Army system. Army officials acknowledged that this was a complex situation with a considerable degree of uncertainty, however, they felt that the replacement functional increments could be linked to the existing system through what they called bridges. The deputy commander in charge of software development for the finance center indicated that to his knowledge the technique has never been tried, however, he believed it would be successful. In our view, using an unproven implementation technique on a project the size and complexity of the Army's pay redesign would have significantly increased the risk that target dates and cost estimates would not be met.

Additionally, DOD Directives 7220.9-M and 7920.1, and DOD Instruction 7920.2 collectively require that alternatives to a redesign, such as the use of commercially available software or existing systems, must be considered and documented in the mission element need statement, system decision papers, and economic analyses. However, according to our review of available records and discussions with responsible Army officials, any consideration of alternatives to redesign was not documented.

In May 1988 Army officials indicated, in response both to our inquiries and to questions raised by the Subcommittee in April, that they considered using the Air Force system but rejected it because it was not cost effective. These officials pointed to a 1981 Army study (and a 1984 update) that compared specific functions of the Army and Air Force military pay systems. However, according to the study report, the major reason for initiating the comparison was to determine why the Army's pay system was much more labor intensive than the Air Force's, not to

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determine the feasibility of adopting the Air Force system as an alternative to redesign. For example, the report did not include functional, technical, or cost analyses needed to consider adoption of the Air Force pay system. Furthermore, the study focused on field operations and did not include a detailed analysis of pay operations at the two finance centers. This type of analysis would have been necessary to reach a conclusion regarding the feasibility of adopting the Air Force system.

Additionally, it is important to note that the Army study showed that the Air Force system offered major advantages to the Army's system. For example, the study concluded:

- The Air Force's field network was accomplishing its pay mission much more cost effectively than the Army's field network.
- The Air Force JUMPS was technologically ahead of the Army's JUMPS.
- The Army's cost to manually control its pay system was "enormous" compared with the Air Force's computer controls.

Even with these apparent advantages, project documentation provided to us did not identify the Air Force pay system as an alternative to redesign. Finally, a technical analysis was not made to determine if the Air Force system could be modified and used by the Army.

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## House Appropriations Committee Recommends Reducing the Army's Fiscal Year 1989 Military Pay Redesign Funding

As part of our annual budget analysis work, in April 1988 we provided the Subcommittee staff with information about the Army's failure to adequately consider existing pay systems as an alternative to the redesign project. Subsequently, as part of the 1989 budget hearings, the Subcommittee asked the Army to explain its rationale for the redesign project. The Army responded that it had fully evaluated the use of the Air Force military pay system as an alternative to redesign but had rejected it on the grounds that it was not cost effective.

We analyzed the Army's response and again sought documentation to support the Army's position. The Army could not provide any additional data to support its rejection of the Air Force pay system as "not cost effective." In April and May 1988, we informed the Subcommittee and the Senate Appropriations Committee, Subcommittee on Defense, about this lack of support. On the basis of this information the House Appropriations Committee recommended a \$12-million reduction in the

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Army's operations and maintenance account request for fiscal year 1989.<sup>2</sup>

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### Under Secretary of the Army Directs New Study of Air Force Pay System

Following the House Appropriations Committee's action, the Under Secretary of the Army, on June 3, 1988, created a task force to analyze the feasibility of adopting the Air Force military pay system.

The report on this effort indicates that adopting the Air Force military pay system offers numerous advantages over the Army's redesign project. The task force findings indicated:

- Ninety-five percent of the objectives set for the Army's redesign project would be achieved by adopting the Air Force system.
- Substantial cost savings would be realized. These included about \$17 million in development costs, and about \$3 million in communications and maintenance costs. Additionally, initial estimates indicate that between 400 and 1,000 personnel slots would be eliminated. Using the Army's cost per staff year, we calculate this will result in operating cost savings of between \$6.8 million and \$16.9 million annually.
- The risks associated with developing a new system would be substantially reduced by adopting a previously developed system.
- The method of system operation used by the Air Force at the field level is readily adaptable to Army battlefield conditions. According to Army officials, this was a major requirement for a new Army pay system.
- Implementation time frames would be reduced. Current Army estimates indicate that the redesign project would not be implemented until late 1993. In contrast, the task force estimates the Air Force system could be implemented in 1990.

The task force results prompted the Under Secretary, in July 1988, to make a tentative decision to adopt the Air Force military pay system in lieu of continuing the Army's redesign project. The final decision to adopt the Air Force system was made on November 21, 1988.

