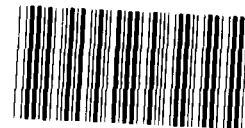

BY THE U.S. GENERAL ACCOUNTING OFFICE

Report To Senator Frank R. Lautenberg

The Federal Government Can Reduce Costs In The Development, Maintenance, And Operation Of Civilian Payroll Systems

During fiscal year 1982, federal civilian pay was disbursed by 75 different payroll systems, with many agencies operating more than one system. The operation of numerous payroll systems performing the same function results in unnecessary system development and maintenance expenditures. In addition, GAO's examination of nine systems found that annual operating costs ranged from \$52 to \$374 per person.

This report responds to Senator Lautenberg's concern that the federal government may be spending more than it should to process the civilian payroll. In the report, GAO recommends to the Office of Management and Budget ways to reduce both the number of payroll systems and the cost to develop, maintain, and operate these systems.



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UNITED STATES GENERAL ACCOUNTING OFFICE
WASHINGTON, D.C. 20548

ACCOUNTING AND FINANCIAL
MANAGEMENT DIVISION

B-211506

The Honorable Frank R. Lautenberg
United States Senate

Dear Mr. Lautenberg:

This report is in response to your October 14, 1983, letter in which you asked us to identify ways to reduce the number of civilian payroll systems and the development, maintenance, and operating costs associated with payroll. The report recommends the Office of Management and Budget take certain actions to reduce the number and operating costs of federal civilian payroll systems.

Copies of this report are being sent to the Senate and House Committees on Appropriations, the Senate Committee on Governmental Affairs, the House Committee on Government Operations, and the Director of the Office of Management and Budget.

Sincerely yours,

Arthur R. Goldberg for
Frederick D. Wolf
Director

D I G E S T

Senator Frank R. Lautenberg is concerned the federal government may be spending more money than necessary to process the civilian payroll. As a result, he asked GAO to identify ways to reduce the number of civilian payroll systems and development, maintenance, and operating costs.

Payment of the salaries of federal civilian employees is a common function currently shared by all government agencies. At the end of fiscal year 1982, the federal government employed about 2 million civilians (excluding the Postal Service) located in all 50 states and overseas, and disbursed about \$50 billion in salaries. Since each agency is independently responsible for payroll processing, many have developed one or more of their own payroll systems. Although each system pays similar groups of employees, using basic rules and regulations developed mainly by the Office of Personnel Management, the Department of the Treasury, and GAO, each payroll system is unique because of differing software, hardware, and system capabilities designed to meet various management needs.

In preparing this report, GAO collected information on the 75 civilian payroll systems in existence in October 1982, and studied the operating costs of 9 systems at 11 processing locations. The nine systems were selected to include systems of varying size to document the wide range of processing costs. (See app. IV.)

According to GAO, the cost of the payroll systems could be decreased if reductions were made in

--the number of payroll systems and

--the operating costs of ongoing systems.

GAO says the Office of Management and Budget (OMB) needs to conduct an ongoing study of payroll systems to significantly reduce the number of systems and their costs. (See pp. 26-27.)

REDUCING THE NUMBER OF FEDERAL
CIVILIAN PAYROLL SYSTEMS CAN
RESULT IN SUBSTANTIAL SAVINGS

The number of payroll systems can be reduced in numerous ways, including development of a standard payroll software package for all federal agencies (which could result in a single system processed at numerous locations) or establishment of several regional processing centers to administer the federal payroll function, or both. These actions could be effective in the future after overcoming the barrier of agencies' interest in maintaining unique payroll systems and different computer hardware systems. However, two actions could be taken now to reduce the number of payroll systems. They are consolidation of the multiple systems that exist within a single agency (12 agencies operate a total of 47 systems) and a requirement that small, costly payroll systems obtain payroll services from larger, more cost-effective systems that can handle the additional workload.¹ (See p. 7.)

In line with this idea, OMB announced on November 15, 1983, it would require all agencies with fewer than 200 employees to obtain payroll services from the General Services Administration, and those with 200 to 5,000 employees to obtain payroll services from larger, more cost-effective systems. (See p. 15.)

If the number of federal civilian payroll systems was decreased, substantial savings could result from reduced system development and maintenance costs. Seventy-three of the 75 payroll systems are automated and have computer software for processing the payroll. This software, like any other, has an 8- to 10-year life including development, and operation and maintenance phases.

Payroll system managers and GAO estimate that from fiscal years 1983 through 1987 the agencies plan to spend about \$215 million in software development efforts alone, averaging about \$3 million per system. Government and private sector software experts have estimated that over the software's life cycle, maintenance costs can contribute up to 70 percent of the software's total costs. (See p. 13.) Therefore, if the number of payroll systems were reduced, fewer development efforts would

¹GAO defines systems paying over 100,000 employees as large, 5,000-100,000 moderate, and under 5,000 small.

occur, and expected costs would decrease. In other words, a fewer number of systems would lower the recurring software development and maintenance costs.

Some agencies, such as the Departments of Interior and Commerce, have already reduced the number of payroll systems and have projected significant savings and other benefits, including improved ability to audit the payroll function.

PAYROLL SYSTEM OPERATION COSTS
VARY WIDELY AND CAN BE REDUCED

Operating costs for federal payroll systems vary widely. These costs are associated with processing approved time and attendance data through the preparation of certified payroll schedules for payment by the Department of the Treasury or by the military services for Defense Department civilians. For example, in the nine federal civilian payroll systems that GAO reviewed, the annual operating costs ranged from \$52 to \$374 per person. (See p. 18.) The key factors responsible for this variation in costs were (1) payroll processing practices and (2) payroll system size. The practices noted often related to the staffing of the payroll function, such as larger than average numbers of payroll technicians in decentralized systems and systems with many manual functions. (See p. 19.)

GAO noted that the systems with the lowest operating costs and greatest productivity tended to have the greatest workload and benefitted from efficiencies of scale. (See p. 21.) GAO found that if the eight higher cost systems it examined could have processed payroll at the unit cost of the lowest cost system, about \$10.8 million could have been saved in fiscal year 1982. (See p. 19.)

Another way to identify opportunities to reduce payroll costs is a comparison of current payroll processing performance with the services offered by private contractors. Federal agencies, particularly those paying fewer than 5,000 employees that tend to have payroll systems with higher processing costs, should be encouraged to use OMB Circular A-76 cost comparisons to determine if private contractors can meet all or part of their payroll processing needs at reduced costs. (See pp. 22-23.)

A CENTRAL FOCUS IS NEEDED WITHIN
GOVERNMENT TO REDUCE PAYROLL COSTS

Since federal agencies do not independently have strong incentives to reduce the number of payroll systems or their operating costs, OMB needs to take certain actions. According to GAO, a central focus for government payroll systems is needed to examine the issue from a governmentwide perspective and

--work with departments and agencies to reduce the number of payroll systems,

--monitor and reduce payroll processing costs and improve productivity,

--monitor payroll systems development proposals, and

--assist agencies to keep their systems in compliance with the changing federal rules and regulations. (See pp. 15-17.)

OMB has recently begun to examine opportunities for reducing payroll system costs as part of Reform '88--the administration's effort to streamline the management and administrative systems of the federal government--and under a new OMB bulletin on administrative systems. In addition, a recent OMB policy memo said the agency has decided to eliminate small federal payroll systems. Since OMB is already involved in this area, and it largely controls agency funding for system development, it is the most appropriate agency to assume this responsibility. GAO believes OMB should follow through with its recent initiatives and take additional actions to reduce payroll system costs and decrease the number of federal civilian payroll systems. These actions will require a long-term commitment since consideration must be given to costs expended to develop existing systems as well as the needs and requirements of the agencies involved. (See pp. 23-24.)

RECOMMENDATIONS

GAO recommends the OMB Director promote reduction in the costs of civilian payroll systems by:

--(1) developing unit operating cost standards for payroll systems, (2) requiring agencies to identify operating costs for their payroll systems, and (3) requiring high-cost systems to meet the standard or convert to or merge with another system and

--ensuring that all departments and agencies can obtain technical advice and assistance regarding the development, maintenance, and operation of payroll systems.

For the long term, the OMB Director should establish a mechanism with departments and agencies to:

--Determine the appropriate number of civilian payroll systems the government should operate.

--Develop a plan for moving existing systems toward this number.

--Review, coordinate, and approve all payroll system development proposals in light of the plan for future systems and the operating cost standard. (See p. 26.)

AGENCY COMMENTS

In formal comments on a draft of this report, OMB agreed with GAO's findings and noted that reducing the number and costs of civilian payroll systems is part of its ongoing Reform '88 initiative. OMB stated the report will be useful to it in achieving a major objective of Reform '88, and noted a number of steps it has taken to implement GAO's recommendations. (See p. 29.)

