GAO

May 1989

AUTOMATED SYSTEMS

Legislative Branch Opportunity for Sharing Payroll/Personnel Systems

GAO

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

Information Management and
Technology Division

B-233732

May 23, 1989

The Honorable Jamie L. Whitten
Chairman, Committee on Appropriations
House of Representatives

The Honorable Robert C. Byrd
Chairman, Committee on Appropriations
United States Senate

The House report accompanying the Legislative Branch Appropriations
Bill, 1989, and the related Senate report, directed us to serve as the lead
agency in helping the legislative branch improve its administrative sys-
tems by obtaining technology resources from other agencies. In response
to subsequent discussions with your offices, this report addresses the
efforts of the Architect of the Capitol, Library of Congress, and Govern-
ment Printing Office to obtain payroll and personnel system support,
and offers information on sharing systems.

We found that all three agencies were experiencing problems with their
payroll/personnel systems and that opportunities exist to improve them
significantly and quickly by using a shared system. While we did not
conduct an exhaustive study of each agency's needs, we were able to
determine the basic requirements of payroll/personnel systems and
identify agency concerns about converting to a shared system.

We have identified six executive branch agencies operating systems that
can be shared with legislative branch agencies and provide basic pay-
roll/personnel features. Of these six, we found that the Department of
Agriculture's National Finance Center (NFC) and the Environmental Pro-
tection Agency (EPA) have additional features that make them the most
desirable candidates for serving the three legislative branch agencies. Of
the two candidates, NFC is a stronger choice because of its considerable
experience in handling agency conversions: EPA has no experience in
planning, implementing, and managing conversions of client agencies,
while NFC has successfully converted 14 agencies to its system. If the
chief objective is to move quickly and efficiently in converting the three
systems, NFC represents the clearest choice because it offers proven suc-
cess at implementing a well-functioning, integrated payroll/personnel
system.

and thus greater productivity among agency employees. In addition, although system conversions may require significant start-up costs to convert client agency files and make necessary system changes, the potential for long-term savings is strong. For example, programming expenses can be reduced because a single programming staff at a host agency can make system changes for many agencies at one time, such as a governmentwide pay raise or new tax withholding rates. The Department of Commerce's Director For Budget, Planning, and Organization estimates that Commerce is saving about $2 million a year in personnel and equipment costs since its conversion to NFC's payroll/personnel system in December 1986.

Architect of the Capitol's Efforts to Improve Payroll/Personnel System

In October 1988, after discussions with us concerning its payroll/personnel system, the Architect formed a task force to study the feasibility of obtaining payroll/personnel system support from a host agency. As of April 1989, the task force was evaluating the Architect's payroll/personnel systems to determine their current operating costs and identify essential system requirements. The task force also plans to estimate the potential effect on the Architect's administrative operations of converting to a shared system. According to Architect management, essential issues that need to be addressed in considering system sharing options include the following:

- Identify legislative changes needed to provide a single, standard pay period for all Architect employees. The six executive branch systems we reviewed require a single pay period for all employees; however, the Architect's pay structure contains nine different pay periods, which are either weekly, biweekly, or semi-monthly. The Architect stated that he would support any legislative changes that would be necessary in order to standardize the agency's pay period structure.
- Ensure that the potential host agency can process payroll funds when the funds are allocated through multiple appropriations. The Architect administers 10 different appropriation accounts from which payroll funds are allocated.

The Architect's payroll is processed on a system that uses card punch machines for data input, and has a manual, quality-edit process. According to the Touche Ross report, the system is inefficient and difficult to maintain. Despite these problems, the Architect's system is functional and has always met payroll requirements. The Architect estimated that during 1988 it spent approximately $512,000 to pay about 2,240 people according to the following pay schedule:

Resources Project would be discontinued and yielded an estimated savings of $1.3 million over 5 years. The task force did not address whether the Human Resources Project should be continued.

We found that the task force study contained adequate support for its estimated cost savings, except for those estimates related to continuing the Human Resources Project. According to the manager of the Human Resources Project, obtaining payroll/personnel support from NFC would reduce the Human Resources Project by 25 percent. However, Library officials associated with the project explained that they believe any savings resulting from the reduced Human Resources Project probably would be offset by requirements to build software bridges to NFC's system or for other conversion activities. They had no analysis to support this belief, however.

According to the task force study, essential issues that needed to be addressed in considering system sharing options included the following:

- The status of the Library's disbursing authority must be reviewed to consider whether it should be relinquished or maintained. Rather than using the Department of the Treasury, the Library has its own disbursing authority to issue checks for payroll, travel, and other purposes. This service is also used to provide union employees emergency checks within 48 hours of a request, as required by union contracts.
- Contractual issues, such as changing the payday or pay period, must be negotiated with the Library's three unions.
- Arrangements must be made with the Library's existing client agencies.[2] The Library serves as a host for payroll and personnel functions to smaller legislative agencies, and allows the Supreme Court to use its system to process its payroll and personnel actions. Agreements regarding how these agencies will handle their payroll/personnel functions will need to be addressed.

Library management did not take immediate action on the task force's September 1988 recommendation to obtain payroll/personnel support from NFC. Instead, it decided to conduct additional analysis. Following the appointment of a new director of the Library's Financial Management Office in October 1988, the Library's efforts were directed toward reassessing the options of (1) continuing in-house systems development, (2) installing an executive branch system on the Library's hardware,

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[2]The Library also pays personnel of the Office of Technology Assessment, the Congressional Budget Office, and the Copyright Royalty Tribunal.

Six Federal Systems That Can Support Other Agencies

Our review of potential host agencies revealed six that have the capability to provide payroll/personnel system support to the legislative branch.[3] The six agencies are: Agriculture, EPA, Energy, the Defense Logistics Agency (DLA), Health and Human Services, and the Securities and Exchange Commission.[4] Each of these agencies' systems meets the basic criteria we developed to evaluate potential hosts for the legislative branch in that

- the agencies are willing to host other agencies on a cost-reimbursement basis,
- the systems are currently fully operational, and
- the systems have sufficient capacity to handle the work load from legislative branch agencies.