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<sup>2</sup>The \$12-million reduction recommendation by the House was included in a general reduction recommendation of \$24.3 million for automated data processing systems from the Army's request of \$22.1 billion in the operations and maintenance account. Following the Army's tentative decision to implement the Air Force system in July 1988, House and Senate conferees indicated that they were pleased with this decision and, accordingly, agreed to revise the reduction for automated data processing systems from \$24.3 million to \$18 million.



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**Adopting the Air Force  
Military Pay System  
Offers Additional  
Advantages**

The Army's adoption of the Air Force pay system should result in other important benefits for the Army. The Federal Information Resources Management Regulation (41 C.F.R. 201-7.203) requires that mission-essential systems have a fully tested backup site included in the system contingency plan. Adoption of identical software would offer the Army and the Air Force the opportunity to consider using their respective operational sites as backup.

The Army estimated that software maintenance costs for the life cycle of the redesigned system would be \$68.7 million. These costs should be substantially reduced, because both services will be using the same centrally maintained software. For example, programming expenses will be reduced because a single programming staff at the Air Force Accounting and Finance Center will make necessary changes for both the Army and Air Force automated pay system.

A goal under the Office of Management and Budget's 1989 management improvement program report is to reduce the number of service-unique automated pay systems. The joint use of a centrally maintained pay system by the Army and the Air Force will help achieve this goal.

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Our work was conducted from November 1987 to December 1988 in accordance with generally accepted government auditing standards. Our objectives, scope, and methodology are contained in appendix I. At your predecessor's request we did not obtain formal agency comments on this report. We discussed the results of our work with Defense and Army officials and incorporated their views where appropriate. These officials generally agreed with our findings. Further, they indicated that the military pay redesign project resulted in some benefits that will continue, even with the adoption of the Air Force system, such as the centralization of other Army military pay functions.

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We are sending copies of this report to the Deputy Secretary of Defense, the Secretary of the Army, and the Secretary of the Air Force. We will also make copies available to other interested parties upon request.

This report was prepared under the direction of Mr. William S. Franklin, Associate Director. Other major contributors are listed in appendix II.

Sincerely yours,

A handwritten signature in black ink that reads "Ralph V. Carlone". The signature is written in a cursive style with a large, prominent "R" and "C".

Ralph V. Carlone  
Assistant Comptroller General



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# Objectives, Scope, and Methodology

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We began this review of the Army's military pay redesign project in November 1987. Our review objective was to determine if the Army was managing this project in accordance with life cycle management principles and requirements as established by federal standards and applicable Department of Defense (DOD) and Office of Management and Budget regulations, directives, instructions, and bulletins. On September 15, 1988, the former Subcommittee Chairman requested that we provide the Subcommittee staff with information on the results of our review and direct our final report to him.

The majority of the work was performed at the U.S. Army Finance and Accounting Center, Fort Benjamin Harrison, Indiana. We reviewed life cycle management requirements as established by federal standards and Defense and Army regulations, and as implemented by DOD and the Army, to use as a baseline criterion. To determine the history of the redesign effort, its scope, cost, time frames, and justification, we examined and analyzed available planning documents, requests for funding, memorandums of agreement among senior Army officials, and tasking documents assigning responsibilities to organizations and individuals. We obtained and analyzed life cycle management documents. To clarify information contained in these documents, and to determine the adequacy of the project's management, we met with the Army's Director of Finance and Accounting, the military pay redesign program manager, the chief of the military pay redesign, the chiefs of the Systems Interface and Systems Management Divisions, and other officials at the Center. We also met with the head of the 1988 Army task force that studied the possible adoption of the Air Force pay system to obtain information on the group's study methodology and the results of their work.

In addition, we met with key Air Force officials at the Air Force Finance and Accounting Center, Denver, Colorado, to discuss software documentation, planned enhancements, and functional and systems-related actions necessary for the Army to implement the Air Force's military pay system. We also reviewed and analyzed Air Force Audit Agency and internal Financial Integrity Act reports to identify internal control weaknesses or technical problems.

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**Appendix I**  
**Objectives, Scope, and Methodology**

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In accordance with the former Subcommittee Chairman's wishes, we did not obtain formal agency comments on this report. Our work was conducted from November 1987 through December 1988, and was performed in accordance with generally accepted government auditing standards. We discussed key facts with Defense and Army officials and have incorporated their views where appropriate.

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