C o n t e n t s

		<u>Page</u>
DIGEST		i
CHAPTER		
1	INTRODUCTION	1
	Payroll system defined	2
	Rules and regulations governing federal civilian pay	4
	Objectives, scope, and methodology	5
2	REDUCING THE NUMBER OF FEDERAL CIVILIAN PAYROLL SYSTEMS CAN RESULT IN SUBSTANTIAL SAVINGS	7
	Federal civilian employees could be paid and agency management needs met with fewer payroll systems	7
	Several approaches can be used to reduce the number of payroll systems	9
	Fewer payroll systems would reduce system development and maintenance costs	11
	A central focus is needed to reduce the number of payroll systems	15
	Central focus could help reduce costs by providing needed technical assistance	16
3	REDUCING PAYROLL SYSTEM OPERATING COSTS WILL RESULT IN COST SAVINGS	18
	Payroll system operating costs vary widely	18
	Reasons for cost variations are numerous	19
	Improving productivity and reducing operating costs need to be higher priorities among federal managers	22
	Private sector alternatives exist for payroll processing	22
	OMB has recently focused needed attention on payroll system costs	23
4	CONCLUSIONS AND RECOMMENDATIONS	25
	Conclusions	25
	Recommendations	26
	Agency comments	26

		<u>Page</u>
APPENDIX		
I	October 14, 1983, letter from Senator Frank R. Lautenberg	28
II	May 10, 1984, letter from the Office of Management and Budget commenting on the draft report	29
III	Listing of the 75 federal civilian payroll systems we surveyed in June, 1983	30
IV	Listing of the nine payroll systems and processing locations we examined	34
V	Methodology used in gathering operating costs for payroll systems	35

ABBREVIATIONS

ADP	Automated Data Processing
COLA	Cost-of-Living Adjustment
DOD	Department of Defense
GAO	General Accounting Office
GSA	General Services Administration
HUD	Department of Housing and Urban Development
JFMIP	Joint Financial Management Improvement Program
NASA	National Aeronautics and Space Administration
OMB	Office of Management and Budget
OPM	Office of Personnel Management
VA	Veterans Administration

CHAPTER 1

INTRODUCTION

At the end of fiscal year 1982, the federal government disbursed about \$50 billion in pay to approximately 2 million civilian employees (excluding the Postal Service) located in all 50 states and overseas. To pay these employees, most federal agencies independently developed and implemented systems to collect time and attendance data, compute and distribute pay, and record relevant accounting data. Seventy-five separate federal civilian payroll systems (73 of which are automated) evolved from this decentralized payroll service approach. Because of the many variables involved, such as type of computer software and hardware, type of employees, location of employees, and the degree of integration with other software systems, such as personnel and accounting, each individual payroll system is essentially a unique system.

The feasibility of consolidation and standardization of federal payroll systems has been discussed periodically for more than a decade by the Office of Management and Budget (OMB), the Joint Financial Management Improvement Program (JFMIP), and the Department of Defense (DOD). More recently, the President's Private Sector Survey on Cost Control and Reform '88¹ examined how to improve government management systems, such as payroll. Despite this attention, the number of federal payroll systems remains high and payroll system cost data minimal. In fact, the total cost of the development and operations of these 75 systems is not known nor do most agencies routinely collect operating cost information for their payroll systems. In this report, we present original information on development and processing costs and recommendations for achieving cost savings.

This report was prepared in response to an October 14, 1983, request of Senator Frank R. Lautenberg in which the Senator expressed concern that the federal payroll process may cost the government more than it should (see app. I). He asked us to examine the management of federal civilian payroll systems by finding out the number of systems now in operation, and identifying ways to reduce this number to produce cost savings. With the approval of the Senator's office, we also examined opportunities for cost savings through productivity improvement in the remaining systems.

¹The President's Private Sector Survey on Cost Control--more commonly known as the Grace Commission--was established in March 1982, and consisted of private sector executives who examined opportunities for reducing the cost of federal operations. Reform '88 is the administration's effort to restructure and streamline the management and administrative systems of the federal government.

PAYROLL SYSTEM DEFINED

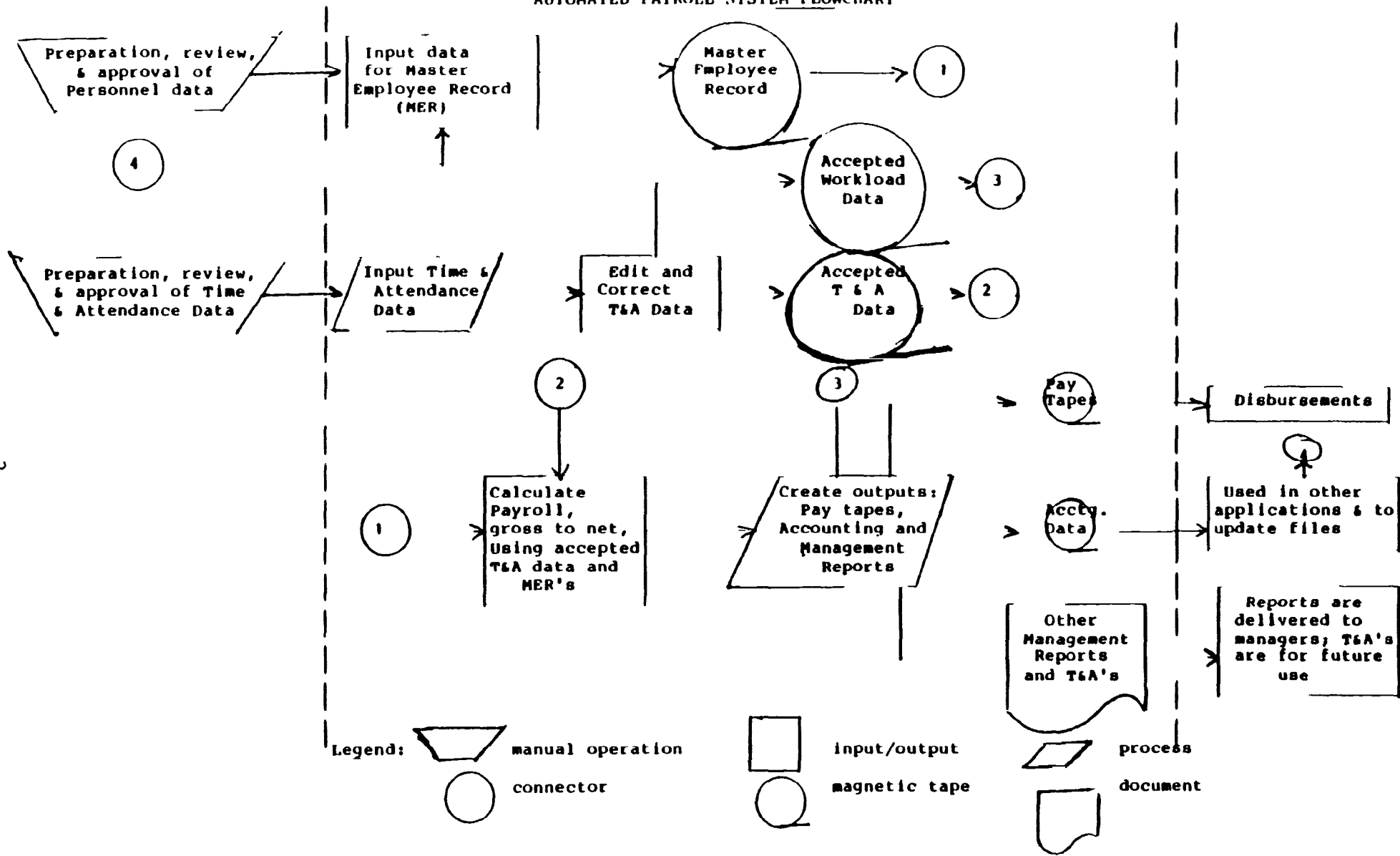
Over time, payroll systems have become more complex and agency-oriented while the basic function and system characteristics of paying employees have remained the same. As payroll systems developed, they were designed to fit agencies' unique combination of mission requirements, organizational structure, geographic dispersion, personnel and, lately, data processing equipment. Since the processing of a payroll requires timely information on employee hours and attendance, agencies have commonly associated or integrated other management information requirements into the payroll process, such as personnel, labor distribution, and accounting.

Despite these variations in the payroll systems, certain basic characteristics exist in all systems, including

- preparation, approval, creation, and maintenance of a master employee record containing such needed items as name, address, social security number, employee type and grade, and leave, accounting and tax withholding data,
- preparation, review, approval, and central collection of time and attendance data,
- calculation of gross and net pay per employee and recording of leave,
- creation of outputs, (such as pay tapes or registers, accounting reports, and management reports), and
- delivery of outputs, (such as paychecks, accounting reports, and management reports).

Typically, the federal payroll system runs on a biweekly cycle that involves using all of these characteristics. The resulting payroll cycle is depicted in the following flowchart:

AUTOMATED PAYROLL SYSTEM FLOWCHART



In this report, payroll system refers to those steps which occur after personnel data and employee time and attendance data have been reviewed and approved, and until the preparation of payroll tapes which are used for salary and allotment disbursements (the area between the dashed, vertical lines in the chart). We did not include the preparation of time and attendance cards and the preparation of payroll checks (both of which are essential activities in the payroll process) since these functions are likely to remain standard regardless of the processing system used.