We evaluated the capabilities of the agencies' systems by comparing the systems' distinguishing features. Specifically, we assessed each agency's ability to provide system support by reviewing

- whether each agency's payroll/personnel system was integrated;
- the approximate cost that would be charged a client agency for payroll/ personnel system services;
- the unique capabilities that an agency's system may have, such as the capability to process automatic retroactive pay adjustments—a feature consistently identified by payroll personnel as desirable; and
- the agency's overall experience at planning, implementing, and managing payroll/personnel services for client agencies.

Features of each of the six agencies' systems are summarized in appendix II.

Federal payroll and personnel systems are very similar in their basic capabilities. For example, nearly all federal agencies pay their employees biweekly, use a pay scale based on the General Schedule, and generate personnel actions with the Standard Form 52, "Request for Personnel Action." Therefore, any distinguishing features that an agency's system may have can be critical factors in a potential client agency's decision to obtain system support. Although many similarities

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[3]In the executive branch, 49 agencies currently operate payroll and payroll/personnel systems to support the federal government's 2 million employees.

[4]As stated on page 6, the Printing Office is looking into the feasibility of installing the Federal Bureau of Investigation's payroll/personnel system on Printing Office hardware. We did not consider the Bureau's system in our analysis because it is not willing to host other agencies and its system is still under development.

retroactive changes on a mass basis, but individual pay adjustments must be calculated manually. Further, Energy's experience as a host has been limited, to date, to supporting three small agencies comprising about 1,700 accounts.

DLA's integrated system is an exception-based pay process, which assumes an employee has worked for pay in the absence of a time and attendance report being submitted. This feature permits the payday to be set within 6 days after the end of a pay period, the earliest of any of the surveyed systems. DLA's system also differs from those at other agencies in that it is decentralized, operating out of 17 different sites. However, DLA is in the process of consolidating all of its payroll/personnel operations at a central site in Columbus, Ohio. The consolidation is expected to take 3-5 years to complete, and will involve relocating the necessary system hardware, as well as developing new backup and security procedures. Because of this major change to its system operations and the possible operational disruptions that may occur, we do not believe DLA should be considered as a candidate to service legislative branch agencies until the consolidation is successfully completed.

The two remaining agencies—Health and Human Services and the Securities and Exchange Commission—would not adequately meet legislative branch requirements because their payroll and personnel systems are not integrated. Although both of these agencies have systems that include standard payroll/personnel features, they rely on a tape interface between the payroll and personnel data bases to keep them current. Reliance on this technology is inefficient because it requires payroll and personnel staff to continually compare data in the two systems for discrepancies.

Conclusion

The Architect of the Capitol, Library of Congress, and Government Printing Office agree that their payroll and personnel systems need improvement. These agencies have an immediate opportunity for significant improvement by converting to a shared, integrated payroll/personnel system.
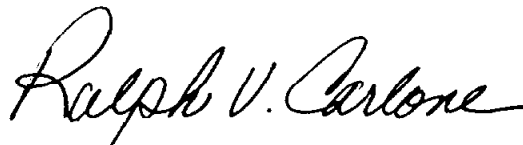
We did not exhaustively study each agency's requirements. However, through our review we considered the choices and determined that Agriculture's NFC system is the most desirable candidate for serving the legislative branch agencies. In reaching this conclusion, we determined the basic requirements of a payroll/personnel system, noted agency concerns about converting to a shared system, and identified the features

The Architect and the Printing Office also raised several technical concerns with our report. We have addressed these concerns, where appropriate, in appendix III and appendix V. The full text of the comments provided by the three agencies are in appendix III, IV, and V.

Our review was primarily conducted from August 1988 through January 1989. We also performed some additional work through April 1989 to update the status of the legislative branch agencies reviewed. Our work was performed in accordance with generally accepted government auditing standards. (See app. I for additional details concerning our objectives, scope, and methodology.)

As arranged with your offices, unless you publicly announce the contents of this report earlier, we plan no further distribution until 30 days after its issue date. At that time, we will send copies to the Architect of the Capitol, Librarian of Congress, Public Printer, and Director of OMB.

We will also make copies available to other interested parties upon request. This report was prepared under the direction of Mr. James R. Watts, Associate Director. Other major contributors are listed in appendix VI.

Ralph V. Carlone
Assistant Comptroller General

Contents

Abbreviations

ADP	automated data processing
DLA	Defense Logistics Agency
EPA	Environmental Protection Agency
GAO	General Accounting Office
IMTEC	Information Management and Technology Division
NFC	National Finance Center
OMB	Office of Management and Budget

Our review was conducted at the offices of the Architect, Library, and Printing Office in Washington, D.C. In addition, we interviewed payroll, personnel, and system managers at the Securities and Exchange Commission, the Department of Health and Human Services, and EPA in Washington, D.C.; the Department of Energy in Germantown, Maryland; DLA in Alexandria, Virginia; and at Agriculture's NFC in New Orleans, Louisiana. Our review was primarily conducted from August 1988 through January 1989. We also performed additional work through April 1989 to update the status of the legislative branch agencies reviewed. Our work was performed in accordance with generally accepted government auditing standards. Official written comments on a draft of this report were obtained from the Architect, Library, and Printing Office and have been incorporated where appropriate. (The agencies' comments are included in their entirety in appendixes III, IV, and V.)

	Potential Host Agencies					
System Description	**Defense Logistics Agency**	**Department of Energy**	**Environmental Protection Agency**	**Health and Human Services**	**Department of Agriculture (NFC)**	**Securities and Exchange Commission**
18. Hardware maintenance	DLA	Energy	EPA	National Institutes of Health	NFC	SEC

Payroll and Time and Attendance Characteristics

19. Pay cycle:						
Period	Biweekly	Biweekly	Biweekly	Biweekly	Biweekly	Biweekly
Day of payment	Friday	Thursday	Tuesday	Tuesday	Thursday	Tuesday
20. Required data entry equipment:						
Hardware	IBM 3270-compatible	IBM 3270-compatible	IBM 3270-compatible	Data 100 SYCOR WANG	IBM 500K-compatible X780, and 3270 PROTOCOL	IBM compatible
Software	APCAPS	None	None	None	PC-Tare	PC-Talk
21. Detail of time and attendance entry	Daily totals	Daily totals	Daily totals	Biweekly	Weekly	Biweekly
22. Time and attendance data entry:						
Exception based	Yes	No	No	No	No	Yes
Confirmation of established tour of duty	Yes	Yes	Yes	Yes	Yes	Yes
23. Data entry edit	Yes	Yes	Yes	Yes	Yes	Yes
24. Data entry method:						
Screen format	Yes	Yes	Yes	Yes	Yes	Yes
Menu-driven	Yes	Yes	Yes	Yes	Yes	Yes
25. Labor distribution calculations	Yes	Yes	Yes	No	Yes	No
Number of categories	30	300	20	N/A	30	N/A
26. Leave calculations:						
Standard	Yes	Yes	Yes	Yes	Yes	Yes
Flexitime	Yes	Yes	Yes	Yes	Yes	No
Maxiflex	Yes	Yes	Yes	Yes	Yes	No
Military Reserves	Yes	Yes	Yes	No	Yes	Yes
27. Automatic retroactive pay changes:						
Mass/individual	Mass	Mass	Both	Both	Both	Neither
Number of pay periods	Unlimited[c]	Unlimited[c]	27	52	13	N/A
28. Supplemental pay actions	Yes	Yes	Yes	Yes	Yes	Yes

(continued)

	Potential Host Agencies					
System Description	**Defense Logistics Agency**	**Department of Energy**	**Environmental Protection Agency**	**Health and Human Services**	**Department of Agriculture (NFC)**	**Securities and Exchange Commission**
40. Restricts programmer access:						
Analysis	Yes	Yes	No	No	No	No
Software updates	Yes	Yes	No	No	Yes	No
Contingency and Miscellaneous Information						
41. System in operation	13 years	5 years	4 years	12 years	6 years	4 years
42. Written contingency plan	Yes	Yes	Yes	Yes	Yes	No
43. Backup storage	Yes	Yes	Yes	Yes	Yes	Yes
44. Backup updated	Biweekly	Biweekly	Biweekly	Weekly	Daily	Every 2 days
45. Backup site start-up time	5-8 hours	24 hours	24 hours	Unknown	48 hours	No site
46. Telecommunications	DLA Net	TYMNET	T1 Line	T1 Line	TELENET	TYMNET
47. System transportable	Yes	Yes	Yes	Yes	Yes	No
48. Service history:						
Number of clients	3	3	0	0	14	1
Total number of client accounts	8300	1687	—	—	72,218	350

[a]DLA is consolidating its 16 processing sites in Columbus, Ohio, where new clients will eventually be brought on the system. This process should take 3 to 5 years to complete.

[b]DLA has decentralized processing sites. Its current sites only use approximately 15 percent of the system they are on (the remaining capacity is used for other DLA functions). Officials estimated they could accommodate 3 to 4 times the current capacity. Thus 55,320 x 3 = 165,000 accounts.

[c]Energy and DLA write programs for their retroactive mass pay changes. This process allows them to cover as many periods as are available in the data base.

[d]Standard Forms 50 and 52 are personnel forms used to document changes in an employee's status.

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In a recent exit interview with your
representatives it was indicated that the next step
in the process is for my office to conduct a cost
assessment, together with other criteria and to
make a recommendation to the Committees on
Appropriations. We will, of course, commence that
effort immediately, and will very much appreciate
your advice as we proceed.

It was our understanding from the language
contained in House Report 100-621 that your office
would act as the lead agency within the Legislative
Branch support agencies to determine if the system
support needs of our agency could be satisfactorily
interchanged with substantial reductions in
hardware, software, and redundant systems analysis
investments. Your assessment of six prospective
host agencies that possess the capabilities of
providing personnel/payroll integrated data
services will assist in the final consideration of
a potential host agency. However, as you know, we
will have to conduct an in-depth assessment of our
needs and compare system sharing with other
alternatives, such as enhancing our existing
system, prior to making a final decision. Key
issues that must be considered are 1) effectiveness
of our current system, 2) time required to
implement a change, 3) reliability and
assessability of host system, and 4) cost
comparisons. I believe we should acknowledge that
the existing AOC payroll system is processed with
state-of-the-art transaction processing, except for
the use of key punch machines for data entry on
large volume payrolls. The data is stored in a
hierarchical CODASYL data management system. COBOL
programs perform the majority of edits. On-line
data entry is available in lieu of key punch
machines and, as we agreed in the exit interview,
we will make the conversion in 60-90 days.

With respect to our budget request of $750,000,
which was included in the 1989 budget and denied,
and resubmitted in the 1990 budget, the purpose of
that request is to resolve problems we were
experiencing with the payroll system. The request
for funding indicates that our efforts have been
directed toward redesign to a fully integrated data

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We realize that all alternative sources determined
capable of providing payroll and personnel data
services to our office, especially where we could
derive capability enhancements and cost savings,
should be consciously considered and pursued. Your
efforts are the first step in this direction and we
eagerly look forward to participating in a thorough
comparison and evaluation before arriving at a
final recommendation.

Cordially,

George M. White, FAIA
Architect of the Capitol

and 6 or more months to redesign the payroll system.[5] However, unlike the Library (see p. 4), the Architect has not yet prepared an analysis that compares the estimated cost and time requirements, and benefits of in-house (or contractor-supported) system development with system sharing. Such an analysis, once completed, should provide the Architect with the information needed to assess the alternatives and decide on an approach.