RULES AND REGULATIONS GOVERNING FEDERAL CIVILIAN PAY

Federal civilian payroll systems operate under a common set of laws and regulations. These various legal provisions generally address specific issues relating to the payment of employees--such as authorizations needed for pay and overtime--rather than the design and operation of an agency payroll system. For instance, Title 5 of the United States Code presents the overall congressional intent and sets forth the rules for setting and adjusting pay rates for the 9 out of every 10 federal employees who are paid under the general schedule, executive schedule, and federal wage board system.

Other laws affecting civilian pay are the Privacy Act of 1974, the Federal Employees Compensation Act, and the Fair Labor Standards Act. They apply to virtually all federal civilian employees regardless of the pay plan from which they are paid. However, exceptions are made for some employees and agencies, such as the Central Intelligence Agency. In addition, special provisions apply to federal civilian employees in such government occupations as medical care and firefighting.

In addition to these legal provisions, several agencies develop specific rules and regulations which affect federal pay. The Office of Personnel Management (OPM) maintains the Federal Personnel Manual which includes numerous payroll-related requirements. Other OPM rules affecting payroll are listed in the Code of Federal Regulations. Also, the Department of Treasury, maintains the Treasury Fiscal Requirements Manual which prescribes forms and general procedures to be used in federal payroll systems. In addition, we at GAO have our Manual for Guidance of Federal Agencies that prescribes our principles, standards, and requirements for the operation of agency payroll and accounting systems.

Other agencies occasionally interpret payroll-related legislation and provide implementing regulations for agencies to follow. For example, the Department of Health and Human Services was designated by OPM as the lead agency to develop implementing instructions for the recent medicare deduction for federal employees required by the Tax Equity and Fiscal Responsibility Act of 1982 (Public Law 97-248).

OBJECTIVES, SCOPE, AND METHODOLOGY

This review had four objectives. First, identify the number of payroll systems used to pay federal civilian employees (including those paying civilians employed by DOD but not including the Postal Service). Second, identify current and projected costs for the design and development of new payroll systems. Third, document the range in payroll system processing costs. Fourth, identify potential opportunities for decreasing payroll system costs by reducing the number of systems and improving productivity in the payroll function.

Since payroll is a function common to all agencies, we chose to make the scope of our review governmentwide. Given this broad scope, we could not examine all aspects of each federal payroll system. To meet our objectives in this broad assignment, we relied on a three-part methodology.

First, we developed and administered a questionnaire returned to us by the managers of the 75 payroll systems (listed in app. III). The questionnaire asked for data on payroll system characteristics, system development costs, system maintenance costs, productivity measurement and improvement techniques, and payroll system attributes that are currently in use and those that should be included in an ideal system.

Second, we developed payroll system operating costs for 9 payroll systems at 11 locations (see app. IV). A 10th system at the Department of Agriculture was included in our field work, but information about its operating costs is not included in this report because we have raised questions about the system's operations in another review. This nonrandom sample of 10 systems was selected to include (1) two large systems paying more than 100,000 employees (one only recently installed) reported by some to be among the best payroll systems in the government, (2) two smaller systems paying fewer than 5,000 employees that were likely to operate at higher costs and could be consolidated in the future, (3) two DOD civilian employee systems developed and maintained centrally but with payroll processing at numerous locations (two locations were examined for each system), and (4) three moderate-size systems paying 5,000 to 50,000 employees. Two of the systems were also selected because part of their payroll process was contracted out to the private sector. Although our sample of systems for which processing costs were developed is not statistically representative of all civilian payroll systems, we believe it adequately documents the wide range of processing costs and the potential for improvement.

We obtained operating costs at each of these agencies that were using a standard approach (this aspect of our methodology is discussed in detail in app. V). Our cost collection began after the point in the payroll process that the time and attendance forms were already approved, batched, and reconciled, and ready to be converted into machine-readable form and ended with the preparation of payroll reports and the check, and withholding tapes. Since

seven of the systems integrated payroll and personnel functions, we could not separate the processing costs for payroll data alone. Thus, we collected the cost to process payroll and personnel data at all nine systems, including those with separate payroll and personnel systems. In addition, we collected costs for all payroll system elements such as the personnel, hardware, and software costs. These elements are, in our opinion, the most important because they comprise a large percentage of total costs, are the easiest to control, and are the most accurate to measure.

Some other aspects of our analysis should be presented at this point to allow a clearer understanding of our use of the data. Because unit costs are widely used to compare and contrast systems, we used a workload measure called the average number of files, which is the average of (1) the number of Form W-2s, the Wage and Tax Statement, printed for 1982, and (2) the average number of people paid per pay period during fiscal year 1982. This approach compensates for seasonal employment fluctuations in agencies.

In the third and final aspect of our methodology, we reviewed literature on federal payroll systems and held discussions with payroll experts inside and outside of government. Some of the experts interviewed included officials at the OMB, the Department of Commerce, the President's Private Sector Survey on Cost Control, and executives at Automatic Data Processing, Incorporated.

We performed our work in accordance with generally accepted government audit standards. However, we did not independently assess all internal controls at the agencies visited since this would have been too costly and time consuming given our objectives. We did, however, examine internal audit reports on these agency systems and when internal control weaknesses were identified we determined the status of their resolution. During our visit, we were also alert to any internal control weaknesses and, when they were noticed, we presented our findings to the responsible officials for corrective actions. Operating cost data were obtained from agencies' accounting records and contract documents (where part of the payroll process was contracted out). We did not attempt to verify the accuracy of these agency records and documents. We do not believe these limitations affect the overall message of the report.

Field work on the review was completed in August, 1983.

CHAPTER 2

REDUCING THE NUMBER OF FEDERAL CIVILIAN

PAYROLL SYSTEMS CAN RESULT IN SUBSTANTIAL SAVINGS

The federal government pays more than necessary to develop and maintain the systems used to pay its civilian employees. A few agencies have payroll services provided by another agency, but most have their own systems and 12 agencies have more than one. There are fewer systems today than there were several years ago, but the current number is unnecessarily high and costly since each system must be periodically redesigned and continually maintained.

Various approaches are available for reducing the number of payroll systems, the ultimate perhaps the development of a single system with processing done at various large agencies or processing centers. The merits of a single-system approach, however, requires further study. Moreover, achieving a single system would take many years and would be very expensive. Short of this, the following are two alternatives for reducing the number of payroll systems that will provide large immediate cost savings and will be relatively easy to implement:

- consolidate within the 12 agencies with more than one system (four have begun this process) and
- encourage small agencies to obtain their payroll services from another organization, such as a large federal agency, the General Services Administration (GSA) or other service agency, or a private firm.

These actions would reduce the number of separate payroll systems to 21. Each system eliminated would produce estimated average annual savings of \$1 million in system development and maintenance costs. We believe a central focus on payroll is needed to decide on the approach and ensure an orderly progression to fewer payroll systems at the least possible cost.

FEDERAL CIVILIAN EMPLOYEES COULD BE PAID AND AGENCY MANAGEMENT NEEDS MET WITH FEWER PAYROLL SYSTEMS

The federal civilian payroll function could be effectively accomplished with much fewer systems and, conceivably, with a single system. All 75 systems meet the same rules and regulations and pay similar types of employees. Although many agencies prefer to have their own payroll system to ensure their autonomy and provide needed management information, there is no reason why a shared system cannot also meet special agency needs. Many agencies currently use systems that pay highly diverse types of employees in various, independent subcomponents.

The operation of 75 federal civilian payroll systems results in duplication of system development and, therefore, higher than

necessary costs to the government. These systems pay from 34 to 272,000 employees. Each system periodically requires redevelopment and regularly requires maintenance for changes, some initiated by legislation. The cost of these efforts could be decreased substantially by reducing the number of payroll systems.

The existing payroll systems also vary in their degree of centralization or decentralization, type of automated equipment used, integration with other management information systems, and use of private contractors for various parts of the payroll process. Despite these variations in operation, all federal civilian payroll systems are required to have a great deal in common to comply with standard rules and regulations and pay various types of employees working in individual agencies.

Since the existing payroll systems must comply with the same rules and regulations, and the vast majority of all federal civilian employees are paid under one of two pay schedules, there is little need for numerous kinds of custom software for payroll systems. Currently, non-Postal Service federal employees are paid under 44 civilian pay schedules. While this total number of schedules is large, only two schedules, the general schedule (GS or white collar) and the federal wage board system (blue collar), are used to pay 92 percent of all federal civilian employees. None of the remaining schedules are used individually to pay more than 2 percent of the federal employees and many are used to pay only several hundred employees, which supports the idea that one payroll system software, albeit more sophisticated than any now in use, could be developed for virtually all federal employees.