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[5] Architect of the Capitol Payroll Systems Review, Executive Briefing (Touche Ross & Co., Washington, D.C., Oct. 22, 1987).

THE LIBRARIAN OF CONGRESS

WASHINGTON, D.C. 20540

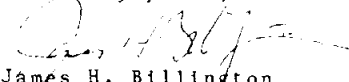March 17, 1989

Dear Mr. Fazio:

After extensive internal review and consultation with the General Accounting Office staff I have concluded that the National Finance Center is the best choice for the Library of Congress for maintenance and operational support of its payroll system and related personnel operating records. We have advised the GAO audit team, headed by Mark E. Heatwole, which was established in response to your Committee's directive in House Report 100-621, dated May 12, 1988, of our decision. The Report assigned GAO the responsibility "to be the lead agency within the legislative branch support agencies in seeking out appropriate opportunities. Since their needs seem most critical, the GAO should begin with the Architect of the Capitol and Library of Congress."

The NFC system is not a panacea to all of the many problems we had hoped to address through an integrated Library Human Resources automated system. Our present 20 year old semi-automated payroll system is in serious trouble and can only be maintained with great effort, and, in any case, cannot survive for more than two years. With our best efforts a newly designed in-house system will take 3 to 4 years to put in place, with slippage of schedule always a possibility. If we initiate an agreement with the NFC by March 31, 1989, a new payroll system should be in operation by the summer of 1990.

I have concluded that the Library must move forward with the NFC option, and prepare to enter into an agreement with NFC to provide these services as soon as possible.

When testifying before your Committee on the 1990 budget, I said we would make the decision within 60 days and promptly advise you. I urge your support for the $300,000 item in our 1990 budget request to help pay some of the costs of making this change.

Sincerely yours,

James H. Billington
The Librarian of Congress

The Honorable
Vic Fazio
Chairman
Subcommittee on Legislative
  Branch Appropriations
U. S. House of Representatives
Washington, D.C. 20515

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> check is physically mailed to the bank. However,
> efforts are underway to utilize EFT with Treasury in
> the near future.

On page 3, line 8, the statement is made that GPO's system is
"nonintegrated." While GPO's Payroll/Personnel System is not a
fully integrated system, Personnel data is shared with payroll
and is also used by the Executive Information System (EIS), the
Probe/Cost System, the EEO Reporting System, and the Workman's
Compensation Reporting System. In fact, the question arises, how
will other GPO systems that need Payroll/Personnel data obtain
it? What changes to GPO's other systems might be necessitated by
using the National Finance Center (NFC)?

Regarding page 13, line 16 and following, GPO is more notable for
its dissimilarities compared to other Federal agencies. For
example, approximately half of GPO's employees are currently paid
under the General Schedule, and the other half are paid based on
GPO's craft rates. In fact, if, as a result of current
negotiations with the American Federation of Government Employees
(AFGE), pay scales change from the Government-wide pay scale,
none of GPO's salaries would agree with those of other agencies.

In addition, it is not clear exactly what functions the NFC would
perform for GPO. What changes would GPO have to make in its
existing system to share with another agency? Would we still
need our data collection system and existing payroll system to
prepare data for processing? It appears that the pay data would
still have to be collected, verified, and corrected before data
is forwarded to NFC for processing. Also, there may be some
problems with the quick turnaround between the end of the pay
period and payday.

Before a final decision is made regarding conversion to the NFC
or any other host agency system, a comprehensive study should be
conducted by appropriate representatives from the following GPO
organizations: Personnel Service, the Office of Information
Resources Management, and Financial Management Service. This
study should address the impact of such a change on GPO's current
payroll/personnel policies and procedures, service to employees,
cost comparisons, and the experience of other comparable agencies
who converted to this system. Other considerations will include:
the amount of control GPO would have over its processing; system
changes based on GPO's changing requirements; possible impact on
GPO organizational components; the responsiveness of the new
system in problem/complaint resolution; the impact on GPO's
Corporate Data Base Strategy; and a number of questions,
including timing of paydays, availability of early checks, leave
advances, etc., that will have to be negotiated with the unions

GAO Comments

The Printing Office also raised several technical concerns with our report. The Printing Office stated that our study contains some statements that require clarification, and suggested language to replace a paragraph in our report. In responding to this suggestion, we added a sentence to our report that shows the Printing Office's efforts to utilize electronic funds transfer in the near future.

The Printing Office referred to our statement that its system is "nonintegrated" and indicated that while the system is not fully integrated, it does provide for data sharing between personnel and payroll systems. We agree that the Printing Office's systems provide for data sharing between systems; however, by definition, an integrated system is one in which system components can access shared data, and does not require data transfers between systems.

The Printing Office also stated that its payroll structure is somewhat dissimilar from other federal agencies because half of its employees are paid under the General Schedule, and the other half on agency craft rates. The Printing Office also noted that current negotiations with the American Federation of Government Employees may result in salaries that are completely different from those at other agencies. We agree that this is a valid concern and that the Printing Office should ensure that a potential host agency can meet this requirement. The NFC, for example, has stated that it has successfully converted several agencies, such as the Smithsonian, that have pay rates different from typical federal agencies. In addition, NFC has agreed to implement our new merit pay system, which is based on pay bands rather than General Schedule pay rates.

Finally, the Printing Office raised several questions concerning the functions the NFC would perform for the agency. In addition, the Printing Office noted a series of issues that should be considered before a final decision is made regarding conversion to the NFC or any other host agency. (See p. 30.) We agree that these are valid questions and concerns that the Printing Office should address in considering obtaining system support from a host agency.

Major Contributors to This Report

Information Management and Technology Division, Washington, D.C.

James R. Watts, Associate Director, (202) 275-3455
Mark E. Heatwole, Assistant Director
Frank W. Deffer, Evaluator-in-Charge
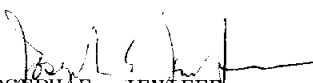Peter C. Wade, Evaluator

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if changed. A key issue will be NFC's responsiveness to GPO
management's needs relative to the demands of other agencies; as
one of NFC's smallest customers, GPO may not receive the same
priority as the larger agencies.

Again, thank you for the opportunity to review and comment on
this report. If we can be of any further assistance in this
study, please contact me.

Sincerely,

JOSEPH E. JENIFER
Acting Public Printer

Comments From the Government Printing Office

United States Government Printing Office
Washington, DC 20401

OFFICE OF THE PUBLIC PRINTER

April 5, 1989

Mr. Ralph V. Carlone
Assistant Comptroller General
General Accounting Office
441 G Street NW.
Washington, DC   20548

Dear Mr. Carlone:

Thank you for the opportunity to review the Draft Report titled
<u>Payroll/Personnel ADP Systems: Legislative Branch Opportunity
for System Sharing</u>. At my request, appropriate Government
Printing Office (GPO) officials, including key managers within
our Administration and Resources Management (ARM) area, also
reviewed the report; the following reflects a consensus of their
comments:

Our review of the report indicates that, while the concept of
system sharing has merit and should be fully investigated, the
General Accounting Office's (GAO) study of GPO's current
activities was limited in scope and contains some statements that
require clarification. For example, the last paragraph on page
11 should read as follows:

> The Printing Office's current payroll system is
> labor-intensive and difficult to change and maintain.
> It has a payroll staff of 28 personnel to maintain
> time and attendance records of approximately 5,150
> employees. The payroll staff compares manually-
> gathered time and attendance data with system-
> generated data on a daily basis to determine if the
> data are correct. Any discrepancy in the data must
> be manually adjusted and the correct information
> keyed into the payroll system. GPO estimated it
> costs approximately $1.2 million to pay its employees
> annually. GPO also has a manual alternative to
> Electronic Funds Transfer (EFT) where, instead of
> wiring funds to an individual account, the employee's

Comments From the Library of Congress

THE LIBRARIAN OF CONGRESS

WASHINGTON, D.C. 20540

March 21, 1989

Dear Mr. Carlone:

I concur in the statements regarding the Library of Congress that are contained within the draft report entitled "PAYROLL/PERSONNEL ADP SYSTEMS: Legislative Branch Opportunity for System Sharing" (B-233732).

I had been wrestling with the payroll issue for several months and established a task force to ascertain what could be done. That task force has recommended that the payroll system be transferred to the National Finance Center (NFC). I anticipate initiating an agreement with the NFC by March 31, 1989, and a new payroll system should be in operation by the summer of 1990. I anticipate this move will cost the Library of Congress $300,000.

Mr. Vic Fazio, Chairman, Subcommittee on Legislative Branch Appropriations, U.S. House of Representatives, has been notified of this pending payroll transfer to NFC.

Sincerely yours,

Donald C. Curran
Acting Librarian of Congress

Enclosures

The Honorable
Ralph V. Carlone
Assistant Comptroller General
U.S. General Accounting Office
441 G. Street, N.W.
Washington, D.C. 20548

GAO Comments

In its comments, the Architect raised several concerns about our report. The Architect stated that our conclusion is not supported by documented cost data because that kind of analysis was beyond the scope of the assignment. We agree. Our review did not include a detailed evaluation of the Architect's cost data—because the Architect has not collected or organized such data for analytical purposes. Our conclusion that NFC is the most desirable choice in terms of system sharing is fully supported, however, by data collected from the six host agencies. (See pp. 7-9.)

Concerning its current systems, the Architect stated that the existing system is processed with state-of-the art transaction processing, and that on-line data entry, in lieu of key punch machines, is available and can be implemented in 60-90 days. While the Architect's system is functional and well-run, it is not a state-of-the-art system. The system is not integrated with its personnel system and the Architect relies heavily on the knowledge and abilities of two payroll staff members to ensure payroll checks are processed properly. In addition, according to Architect payroll staff, on-line data entry has been available for over a year, but they believe the data entry system, as currently configured, is too cumbersome to use. At the time of our review, the Architect's payroll staff continued to use key punch machines for data entry. Finally, the Architect stated that in its proposed 1990 budget it is requesting $750,000 to resolve problems with its payroll system. The request stated that this money will be used to redesign the system to a fully integrated data base payroll system that would allow for subsequent integration of that system with accounting and personnel systems.

The Architect believes that the $750,000 request is a nonrecurring expenditure, while system sharing would result in additional, recurring costs. In addition, the Architect stated that the new system could be implemented approximately one and a half years from date of contract award.

Our report does not specifically address the Architect's 1990 budget request for $750,000. We do not believe that the Architect's cost and time estimates for system redesign are supported by well-documented cost data. As we indicate in our report (see p. 2), the $750,000 amount is an estimate Touche Ross & Co. recommended that would be needed to redesign the Architect's payroll system. Specifically, the Touche Ross report estimates that it would require $75,000 to $125,000 and 2-3 months to conduct a payroll requirements analysis, and "$600,000(+)"

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base payroll system which would allow for the
subsequent integration of that system with the
accounting and personnel systems. If the
appropriation request is approved, then
implementation would require approximately one and
a half years from date of contract award. It is
not known exactly what period of time would be
required to have this service provided by a host
agency. However, the timing required for GAO's
conversion to NFC was, as we understand it,
somewhere in the neighborhood of one and a half to
two years.