The capabilities of the 75 systems further support the need for standard systems. Typically, agencies employ various types of employees and must use their payroll systems to pay more than one employee group. For example, the Veterans Administration (VA) employs physicians and nurses, and regular GS and wage board personnel; yet, they have only one payroll system. Similarly, most other agencies employ a mix of employee groups but use one payroll system. The Departments of Agriculture and Interior use single systems to pay employees in diverse bureaus that formerly had their own payroll systems. Furthermore, a number of departments and agencies, such as Agriculture and Interior, have consolidated their payroll systems. Some agencies, such as the Department of Education and a number of smaller organizations, have even opted to have their payroll services provided by other agencies.

One of the main barriers to reducing the number of payroll systems is the resistance of federal managers. Most agencies' officials prefer to maintain complete control of their payroll systems and tend to resist changing or consolidating them with other agencies. The concerns that most managers express about the need for certain types of information from their payroll system and their desire to integrate payroll with their personnel or accounting systems or both, must be considered in any effort of system consolidation or standardization.

Another barrier to reducing the number of payroll systems is the different computer hardware systems that federal agencies operate. Since hardware typically is not devoted only to payroll, agencies must consider other applications when acquiring it. The effects that a change in a payroll system will have on hardware, both in terms of new purchases and excess capacity on existing systems, should also be considered in deciding whether to merge or eliminate a payroll system immediately or at the time of needed redevelopment. Nevertheless, despite these barriers, many agencies have consolidated their own payroll systems or are in the process of doing so. However, there has been very little movement to merge systems across departmental lines.

SEVERAL APPROACHES CAN BE USED TO REDUCE THE NUMBER OF PAYROLL SYSTEMS

Just about everyone agrees the number of civilian payroll systems can be reduced. The question is how far, how fast, and in what way the system reduction should proceed. The entire civilian work force could theoretically operate under a single payroll system, but at this time such a development can be only a long-term goal. Additional work is needed to determine whether this should be a long-term goal. In the immediate future, the number of separate systems could be substantially reduced by eliminating multiple systems in single agencies and small systems that cannot justify redevelopment and maintenance costs.

Paying all federal civilian employees with a single payroll system is feasible although some significant operational problems do exist. Prior studies have noted that having one computerized payroll system for the federal government is technically feasible. Since the rules and regulations apply to all civilian payroll systems, and current systems pay similar types of employees, a single software system could be developed. Yet, existing nontechnical barriers, as noted previously, are such that software for a single payroll system may not be attainable in the near future. Of course, any such standard payroll system would have to be flexible enough to allow for various data collection and reporting needs among the agencies using the system.

Previous studies have noted the feasibility of developing a single payroll system software to satisfy all federal civilian payroll needs. A Joint Financial Management Improvement Program (JFMIP) Payroll Study Team Report in October 1971 said, "The concept of a single computerized payroll system is technically feasible and within the current state of the art." Similarly, our report entitled, Opportunities For Improving Computerized Civilian Payroll Processing Operations (FGMSD-75-15, March 24, 1975) noted a DOD Management Systems Standardization Committee for standardizing civilian pay had concluded it was technically feasible to develop a standard payroll system for all DOD employees. Since automated systems have progressed substantially since these reports were issued, the concept is even more technically feasible today.

A single federal payroll system could be operated in two different ways that need not be mutually exclusive. Agencies could continue to produce their own payroll on their own equipment using the standard payroll system, or a separate payroll processing function could be established (perhaps associated with other financial management and personnel activities) separate from the agencies to process payroll for them.

While the single-system approach would drastically reduce system development and maintenance costs, it would be very costly and difficult to develop and manage. Also, despite the potential economies, there may be valid reasons why having only one system may not be desirable or practical, such as increasing complexity and difficulties in replacing or making major modifications to the system.

In the short term, we believe the reduction to 21 systems could be achieved with minimal difficulty by eliminating small payroll systems paying fewer than 5,000 employees (as OMB has recently decided to do) and requiring agencies operating multiple systems to consolidate to one.

The questionnaire results indicate a large number of federal payroll systems pay fewer than 5,000 employees. The following table lists 73 of the existing systems by size category or number of people paid at the end of fiscal year 1982 (see app. III for the complete list of payroll systems and the number of people they pay):

Federal Civilian Payroll Systems By Size

<u>Size category</u>	<u>Number of systems^a</u>
over 100,000	5
50,000 to 99,999	6
20,000 to 49,999	9
5,000 to 19,999	16
under 5,000	37
	73

^aTwo systems did not provide this data for security reasons.

A closer look at the "under 5,000" systems reveals that these systems range widely in size and many opportunities for merging systems exist. For example, 27 of the 37 systems in this category paid less than 2,500 employees in fiscal year 1982. Thirteen of these systems paid fewer than 1,000 employees and one paid only 34 employees. We consider these 37 systems small enough to be easily merged with larger, more cost-efficient systems.

In addition, opportunities exist within agencies for reducing payroll systems because many agencies operate more than one payroll

system. The following table lists these agencies and the number of payroll systems they operate:

Agencies With Multiple Payroll Systems

<u>Agency</u>	<u>Number of civilian payroll systems</u>
Commerce ^a	2
Army (includes Corps of Engineers)	6
Navy (includes Marine Corps) ^a	8
Defense Logistics Agency	2
Energy	8
Health and Human Services	2
Interior ^a	2
Justice	2
State ^a	2
Transportation ^a	3
Treasury	2
National Aeronautics and Space Administration	8
	<u>47</u>

^aAgency is in the process of consolidating some or all of its payroll systems or planning to do so.

If these agencies consolidated their systems to only one for each agency, 35 systems, about 47 percent of the existing systems, would be eliminated.

Reducing the number of payroll systems in these two ways -- allowing only one system per agency and eliminating small systems -- would eliminate 54 of the 75 existing systems (72 percent) and result in substantial savings in development and maintenance costs.

FEWER PAYROLL SYSTEMS WOULD REDUCE
SYSTEM DEVELOPMENT AND MAINTENANCE COSTS

The operation of the 75 systems results in duplication of system development and maintenance and, therefore, needless government costs. Each system requires regular maintenance for changes, some initiated by legislation, and development of new software is also done periodically as the old software degrades and technology improves. The cost of these efforts could be decreased substantially by reducing the number of payroll systems. Each eliminated system would save an estimated \$375,000 in annualized system development costs and even more in maintenance costs.

Fewer payroll systems can
reduce system development costs

Recent payroll system development activities indicate the high cost of these activities and the potential for savings. For

example, the Department of Agriculture recently developed a new payroll and personnel system. It took about five years to complete the system's first phase, which went into operation in February 1983. The Agriculture Department's Office of Inspector General issued a report in January 1984 that cited internal control and other problems in the implemented system which, if not corrected, would result in the system being difficult and expensive to maintain. Our recent study, conducted independently of this review, confirmed the continuing existence of most of the problems identified in the Inspector General's report. The Department did not keep detailed records of the development effort's cost, but based on our analysis of agency records and discussions with agency officials we estimated the cost of the first phase at almost \$7 million. Costs and completion dates for phase 2 of the system were not available.

Likewise, the Department of the Army has spent about \$1.1 million, mostly under contract, for a functional description (an early phase of system development) of a new civilian payroll system. An Army official estimated that the second contract phase, a detailed system description, would cost about \$2 million. Later phases would include software development, training, systems testing and verification, and finally implementation. The total cost to design, develop, and implement this system could exceed \$11 million. Clearly, this is an expensive operation and one that has to be redone periodically since software systems tend to have an 8- to 10-year life cycle.²

Results from our questionnaire indicated that the cost of current and future development of payroll systems will average over \$3 million per system and, as already noted, could be much more costly. For instance, we requested the cost of development efforts for payroll systems during fiscal years 1978-82 and for planned expenditures in fiscal years 1983-87. Unfortunately, cost records for past years were not always available and were sometimes incomplete. However, for fiscal years 1978-82, 24 system managers reported costs of \$24 million on the questionnaire. These costs, which were incurred for contracts, in-house contract administration, and in-house design/development efforts, are understated because some respondents reported that records were unavailable or costs were not collected in all years and categories. In addition, the 43 questionnaire respondents estimated their payroll development expenditures would total almost \$200 million in fiscal years 1983-87.

Based on system size and reported development costs, we estimated an additional \$17 million in development costs for 25 non-responding payroll managers whose payroll systems would be 8 years

²This estimate is based on discussions with software systems experts and was supported by our report, Government-Wide Guidelines And Management Assistance Center Needed To Improve ADP System Development (GAO/AFMD-81-20, Feb. 20, 1981) in which respondents to a survey of federal data processing installations reported that the average age of their oldest software system was 9.4 years.

old by fiscal year 1987. Using the estimated total of \$215 million for 68 payroll systems, future development cost are likely to average over \$3 million for each system. Given an average system life of 8 years, we estimate average annual development costs for all systems at about \$375,000. Reducing the number of existing payroll systems will decrease these future software development efforts and, therefore, reduce total development costs.

Payroll system maintenance costs
could be reduced with fewer systems

Decreasing the number of federal civilian payroll systems would significantly reduce system maintenance cost. The 75 payroll systems have staffs responsible for maintaining these systems and implementing required changes. Experts have stated that, in general, maintenance of software is continual and can cost as much as 70 percent of software's total lifetime cost. An OMB official said budgets for many systems' maintenance activities are so high that staff assigned to system maintenance could be used to do some development efforts.

Payroll systems' maintenance is initiated by actions inside and outside the agency. This maintenance can involve

- removing defects (e.g., the software was programmed to do something other than what the user wanted, or the program logic was faulty so the programs did something the programmer did not intend in the software, or both),
- tuning the software to make it more efficient and economical to operate,
- modifying software to make it do more tasks than it was originally intended to do (e.g., the new medicare deduction required by legislation required such a modification), and
- changing the software so it will work with a new operating system.

Recently, major changes have been initiated by legislation, such as merit pay, medicare deduction, and the deduction for both civil service retirement and social security for new employees hired after January 1984. Several payroll managers told us they anticipated more adjustments because of the possible changes in federal retirement programs and other pay-related issues.

The cost of just three recent maintenance items shows the cost significance of independent efforts and the potential for savings. In our questionnaire we asked the managers of the 75 payroll systems for estimated or actual costs for three payroll system maintenance items -- the 1982 medicare deduction, the 4 percent pay adjustment on October 1, 1982, and the pay deduction for military

annuitant cost of living adjustment (COLA).³ The following table shows the reported costs and the number of systems responding for each item:

<u>Maintenance item</u>	<u>Number of systems</u>	<u>Reported costs</u>	<u>Total average per system</u>
Medicare deduction	54	\$870,629	\$16,123
4% pay adjustment ^a	42	155,424	3,701
Military annuitant COLA	49	<u>650,769</u>	13,281
Total		\$1,676,822	

^aThe cost for this item is lower because it is an annual maintenance item, although the adjustment amount varies.

In summary, the respondents spent over an estimated \$1.6 million for these three changes alone. (However, this figure does not represent governmentwide costs since all 75 systems did not respond nor do all systems record costs for specific maintenance items.)

Using the average cost per item, we estimated the remaining systems could spend an additional \$806,022 for these three maintenance items, bringing the total to \$2.5 million. Reducing the number of payroll systems would reduce future system maintenance costs in direct proportion to the systems eliminated. Furthermore, if the federal government had only one payroll system, we estimated that as little as \$50,000, or about 1.5 times the sum of the average costs per item, would have been incurred to implement these changes, saving almost all the estimated \$2.5 million.

Since software maintenance is continual and extensive, the total governmentwide maintenance cost that could be saved is much greater than the amount estimated for the three maintenance items. For the nine systems we examined, agencies spent about \$5.1 million only on software maintenance in fiscal year 1982. Using the average annual maintenance cost of \$567,000 for these nine, we estimate that as much as \$42.8 million could have been spent on software maintenance for all 75 systems in fiscal year 1982. By operating one system, one staff instead of 75 could be responsible for system maintenance. Thus, a significant amount of the estimated \$42 million, as well as future costs, could be saved.

³The military annuitant COLA is a new policy designed to reduce total remuneration to federal employees who also receive military retirement pay.

A CENTRAL FOCUS IS NEEDED TO REDUCE
THE NUMBER OF PAYROLL SYSTEMS

Central direction is needed to determine an appropriate approach for reducing the number of payroll systems and ensuring the reduction takes place. Although a number of consolidation efforts have occurred within agencies, some agencies are not moving in this direction and little consideration is given to interagency consolidation. As a result, opportunities for system and cost reduction are missed. Without central direction, agencies are likely to continue emphasizing custom development of payroll software.

Our recent report, entitled Federal Agencies Could Save Time And Money With Better Computer Software Alternatives (GAO/AFMD-83-29, May 20, 1983) stated:

"Federal agencies are making little effort to identify and use today's alternatives to custom development to satisfy their application software needs."

We reported that over 95 percent of software inventories at 299 federal data processing installations had been custom developed.

To fully realize potential savings and to quicken and expand reductions in systems, the overall government payroll function must be examined, not the individual agency or system viewpoint. Recent efforts by the Army, as well as the Departments of Interior and Commerce, to custom develop their payroll software or to decrease the number of payroll systems shows the usefulness of a central focus. However, they had only an agency viewpoint. To maximize the cost savings, a central, governmentwide focus is needed to identify the efficient practices and institutionalize them. A central focus could consider all available alternatives, cross agency lines, choose the most efficient practices, and eliminate or significantly reduce inefficient practices.

As we previously discussed, small, inefficient systems must be merged with low-cost systems to realize potential savings. Yet, only a central focus can ensure that the most cost-efficient available systems are used when payroll systems are merged. If reductions in systems are not centrally managed, small systems could be merged with an expensive system and the potential savings from the efficiencies of scale previously mentioned would not be realized. Thus, a central focus that is responsible for monitoring these activities is necessary to ensure maximum savings.

Recent OMB actions recognize the need for the Office to play such a central focus role. OMB's Deputy Director noted in a November 15, 1983 memo that OMB's policy position on systems that process payroll, personnel, and administrative payments is that all small agencies with fewer than 200 employees will obtain these services from GSA. Agencies with 200 to 5,000 employees will obtain these services from large agencies having economical state-of-the-art systems. Exceptions to this policy position will be made if agencies can demonstrate that other arrangements are equally

efficient and more cost effective. This OMB position is very encouraging and should contribute to reducing the number of federal payroll systems.

CENTRAL FOCUS COULD HELP REDUCE COSTS
BY PROVIDING NEEDED TECHNICAL ASSISTANCE

A central focus that provides technical assistance to agencies to interpret and implement payroll regulations could help further reduce the costs for payroll system development and maintenance. In our questionnaire, federal payroll managers cited maintenance, such as interpreting and installing legislative changes relating to payroll, as great barriers to improving and maintaining productivity. Currently, payroll managers use several sources to obtain information needed to implement these changes to the payroll systems. System development efforts have also been conducted in various ways that are frequently costly and time consuming, and sometimes result in expensive errors. An improvement in the current method used to obtain technical assistance could produce system development and maintenance cost savings.

Improving technical assistance for payroll systems could also produce savings in system maintenance. As previously noted, high costs are associated with this maintenance activity. Payroll managers complained to us that lack of adequate, timely assistance to implement these changes has caused excessive maintenance costs. For example, legislation enacting the payroll deduction for military annuitant COLA was passed in September, 1982, with an effective date of April 1, 1983, but OPM did not provide the final instructions until April 7, 1983. These managers stated that when assistance is delayed, unnecessary costs are incurred for additional recordkeeping, manual processes, and retroactive adjustments to payroll records after assistance is received.

The questionnaire responses further supported a need for improving the current method used to obtain technical assistance. Payroll managers told us they obtain technical assistance from the Internal Revenue Service (IRS), OPM, and us. Sixty-four percent of these managers asked for the designation of one central source to handle payroll system questions.

A central focus could also limit the expensive errors resulting from inaccurate implementation of legislation that affects payroll systems. Currently, no focal point exists to collect and disseminate information to prevent error duplication.

If one central source provided technical assistance, development efforts could be improved and savings realized. In the past, agencies have experienced expensive, lengthy, and frustrating payroll system development efforts. For example, a Postal Service official stated that when the Service's payroll system, which was designed by a contractor, was implemented it almost did not work because of unsynchronized edit routines. As a result, the system fell 80,000 pay records behind in processing, requiring excessive manual recordkeeping and recovery over 17 biweekly pay periods.

Similarly, another agency contracted to have their payroll/personnel system redeveloped. Unfortunately, the 2-year development effort had to be discarded. Unlike the other agencies, Agriculture itself developed a new payroll/personnel system for about \$7 million. Phase I of the payroll system took almost 5 years from development to implementation. The Department is expected to incur additional costs to correct the problems noted in the implemented phase and to complete phase 2. A central focus with the appropriate expertise could direct or reduce these development efforts by identifying less expensive and more timely alternatives to custom design efforts. This conclusion is supported by our earlier report, Government-Wide Guidelines And Management Assistance Center Needed To Improve ADP Systems Development (GAO/AFMD-81-20, Feb. 20, 1981), which documented the need for a central focus to facilitate the design, acquisition, and evaluation of major automated data processing systems, including payroll.

CHAPTER 3

REDUCING PAYROLL SYSTEM OPERATING COSTS

WILL RESULT IN COST SAVINGS

In addition to the potential cost reductions in paying federal employees by reducing the number of payroll systems, opportunities exist for reducing payroll system operating costs. For the nine systems from which we collected operating costs, we found that the total annual operating costs per file maintained varied by more than 700 percent. If the eight higher cost systems we reviewed had processed payroll at the unit cost of the lowest cost system, about \$10.8 million in operating costs could have been saved in fiscal year 1982.