The concern of our office in considering the matter
of sharing a system is the additional cost factor
potential. In our judgment, there will definitely
be additional cost. This statement is based on the
fact that our payroll and personnel systems are
driven by multi-purpose hardware and personnel that
if segregated will still require the hardware and
personnel to operate the continuing applications
and perform other work. Therefore, the potential
cost reduction considerations obtainable by having
these services furnished by another source would,
to the best of our knowledge, only involve some
minor software cost savings. Also to convert to a
host agency concept would involve start-up cost
(unknown) and an annual recurring services cost of
the magnitude of $250,000 per annum based on
information developed by the Library of Congress
for similar applications. In comparison, our
$750,000 request is a non-recurring expenditure
which we feel would provide us with a cost
effective payroll/personnel data system with no
annual recurring cost other than annual escalation
which would apply under all circumstances. In
addition, if all of our payrolls were consolidated
to biweekly for our internal system, as would be
required by a host agency, and other changes
applied, then we foresee the possibility of
reducing our cost of operating and maintaining the
system. The types of applications that will
continue to be required are inventory, budgeting,
accounting, scheduling (CPM's), project tracking
system and our word processing requirements.

Comments From the Architect of the Capitol

Washington, DC 20515

March 13, 1989

Mr. Ralph V. Carlone
Assistant Comptroller General
U.S. General Accounting Office
Washington, D.C. 20548

Dear Mr. Carlone:

We appreciate the opportunity to review your draft report, PAYROLL/PERSONNEL ADP SYSTEMS: Legislative Branch Opportunity for System Sharing. As you are aware, I convened a task force, in October 1988, to study, in conjunction with the GAO study, the feasibility of obtaining payroll and personnel system support from the Department of Agriculture's National Finance Center (NFC) or any other host agency having the capability to furnish services to the Office of the Architect of the Capitol.

The draft report indicates that GAO has concluded that it may be beneficial for our office to commence obtaining our payroll and personnel data services from NFC, based on NFC's experience in providing these services to other Federal agencies. The conclusion, however, is not supported by documented cost data and other information on which the judgment is based, apparently because that kind of analysis was beyond the scope of the assignment. In that regard, it must be considered and understood that the payroll and personnel programs are but two of twelve systems making up core Financial and Administrative Systems mainframe applications. Therefore, the impact of the proposed changes on our ability to handle existing and future requirements has to be assessed as well as our ability to continue to internally operate on an integrated network and shared data environment, in concert with our engineering, construction, building services, and architectural groups.

| System Description | Potential Host Agencies | | | | | |
	Defense Logistics Agency	Department of Energy	Environmental Protection Agency	Health and Human Services	Department of Agriculture (NFC)	Securities and Exchange Commission
29. Method used to notify client of incorrect or missing payroll data	Reports, electronic notification	Reports	On-line message & reports	Phone call	Phone call, reports, electronic notification	Phone call, error reports
30. Information retrieval:						
On-line	Yes	Yes	Yes	Yes	Yes	Yes
Menu-driven	Yes	No	Yes	Yes	Yes	Yes
Other	Batch	N/A	N/A	Batch	Batch	Reports
31. Financial management interface:						
Budget	Yes	No	Yes	No	Yes	Yes
Funds allocations	Yes	No	Yes	No	Yes	Yes
Funds obligation	Yes	No	Yes	No	Yes	Yes
Accounting	Yes	Yes	Yes	Yes	Yes	Yes
Personnel System Characteristics						
32. Establishes, maintains, and abolishes positions	Yes	Yes	No	No	Yes	Yes
33. SF-50 and SF-52 data-entry support:[d]						
On-line	Yes	Yes	Yes	Yes	Yes	Yes
Full screen	Yes	Yes	Yes	Yes	Yes	Yes
Nature-of-action driven	Yes	Yes	Yes	Yes	Yes	Yes
Front-end edits for clients	Yes	Yes	Yes	Yes	Yes	Yes
34. Processes key personnel data:						
Training	Yes	No	Yes	Yes	Yes	PC-based
Awards	Yes	Yes	Yes	Yes	Yes	Yes
EEO	Yes	Yes	Yes	No	Yes	Yes
Recruiting	No	No	Yes	No	No	No
35. Processes employee data using nature-of-action codes	Yes	Yes	Yes	Yes	Yes	Yes
36. Union data maintained	Yes	Yes	Yes	Yes	Yes	Yes
Internal Controls and Security						
37. System access limited	Yes	Yes	Yes	Yes	Yes	Yes
38. Duplicated data prevented	Yes	Yes	Yes	Yes	Yes	Yes
39. Programmer authorization required	Yes	Yes	Yes	Yes	Yes	Yes

(continued)

Payroll/Personnel System Features at Six Executive Branch Agencies

	Potential Host Agencies					
System Description	**Defense Logistics Agency**	**Department of Energy**	**Environmental Protection Agency**	**Health and Human Services**	**Department of Agriculture (NFC)**	**Securities and Exchange Commission**
1. Computer hardware	IBM/AMDAHL Combination	AMDAHL 5890 200E	IBM 3090 series	IBM 3090 series	IBM 3090 series	IBM 3090 series
2. Computer hardware location	Columbus, OH[a]	Germantown, MD	Research Triangle Park, NC	Bethesda, MD	New Orleans, LA	Washington, DC
3. Number of accounts:						
Current	57,000	17,000	16,000	135,000	215,000	3,000
Total capacity (estimated)	165,000[b]	52,400	75,000	170,000	500,000	6,000
4. System documentation	Yes	Yes	Yes	No	Yes	Yes
5. User documentation	Yes	Yes	Yes	No	Yes	Yes
6. Operating system	OS-MV	MVS-SP2	MVS-XA	MVS-XA	MVS-XA	MVS-OS
7. Average annual processing cost per account	$168.00	$82.34	$100.00	$112.00	$102.74	$90.00
8. Integration aspects	Integrated	Integrated	Integrated	Interfaced	Integrated	Interfaced
System Features/Capabilities						
9. Functions available	Payroll Personnel Labor cost accounting Appropriation accounting	Payroll Personnel Labor cost extract file	Payroll Personnel Labor cost accounting	Payroll Personnel	Payroll Personnel Accounting Property Collection	Payroll Personnel
10. Preprogrammed standard reports	Yes	Yes	Yes	Yes	Yes	Yes
11. Automatic mass updates	Yes	Yes	Yes	Yes	Yes	No
12. Effective dates used for file updates	Yes	Yes	Yes	Yes	Yes	Yes
13. Agency-unique changes available	Yes	Yes	Yes	Yes	Yes	Yes
Operating Characteristics						
14. Query language	Mantis	Answer DB	Focus	DB2/COBOL	Focus	Natural
15. Query file execution: interactive or batch	Both	Batch	Both	Both	Both	Both
16. Payroll/personnel data reporting responsibility	DLA	Energy, except for OPM report 113 sent to client for signature and submission	Client agency	HHS	NFC	SEC
17. Software maintenance	DLA	Energy	EPA	HHS/National Institutes of Health	NFC	SEC