The reasons for this substantial variation are numerous and widespread. Thus, even low-cost systems could reduce operating costs by improving operating procedures. This wide variation exists throughout all payroll systems partially because improving productivity and reducing costs in these systems have not been high priorities of federal managers. Also, opportunities to reduce costs by using private-sector alternatives have not been fully explored by agencies. In order to make processing costs an appropriate concern to agency officials, cost data needs to be centrally developed and reported for all systems. Currently, these actions are not done although OMB has some plans in this direction.

PAYROLL SYSTEM OPERATING COSTS VARY WIDELY

Operating costs of the reviewed payroll systems vary significantly even though all payroll systems are used to accomplish the same basic task--that is, pay employees under the same rules and regulations. All nine reviewed systems could handle a wide array of payroll functions. However, the reviewed systems' operating costs per file for fiscal year 1982 ranged from \$52 to \$374. Using a standard approach, we collected costs directly associated with the operation of the payroll systems which were incurred in the payroll, data processing, and software maintenance offices (see app. V for details of this methodology). The following table illustrates this range of unit costs and the workloads of each system:

Unit Cost and Volume at Payroll Systems Examined

<u>System</u>	<u>Total unit cost</u>	<u>Average no. of files at sites examined</u>
Veterans Administration (VA)	\$ 52	266,674
Army (Forts Carson and Eustis)	75 ^a	8,153
GSA	77	43,069
Air Force (Lowry and Langley Bases)	98 ^a	6,840
Interior (PAY/PER system)	112	24,150
Labor	146	22,725
Energy (Nevada Operations)	212	631
NASA (Langley Research Center)	228	3,198
HUD	374	15,762

^aAverage unit cost for two processing locations.

If these 9 systems had all processed payroll at VA's low unit cost of \$52, about \$10.8 million could have been saved in operating costs in fiscal year 1982.

REASONS FOR COST VARIATIONS ARE NUMEROUS

A comparison of cost elements shows that many factors influence each system's cost efficiency. For instance, because of management prerogatives, such as the varying number of automated personnel and management reports, each system has its own unique mix of costs and characteristics that influences the cost efficiency. Other major factors influencing the cost efficiency of systems include personnel use, efficiency and use of computer hardware, complexity and efficiency of computer software, and workload volume. In the nine systems we reviewed, these factors were the major components affecting each system's cost efficiency.

Personnel costs account for most of the operating costs

Personnel costs for all aspects of the payroll process are the most influential element in our comparison. For every system, except HUD, personnel costs were the largest dollar expenditure. Improving the productivity of personnel involved in the payroll process can result in significant savings at each of the systems examined. The following table shows the gross personnel unit costs by system:

Personnel Unit Costs by System

<u>System</u>	<u>Total unit costs</u>	<u>Personnel unit costs</u>	<u>Personnel % of total</u>	<u>Personnel, hardware & software unit costs</u>
VA	\$ 52	\$ 39	75	\$ 48
Army (Forts Carson & Eustis)	75	54	73	64
GSA	77	43	56	72
Air Force (Lowry and Langley Bases)	98	61	62	86
Interior (PAY/PERS system)	112	52	46	91
Labor	146	82	56	116
Energy (Nevada Operations)	212	91	43	180
NASA (Langley Research Center)	228	104	46	197
HUD	374	131	35	337

As the table shows, personnel costs contribute up to 75 percent of the total operating costs for these nine systems. Sometimes the personnel needs in the payroll and computer offices are affected by the level of automation and the payroll system's management.

To reduce the high personnel unit costs, agencies need to adopt new procedures to improve productivity and reduce costs. For example, if labor-intensive systems like VA, Air Force, and Army reduced the number of payroll clerks used to pay their employees, productivity would improve and operating costs would decline. In other words, agencies should concentrate on improving productivity in labor-intensive areas because, according to our analysis, more cost reductions could be accomplished by improving the personnel operating unit cost than from any other single cost area.

Software and hardware contribute less to the operating cost variation

Although software and hardware costs contribute a lesser amount to most systems' overall operating costs, the wide cost range makes them a significant factor in cost variations. Software costs include the cost of normal maintenance for the software program as well as major maintenance efforts, such as implementing merit pay during fiscal year 1982. Since each agency independently maintains its payroll system, a comparison of the systems' software unit costs illustrates that improvements in maintenance can be made. Unlike software costs, hardware costs include the cost of leasing automatic data processing (ADP) equipment, depreciation expense for government-owned ADP equipment, and the cost of equipment maintenance. The following table lists the unit and total costs for hardware and software individually, along with the previously listed workload volume.

Payroll System Unit Costs For Hardware and Software

<u>System</u>	<u>Hardware costs</u>	<u>Hardware unit cost</u>	<u>Software costs</u>	<u>Software unit cost</u>	<u>Average no. file</u>
VA	\$650,756	\$ 2	\$1,653,734	\$ 6	266,674
Army (Fts Carson & Eustis)	38,882	5	36,942a	5	8,153
GSA	1,055,659	25	208,084	5	43,069
Air Force (Lowry & Langley)	164,620	24	7,179a	1	6,840
Interior (PAY/PERS system)	497,457	21	438,403	18	24,150
Labor	500,409	22	279,482	12	22,725
Energy (Nevada Operations)	9,907	16	46,328	73	631
NASA (Langley Research Cen)	80,709	25	215,724	67	3,198
HUD	1,015,932	64	2,230,748	142	15,762

aAllocated portion of total maintenance (\$1,311,429 for Army and \$656,891 for Air Force) for locations examined.

The wide variations in these costs indicate that all systems could strive for better cost efficiency. For example, the Air Force's software unit cost of \$1 is the lowest of all systems visited. This low unit cost suggests that the low-cost systems, VA and Agriculture, could improve the cost efficiency of software maintenance and could possibly learn from the Air Force's practices. Similarly, the wide range of hardware unit costs suggests that the efficiency of hardware utilization varies among systems. These systems could improve their efficiency of hardware utilization by comparing themselves with other systems and adopting efficient practices already in place.

High workload volume contributes to low cost

Although a direct correlation does not exist, high workload volume strongly contributes to the cost efficiency of the systems we reviewed. As the table on page 19 shows, two of the four lowest unit cost systems, VA and GSA, had the highest workload. The Army and Air Force systems, which complete this grouping of low-cost systems, do not have high workload levels. But since the Army and Air Force systems have standardized software that individually is used to pay over 250,000 civilians at decentralized locations, some efficiencies of scale of this total workload have accrued to all processing locations.

The effect of workload suggests that merging systems would reduce processing costs. Previous studies of consolidation have noted that efficiencies of scale could be realized from increased workload, resulting in cost savings. In fact, a reduction in operating cost is certain to occur if small, high-cost systems merge with lower unit cost systems. For example, had the Energy and NASA systems processed payroll at VA's low unit cost of \$52 or merged with a system that did, the federal government could have saved about \$650,000 in fiscal year 1982. This potential savings resulting from efficiencies of scale could also exist at the systems not reviewed (most are smaller and likely to have high unit costs). Although we recognize that there may be a point where workload can

grow too large to be cost effective, current experience demonstrates that over 200,000 employees can be paid cost effectively.

IMPROVING PRODUCTIVITY AND REDUCING
OPERATING COSTS NEED TO BE HIGHER
PRIORITIES AMONG FEDERAL MANAGERS

Federal managers need to place higher priorities on improving productivity and reducing operating costs in their payroll systems. Some improvements in payroll system operations have been made and \$1.4 million in productivity savings from fiscal years 1980 to 1982 were reported in our questionnaire. Yet, payroll managers could do more to reduce costs and improve productivity.

Of the nine systems we reviewed, most payroll managers were unaware of their system's costs and all were unaware of what other systems cost or what their system should cost. According to our questionnaire, only 32 percent of the payroll systems have some type of productivity measurement system in place. In addition, less than 30 percent of the respondents collect cost information to measure productivity.

Contributing to this level of emphasis on productivity was the limited incentives for productivity improvement perceived by managers. About one-third of the responding payroll managers noted that the overall incentives for them to improve payroll productivity were inadequate. This was supported further at the locations we visited where some payroll managers expressed little concern for improving productivity and reducing costs and focused almost exclusively on promptness and accuracy. Yet, we found no evidence at the reviewed systems that having low operating costs adversely affected the ability to meet promptness and accuracy goals.

PRIVATE SECTOR ALTERNATIVES
EXIST FOR PAYROLL PROCESSING

Some federal agencies can reduce the costs of their payroll systems by contracting with the private sector for this service. Contracting-out the payroll function is legal and is encouraged by OMB under Circular A-76 provided a government employee is the responsible certifying officer.

Given the high costs of the payroll function and the existence of numerous private firms that specialize in payroll processing, or that market and maintain payroll software systems, federal agencies should more closely examine private-sector alternatives by comparing costs and services to those currently available within the government. For example, we visited one private firm specializing in payroll processing whose officials claimed that they provided a variety of services to their private sector customers at costs ranging from 80 cents to \$2 per pay check or about \$21 to \$52 per person annually. Since we could not directly compare the firm's services with the nine payroll systems' services, no savings can be projected. Even though private contracting is not a general

solution to the high cost of payroll systems and probably is not appropriate for larger agencies, it is a reasonable option for the numerous small payroll systems currently operating independently.

Despite our inability to identify an agency that had contracted out its entire payroll function, we did locate several agencies that contracted out portions of their payroll system such as system design, keypunching, and data processing. The revised OMB Circular A-76 specifically cites payroll as an example of a commercial activity that could be contracted out. Even if an agency ultimately does not contract out its payroll, we believe the cost comparison exercise required by A-76 will focus needed attention on payroll system development and processing costs, and opportunities for cost reductions.

OMB HAS RECENTLY FOCUSED NEEDED
ATTENTION ON PAYROLL SYSTEM COSTS

OMB recently issued a bulletin designed to monitor large expenditures for developing or improving administrative systems, including payroll. As part of its Reform '88 activities, OMB has also established a Personnel/Payroll Project which recently developed a new OMB policy for eliminating small payroll systems. These initiatives begin to address our concerns.

OMB issued Bulletin 83-18 entitled, Administrative Systems, on August 12, 1983, with an expiration date of September 30, 1984. This bulletin requires 20 major departments and agencies, as part of the budget process, to submit information to OMB for review on planned improvements to their automated administrative systems, including payroll. The bulletin stated:

"Agencies' administrative systems shall be designed, implemented, and operated in an efficient, cost-effective manner....Agencies undertaking the development of major new administrative systems or major systems improvements [defined as any improvement costing over \$2.5 million] should consider utilizing resources of other agencies...to avoid expending resources unnecessarily."

In addition, OMB's Reform '88 has recently examined alternatives for reducing the costs of payroll systems that may affect the fiscal year 1985 budget. This bulletin is encouraging but could be more effective if it covered all agencies' operating payroll systems, and included improving the cost effectiveness and productivity of existing payroll systems, not just those planning to be changed.

The Personnel/Payroll Project under Reform '88 offers an opportunity for establishing cost standards for payroll systems and creating a mechanism to determine the appropriate number and type of future civilian payroll systems. While this is not OMB's current policy, that agency appears to be the most appropriate one

to provide this needed focus since it controls agency funding for system development. OMB's November 15, 1983 memo on small payroll and other administrative systems (discussed on p. 15) indicates OMB is willing to move in this direction.

A central focus for payroll is needed to monitor costs and encourage improvements. For instance, cost collection of payroll systems needs to be standardized and centrally monitored to ensure that cost savings from reducing the number of payroll systems are realized and maximized. Currently, agencies do not gather costs of payroll system operations routinely or in a standard way to enable payroll managers to measure their relative cost efficiency and develop cost-reduction goals. Further, payroll systems costs are not regularly collected as part of the federal budget process (under OMB Circular A-11) or as part of the cost data gathered on federal ADP costs (under OMB Circular A-121). A central focus is needed to standardize and monitor cost collection for payroll systems and establish cost standards to compare with existing systems' costs.

In addition, with standard payroll cost information, a central focus would encourage improvements, quicken the reduction efforts, and maximize savings. It also could view the payroll function from a governmentwide perspective, and would promote the adoption of efficient, productivity-improving practices identified through the cost collection effort, such as centralizing software maintenance, processing, and the payroll function, and using private-sector alternatives. The central focus could also identify the small, high-cost systems that could merge with larger, low-cost systems and, thereby, direct the system reduction efforts. In general, a central focus would maximize savings and quicken reductions in the number of payroll systems.

CHAPTER 4

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

The federal government could save millions of dollars by decreasing the number of civilian payroll systems and by reducing the processing costs of those systems that remain. The existing 75 systems require excessive and unnecessary duplication of development and maintenance costs, and have processing costs that vary by more than 700 percent. Although maximum savings might result from the development and operation of a single civilian payroll system for all employees, more realistic, short-term alternatives can produce substantial savings. We believe a central focus on payroll is needed to determine goals and objectives, monitor progress, and provide technical assistance. Without such a focus, payroll system development and operation is likely to continue on its current, high-cost path.

Federal payroll systems developed independently as necessary administrative functions. As agencies grew larger, new payroll systems were designed according to individual needs despite the fact that virtually all government employees are paid under the same rules and regulations and according to common pay schedules. Agencies continue to independently redevelop and operate their payroll systems to take advantage of new technology and thus incur millions of dollars in development and system maintenance costs. By reducing the number of payroll systems, development and maintenance costs would decrease. In addition to excessive development and maintenance costs, significant savings could be realized by reducing the processing costs of the less efficient systems.

The need to reduce the number of federal payroll systems has been discussed by numerous groups for more than a decade, and is now receiving top-level attention from OMB. Clearly the time has come to take action on payroll system costs. In the current budget environment the government should not allow the spending of millions for new payroll systems. OMB seems to recognize the need to reduce both the number and the costs of civilian payroll systems and is now developing strategies to accomplish this.

We strongly believe that a central focus is needed to reduce payroll system costs. Since OMB is the primary central management agency, it should assume responsibility for this work. (OMB has begun to assume this task under its Reform '88 activities.) The central focus could work with financial management executives throughout the government to determine the appropriate number of federal payroll systems and develop a plan for achieving this goal. The focus should also develop and maintain standard cost data on federal payroll systems and encourage high cost agencies to lower their costs by merging with other systems, adopting more efficient practices, or contracting out. Additionally, the focus could

provide central direction for interpreting and implementing rules and regulations affecting federal pay to minimize maintenance costs and errors.

Federal payroll is an important function common to all agencies. The government can not afford to allow this function to operate in an inefficient manner. The performance of several departments and existing payroll systems demonstrates how well and inexpensively payroll systems can be administered. These positive experiences can and should be applied governmentwide.

RECOMMENDATIONS

We recommend the OMB Director lead the effort to reduce the costs of civilian payroll systems by

- (1) developing unit operating cost standards for payroll systems, (2) requiring agencies to identify and report operating costs for their payroll systems, and (3) requiring high-cost systems to meet the standard or convert to or merge with another system and
- ensuring that all departments and agencies can obtain technical advice and assistance regarding the development, maintenance, and operation of payroll systems.

For the long-range future, the OMB Director should establish a mechanism with departments and agencies to:

- Determine the appropriate number of civilian payroll systems the government should operate.
- Develop a plan for moving existing systems toward this number.
- Review, coordinate, and approve all payroll system development proposals in light of the plan for future systems and the operating cost standard.

AGENCY COMMENTS

OMB formally reviewed and commented on a draft of this report. OMB's comments, which appear in appendix II, state it agrees with the report's findings. According to OMB, the report supports Reform '88's objective to reform government administrative systems and will be useful in achieving that objective. OMB states that substantial planning and some progress have occurred toward reducing the number and increasing the efficiency of payroll systems. Steps taken to date include:

- initiation of plans for a generic, state-of-the-art personnel/payroll system,
- actions to increase the level of cross-servicing of personnel/payroll processing between agencies,

- initial development of a shared system for agencies with international activities,
- continuing intensive analysis of agency payroll system plans and actions, and
- redesigning of the Central Personnel Data File to improve the timeliness and accessibility of information on the federal civilian work force.

We are encouraged OMB agrees with our report. We hope OMB will continue to move toward implementing its plans and realize the potential savings identified in this report by operating fewer and more efficient civilian payroll systems.

FRANK R. LAUTENSBERG
1983FRANK R. LAUTENSBERG
WASHINGTON, D.C. 20510
202 224-7201**United States Senate**
WASHINGTON, D.C. 20510

October 14, 1983

The Honorable
Charles A. Bowsher
Comptroller General of
the United States
General Accounting Office
Washington, DC 20548

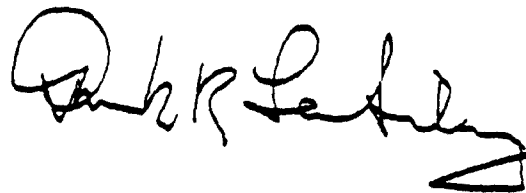
Dear Mr. Bowsher:

My staff recently received a General Accounting Office (GAO) briefing on federal civilian payroll systems and the potential for reducing costs through the consolidation and standardization of this process. I believe the Federal Government must improve and reduce the costs of its management systems. During a time of budget cutbacks, the government cannot afford to spend any more than is necessary for day to day operations. The payroll process is a case in point.

I am concerned that there are a large number of federal civilian payroll systems now in operation, many of which are too small to benefit from economies of scale. The lack of standardization among systems leads to high expenditures for redesign and maintenance. I would like the GAO to examine the management of the federal payroll. Specifically, I would like to know the number of federal civilian payroll systems now in operation and the feasibility of consolidating and standardizing them. I am particularly interested in the potential savings that may be associated with such changes.

I look forward to receiving your support for this request.

Sincerely,



FRL:jsk



EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF MANAGEMENT AND BUDGET
WASHINGTON D C 20503

17

Mr. William J. Anderson
Director
General Government Division
General Accounting Office
Washington, D. C.