(continued)

Objectives, Scope, and Methodology

House Report 100-621, Legislative Branch Appropriation Bill, 1989 (concurred with in the related Senate Report 100-382), directed us to evaluate the feasibility for legislative branch agencies to obtain administrative system support from other agencies. In response to subsequent discussions with the Chairman's office, House Committee on Appropriations, our specific objectives were to (1) determine the status of current payroll/personnel systems of the Architect of the Capitol, the Library of Congress, and the Government Printing Office, and identify any agency plans for change, and (2) assist these agencies in identifying and evaluating executive branch agencies offering system support for payroll and personnel functions.

To determine the status of the current systems, we (1) obtained and reviewed Architect, Library, and Printing Office documents concerning their current payroll/personnel systems, and (2) interviewed responsible officials to determine current agency plans for obtaining system support from other federal agencies. We used the Federal Information Resources Management Regulation and OMB Circular A-130, Management of Federal Information Resources, as our guidelines in assessing the comprehensiveness of the agencies' studies and the adequacy of their cost information. (Legislative branch agencies are not required to follow these guidelines when acquiring information system resources.)

To assist the Architect, Library, and Printing Office in identifying potential executive branch systems, we obtained a list of 49 potential host agencies from OMB. From this list, six agencies were identified that (1) were willing to host, (2) were currently operational, and (3) had sufficient capacity to accommodate new clients.

To identify the key features offered by potential hosts, we developed a checklist based on similar checklists designed by OMB, Treasury, and us; discussed the draft checklist with our payroll/personnel staff and technical staff; and made revisions where appropriate. Officials at each agency completed the checklist. We met with these officials to discuss their replies and assure a consistent understanding of our questions and their responses. From this information we developed a matrix (see app. II) to compare the features of each of the six agencies and identify any distinguishing characteristics of each agency's system. Although we did not independently validate the responses received from the six agencies, we did have them review and validate their responses as presented in our matrix. The agencies' system features were compared and the advantages and disadvantages of each payroll/personnel system were identified.

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that the current integrated systems offer. Among the other agencies we evaluated, EPA was also a strong contender. However, we believe NFC is the better choice because of its extensive experience in planning, instituting, and managing agency conversions. NFC has successfully converted 14 agencies' systems; EPA has not converted any. If the main objective is to convert the three agencies' systems quickly and efficiently, NFC is the strongest choice because it has successfully implemented a well-run, integrated payroll/personnel system.

Agency Comments and Our Evaluation

We obtained written comments on a draft of this report from the Architect, Library, and Printing Office. Both the Library and the Printing Office agree that system sharing can be an effective and economical means to improve their payroll/personnel operations. The Architect was silent on the merits of sharing. In concurring with our report's conclusion, the Library also announced that it has decided to obtain payroll/personnel system support from NFC. The Library also has stated that after extensive internal review and consultation with us, it decided that NFC is the best choice (for the Library of Congress) for maintenance and operational support of its payroll system and related personnel operating records.

The Architect and the Printing Office stated that a final decision concerning their payroll/personnel systems should not be made until a comprehensive study is conducted to address the costs and benefits of alternative approaches. In addition, the two agencies believe their analyses should include an assessment of the potential impact that system changes would have on agency employees and operations. We agree. As stated in our report (see p. 1) we did not exhaustively study each agency's requirements. Nor did we analyze in detail the potential costs and benefits that the agencies would incur in order to meet those requirements. However, as the Architect noted in its comments, our assessment of the capabilities of six potential host agencies' systems will assist the legislative branch agencies in analyzing the costs and benefits of different solutions, and selecting an approach. In addition, the Printing Office noted in its comments that the concept of system sharing has merit and should be fully investigated. Toward that end, in our role as the lead agency for system sharing, we look forward to working with and assisting the three agencies in their endeavors to improve their payroll and personnel systems.

exist among the six systems we reviewed, our review revealed several key distinguishing features.

NFC's system is the largest of those we surveyed, supporting 215,000 accounts for itself and its client agencies. It offers a full range of payroll and personnel processing services including the capability to perform automatic retroactive calculations for pay on both a mass and individual basis.

Unlike the other agencies, Agriculture, through its facilities at NFC, has considerable experience in hosting both large and small agencies. NFC has compiled a successful history of agency conversions, including the Departments of Commerce and Housing and Urban Development, and GAO. Through its experience in converting 14 agencies comprising over 72,000 accounts, NFC has developed detailed interagency agreements, comprehensive implementation plans, and thorough training courses. Except for working with agencies in obtaining necessary legislative changes, NFC has already addressed all of the issues cited by Architect, Library, and Printing Office officials as needing to be addressed in considering system sharing options. For example, NFC addressed union issues arising from its conversion of the Department of Housing and Urban Development and successfully handled multiple payroll appropriation accounts for the Smithsonian Institution.

EPA's integrated system has many excellent features similar to NFC's system, including the capability to automatically make retroactive changes to the data base on both a mass and individual basis. For example, any data entered that carries a prior effective date will cause the system to make required adjustments affecting leave, pay, and future retirement benefits. These adjustments would cover all prior pay periods, and, if pay is involved, would be reflected on the employee's next check. According to EPA officials, this system requires half the number of support personnel usually needed to operate a payroll/personnel system in other comparably sized agencies. However, as of January 1989, EPA had no experience in providing payroll/personnel system support to other agencies.