Dear Mr. Anderson:

OMB agrees with the findings of the GAO Draft Report, "The Federal Government Can Reduce Costs in the Development, Maintenance and Operation of Civilian Payroll Systems" (GAO/AFMD-84-49). The findings supply further evidence of the need to reform the administrative systems of the Executive Branch. The reduction in the number and costs of payroll systems was incorporated in the original objectives of the Reform '88 initiative. Substantial planning and some progress have occurred to date toward achieving that objective.

Some of the steps taken to date are as follows:

- ° Initiation of plans for a generic, state-of-the-art personnel/payroll system.
- ° Actions to increase the level of cross-servicing of personnel/payroll processing between agencies.
- ° Initial development of a shared system for agencies with international activities.
- ° Continuing intensive analysis of agency plans and actions.
- ° Redesigning of the Central Personnel Data File to improve the timeliness and accessibility of information on the Federal civilian workforce.

These initiatives will lead to substantially fewer and more efficient systems. Unit operating costs will be applied to these systems. These cost standards will guide enhancement, upgrade investments, and monitor current operating costs.

Thank you for the opportunity to comment. This report is useful to OMB in achieving a major objective of Reform '88,

Sincerely,

Arlene Triplett
Associate Director
for Management

LISTING OF THE 75 FEDERAL CIVILIAN PAYROLL SYSTEMSWE SURVEYED IN JUNE 1983

<u>Agency/System</u>		<u>Employees paid^a</u>
Department of the Air Force		272,000
Department of Agriculture		125,427
Department of the Army		
Standard Army Civilian Payroll System	250,000	
Corps of Engineers	48,210	
Central payroll	23,568	
NAFCPS	11,835	
Triangle Park	121	
Burtonwood Depot	70	
Total		<u>333,804</u>
Department of Commerce		
Departmental payroll	20,764	
Bureau of Census	5,306	
Total		<u>26,070</u>
DOD		
APCAPS	52,000	
Defense Industrial Fund	1,303	
Total		<u>53,303</u>
Department of Energy		
Bonneville Power Administration	3,863	
Southwestern Power Administration	217	
Headquarters payroll and personnel	8,450	
Albuquerque field operations office	1,716	
Nevada field operations office	564	
Oak Ridge field operations office	1,370	
Savannah River field operations office	263	
Idaho field operations office	434	
Total		<u>16,877</u>
Department of Health and Human Resources		
Centralized payroll	147,226	
Public Health Service	10,441	
Total		<u>157,667</u>
HUD		14,436

APPENDIX III

<u>Agency/System</u>		<u>Employees Paid</u>
Department of the Interior		
Payroll/personnel system	21,000	
Geological Survey (DIPS)	75,000	
Total		<u>96,000</u>
Department of Justice		
Payroll and personnel	38,107	
Federal Bureau of Investigation	19,142	
Total		<u>57,249</u>
Department of Labor		19,115
Department of the Navy		
SYSMIS	78,118	
UDAPS/SP	76,825	
Industrial activities	44,736	
Regional Finance Center	35,161	
NOMIS	19,463	
Marine Corps	14,400	
Facilities Engineer	13,694	
Sealift Civilian Command	6,592	
Total		<u>288,989</u>
Department of State		
Domestic payroll	8,406	
Regional Administration and Management Center	6,618	
Total		<u>15,024</u>
Department of Transportation		
Federal Aviation Administration	62,525	
Federal Maritime Administration	1,219	
St. Lawrence Seaway Development Corp.	195	
Total		<u>63,939</u>
Department of the Treasury		
Treasury Uniform Management System	46,817	
Internal Revenue Service	84,835	
Total		<u>131,652</u>
Action		1,215
Advisory Commission on Intergovernmental Relations		34
Agency for International Development		4,006

<u>Agency/System</u>	<u>Employees Paid</u>
American Battle Monuments Commission	383
Civil Aeronautics Board	514
Federal Communications Commission	2,145
Federal Elections Commission	226
Federal Home Loan Bank Board	1,577
Federal Mediation and Conciliation Service	381
GSA	38,244
Interstate Commerce Commission	1,438
NASA	
Headquarters	1,753
Ames Research Center	1,908
Goddard Space Flight Center	3,770
LBJ Space Center	3,674
JFK Space Center	2,344
Langley Research Center	2,934
Lewis Research Center	2,698
Marshall Space Flight Center	3,482
Total	<u>22,563</u>
National Mediation Board	58
National Security Agency	b
National Science Foundation	3,626
Nuclear Regulatory Commission	1,282
OPM	7,016
Panama Canal Commission	8,856
Peace Corps	850
Railroad Retirement Board	1,580
Securities and Exchange Commission	2,000
Small Business Administration	5,432

<u>Agency/System</u>	<u>Employees Paid</u>
Smithsonian Institution	3,643
U. S. Information Agency	3,540
VA	233,578
Total	<u>2,015,739</u>

aBased on questionnaire responses.

bData not available for security reasons.

LISTING OF THE NINE PAYROLL SYSTEMS AND
PROCESSING LOCATIONS WE EXAMINED

<u>Agency</u>	<u>Payroll system name</u>	<u>Processing locations visited</u>
Army	Standard Army Civilian Payroll System	Fort Eustis and Fort Carson
Air Force	Air Force Civilian Payroll System	Lowry and Langley AFB
Interior	Payroll/Personnel System	Bureau of Reclamation, Denver
GSA	Manpower and Payroll Statistic	Kansas City, Missouri
HUD	Terminally Operated Payroll/Personnel System	Washington, D.C.
Energy	Payroll/Budget/ Personnel System	Nevada Operations Office, Las Vegas, Nev.
VA	Personnel and Accounting Integrated Data	Austin, Texas
Labor	Integrated Payroll/ Personnel System	Washington, D.C.
NASA	NASA Integrated Personnel and Payroll System	NASA Langley Research Center, Hampton, Va.

METHODOLOGY USED IN GATHERINGOPERATING COSTS FOR PAYROLL SYSTEMS

To obtain consistent fiscal year 1982 operating costs at the reviewed payroll systems we used a standard cost matrix to categorize the direct costs to process the payroll software systems at the 11 locations. At these locations, integrated payroll/personnel software systems were the norm, and we could not separate the ADP of the payroll data from the personnel data. Therefore, we gathered costs associated with ADP of the payroll and personnel data at all locations, including the Army and Air Force locations where payroll and personnel software systems were processed separately.

The transactions that were included in our cost collection began after the approval of input to the system and concluded after the creation of the system's programmed outputs. These processing steps included:

- converting personnel and payroll data to machine-readable form and processing this data to update or create a Master Employee Record (MER),
- converting time and attendance data (including, in most cases, employee workload statistic data) to machine-readable form, editing this data, and creating acceptable time and attendance and workload statistic files,
- calculating payrolls using the acceptable files and MER and creating the various outputs, such as pay tapes, accounting and management reports, and time and attendance forms and earnings and leave statements, and
- preparing and handling these outputs for delivery, including sorting in the mailroom and hand delivering pay tapes to Treasury.

Using a standard matrix, we collected the direct cost of these transactions and grouped them into six categories. The matrix was as follows:

	Personnel	Hardware	Facility	Supplies	Other	Software
Payroll office						
Data Processing office						

The payroll and data processing offices, performed most, if not all, of the transactions listed. Since ADP equipment is not devoted exclusively to the payroll system, we collected only the proportional share of the data processing office's equipment costs attributable to processing the payroll software. In addition, we

included costs to maintain the payroll software because this function was necessary to process payroll correctly. The six cost categories are defined as follows:

- personnel--direct costs, excluding benefits, for the employees involved in these tasks associated with the payroll system process and, if applicable, cost for services, such as keypunching,
- hardware--ADP lease, maintenance, and depreciation for government-owned ADP equipment used to process payroll,
- facility--costs for office space for each department involved, including GSA standard-level user charges, utilities, and guard services where appropriate,
- supplies--direct costs for supplies used for the system tasks and to create the outputs,
- other--direct costs of payroll tasks not fitting in the other cost categories, including, for example, training and travel, and
- software--all cost categories associated with maintaining the payroll system software.

The methodology used at each location to obtain these costs depended on the structure of the available cost data. When possible, we identified specific costs for each category; but, in most cases, we had to accept cost estimates. We also identified the departments involved and their costs, using the agencies' accounting reports. Since agencies did not collect costs by an administrative function, we then estimated costs associated with payroll by using workload statistics, such as computer hours used. We also accepted the agencies' estimates obtained through interviews and confirmed their reasonableness by our observations.

To compare and contrast the nine systems, we used a measure of their workload called average number of files. To determine this measurement, we used a mathematical formula.⁴ With this formula, we recognize the seasonal fluctuations in agencies. Additionally, because of the fluctuations, this approach credits automated systems with the additional workload of storing MERs until the Form W-2s, the Wage and Tax Statements, are printed.

⁴We used the following formula.

$$\frac{\text{average of the no. of people paid per pay period} + \text{the no. of W-2s printed in 1982}}{2} = \text{average number of files}$$

2

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