Energy's integrated system also has many similar features and is the least expensive of the six we evaluated, costing agencies about $82 per account per year. The average charge of the other five agencies ranged from $90 to $168 per account per year. However, a disadvantage of Energy's system is the lack of a provision for making automatic retroactive pay changes for individual employees. Energy can make automatic

and (3) sharing a system. On March 1, 1989, the Library decided to obtain payroll/personnel system support from NFC.

Government Printing Office's Efforts to Improve Payroll/ Personnel System

The Printing Office has been studying the need for a new payroll/personnel system for 5 years, but has not made significant progress toward acquiring a new system. According to the Printing Office's Special Assistant to the Comptroller, concern over the sensitivity of personnel data has hindered these efforts and made it difficult for the payroll and personnel offices to agree on an approach to obtaining a new payroll/personnel system. The Printing Office is currently assessing the Federal Bureau of Investigation's payroll/personnel system to determine the feasibility of installing it on Printing Office hardware.

According to Printing Office staff responsible for assessing alternatives to their current payroll and personnel systems, essential issues that need to be addressed include the following:

- The status of the Printing Office's disbursing authority must be reviewed to consider whether it should be relinquished or maintained. The Printing Office, like the Library, also has its own disbursing authority to issue checks for payroll, travel, and other purposes. This service is also used to provide union employees emergency checks within 24 hours of a request, as required by union contracts.
- Contractual issues, such as changing the payday or pay period, must be negotiated with the Printing Office's 28 local unions.

The Printing Office's current payroll system is poorly documented, labor-intensive, and difficult to maintain requiring daily manual calculations for the time and attendance records of about 5,150 people. It has a payroll staff of 28 personnel. Their duties include the daily comparison of manually gathered time and attendance data with system-generated time and attendance data to determine if the system data are accurate. Any discrepancy in the data must be manually adjusted and the correct information keyed into the payroll system. The Printing Office also has a manual alternative to electronic funds transfer where, instead of wiring funds to an account, the employee's check is physically mailed to the bank. Efforts are underway to replace this method with electronic funds transfer through the Department of the Treasury in the near future. The Printing Office estimated it costs approximately $1.2 million annually to pay its employees.

- 1,931 employees are paid on a biweekly payroll;
- 181 employees are paid weekly;
- 43 employees are paid semi-monthly;
- 54 Botanic Garden employees are paid on a different biweekly payroll period; and
- 31 Supreme Court maintenance employees are paid on yet another biweekly payroll period.

The Architect is also responsible for payroll services that provide weekly payments to Botanic Garden and Supreme Court maintenance employees during the summer, as well as biweekly payments to Senate Restaurant employees.

Library of Congress' Efforts to Improve Payroll/Personnel System

In September 1988 a Library task force completed a study that estimated the costs and benefits of obtaining payroll/personnel system support from NFC and recommended that the Library proceed with a proposal to obtain system support from that facility. After assessing this recommendation and considering other options, the Library decided on March 1, 1989, to proceed with the NFC proposal.

According to the Library, its payroll system is inefficient, poorly documented, and difficult to maintain. The Library pays about 5,400 people with this system. It uses manual forms to move data from its personnel system to its payroll system, which results in discrepancies between the two systems and requires manual reconciliation so that accurate data can be processed. Also, under the current system, 21 manual processes are prone to error and depend upon the payroll clerks' memory for successful completion.

Until June 1988 the payroll office was understaffed, resulting in a backlog of required reports. For example, the Library did not file its 1987 third quarter tax report with the Internal Revenue Service until September 1988. By August 1988, 10 staff had been added, and, as of January 1989, the backlog of reports was still being reduced. Despite these problems the Library has always met its payroll.

The task force considered two approaches in assessing the costs and benefits of using NFC. One approach used NFC and retained part of the Human Resources Project, an in-house system development project for managing human resources. This approach yielded an estimated savings of $782,000 over 5 years. The other approach assumed the Human

Background

Government agencies rely heavily on automated data processing systems to efficiently process employee payrolls and manage personnel operations. The Architect, Library, and Printing Office are relatively small agencies that support the Congress in its legislative duties. The Architect is specifically responsible for the care and maintenance of the Capitol and its grounds, the Senate and House office buildings, and other buildings as directed by the Congress. It pays about 2,240 people. The Library supports the federal government through its vast collection of books, periodicals, recordings, and documents, and pays about 5,400 people. The Printing Office provides publishing support for the Congress and most of the federal government and pays about 5,150 people. All three agencies administer their own payroll and personnel operations through in-house, nonintegrated systems.

In an October 1987 report on the Architect's administrative systems (including both payroll and personnel), the independent consulting firm of Touche Ross & Co. recommended that the payroll system be completely redesigned at an estimated cost of $750,000.[1] Consequently, in fiscal year 1988, the Architect requested funding from the Congress to provide for this system redesign; the House Appropriations Committee denied the Architect's request. The Committee referred to the GAO decision to move its payroll and personnel operations to NFC in New Orleans, Louisiana, and indicated that other legislative agencies should also consider system sharing rather than attempting to independently develop and maintain new and unique systems.

The Office of Management and Budget (OMB) has also recognized the potential benefits of system sharing and has instituted a program within the executive branch for payroll/personnel system consolidation through sharing. According to OMB's plans, by 1992, as older systems are phased out and agencies obtain system support from other agencies, only 12 of 49 executive branch payroll/personnel systems will remain in operation—five in the defense agencies and seven in the civilian agencies.

Client agencies that convert from older systems can obtain long term benefits from sharing payroll/personnel systems that are based on modern technology, which uses modular software, integrated data bases, and powerful mainframe computers. Modern, integrated payroll/personnel systems result in smoother, more efficient and accurate operations,

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[1] Architect of the Capitol Payroll Systems Review, Executive Briefing (Touche Ross & Co., Washington D.C., Oct. 22, 1987).