

**Human Resources**  
*Technology Council*

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**Governmentwide Human Resources  
Information Systems Study**

*U.S. Office of  
Personnel Management*

*November 1997*

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# Executive Summary

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## Introduction

The Federal Government faces tremendous challenges in employing and paying its civilian workforce. Over the past few years, Federal agencies<sup>1</sup> have been working to improve the service provided to managers and employees through human resources information systems. These efforts are driven by a variety of agency initiatives and recent legislation designed to reinvent and streamline internal organization and operations of agencies. Federal managers are looking for information technology that will enable their agencies to achieve these goals. The newly established Human Resources Technology Council will assist agencies in meeting today's business challenges. The Council provides a forum for cooperative information systems initiatives. The Human Resources Technology Council and the U.S. Office of Personnel Management (OPM) will work together to serve as a consultant to Federal managers in addressing the human resources issues of today's dynamic work environment.

In July 1997, the President's Management Council (PMC) tasked the Human Resources Technology Council to review ongoing agency efforts. The PMC recognized the need for a Governmentwide human resources information systems strategy, including the need to define and standardize essential functional and information requirements. This Study establishes uniform minimum core functional requirements that meet the basic needs of Federal agencies. It also reviews ongoing agency efforts to develop and upgrade human resources information systems. Agencies should use this document as a guideline when planning the upgrade or replacement of their current systems. Human resources professionals should use the publication of this document as a resource for educating managers on the integral part human resources information systems play in achieving agency goals and accomplishing the agency mission.

## Study Methodology

The Human Resources Technology Council used inter-agency working groups to do this study. As a first step, the Council conducted a survey that collected summary information about current systems and about ongoing replacement efforts and plans. The Council then appointed a workgroup to develop system requirements for core human resources processes. This workgroup collected existing agency documentation for ongoing and planned modernization projects; consulted with agency officials in the human resources, information technology and financial functions; and reviewed human resources policies to determine impact.

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<sup>1</sup> The term "agency" is used throughout this document to refer generically to any department, bureau, agency, or major independent organization in the executive branch of the Federal Government.

Once the core requirements were determined, the Human Resources Technology Council appointed a second workgroup to determine the status of efforts to replace aging systems. Using survey results and agency interviews, this workgroup selected and reviewed the modernization projects now underway in seven Federal agencies.

## **Findings**

### *Core Federal Human Resources Information Systems Requirements*

The Core Federal Human Resources Information Systems Requirements provide a number of findings in addition to defining the core functional requirements. These findings include:

- Human resources and payroll information systems should accommodate the flexibility and discretion needed by agency management.
- Agencies should make every effort to adopt standard data elements and descriptions to provide a degree of interoperability and compatibility of human resources information systems across the Government.
- Analytical processes should be used to critically examine, rethink, and redesign agency human resources management programs before embarking on the development of new information systems.
- Agencies should review other existing agency information systems to determine if any one of them can satisfy their needs before making a decision to purchase or develop a new system.
- Agencies' decisions about how and when to replace current systems should be based on a business case analysis.

The functional requirements define core information systems requirements and create a framework for designing an effective and efficient human resources information system. The identified standard core requirements, when integrated with agency unique requirements, will move the Federal Government towards a higher degree of uniformity in the design and capability of human resources information systems while supporting the special information management needs of individual agencies.

## ***Human Resources Systems Review***

The Human Resources Systems Review section provides an analysis of a survey sent to Federal agencies in August 1997. Seven agencies were selected for further review and represent a variety of technical approaches and cross-servicing arrangements. Key findings include:

- There are only seventeen legacy human resources information systems in use serving the Federal civilian workforce. All but one were developed "in house".
- Five of the largest systems service 91 percent of the total workforce. Replacement or major modernization for each of these five systems is already underway.
- Most modernization plans involve automating core processes by use of commercial-off-the-shelf (COTS) technology.
- The seven human resources systems selected for further study will meet (or have the capacity to meet) all of the core information system requirements, but their means for doing so vary considerably. They include the use of in-house development, minimally customized commercial off-the-shelf, and substantially customized commercial off-the-shelf. The variation in systems approach reflects several influences: the size and dispersion of the workforce, the human resources infrastructure and any associated streamlining objectives, and the lack of any proven "single solution" approaches.
- Several of the agencies that are modernizing their systems are offering to provide services to customer agencies.
- None of the new, "modernized" Federal human resources systems surveyed has been fully deployed.
- It was clear that agencies currently undergoing human resources modernization projects had identified and considered existing human resources systems before beginning their own modernization efforts. They took into account what was offered at the time, what enhancements were planned, when future enhancements would be available, and cost.

## **Conclusions**

A number of factors are driving human resources managers to develop new information systems:

- *The age of existing systems* - The average age of human resources systems reviewed is 15.9 years with the actual ages ranging from 30 years for the Department of Veterans Affairs to 3 years for the Securities and Exchange Commission.

- *The changes in technology* - The majority of the old human resources systems were developed in a mainframe environment which was appropriate for the size and depth of the systems needed at the time these systems were initially developed. Technological advancements allow agencies to move to a client-server environment which is more adaptable to change, cheaper to operate, allows for more direct interaction, and is more user friendly.
- *Restructuring of the work performed in human resources organizations* - Reduced budgets and staffing levels in human resources operations required agencies to look to new technology to take the place of manual outdated processes employed in their human resources offices. The new way of doing business is demanding changes in technology and office structures. Many of the human resources organizations are now decentralized, are engaged in change, and are also consolidating their operating offices into centralized or regionalized environments.
- *Responsibility for personnel actions* - The shift in who is responsible for what parts of human resources administration changed as human resources service providers looked at delegation of authority, loosening of regulatory requirements and allowing employees and managers to become more involved in effecting personnel actions which clearly are for their benefit. To effect these changes, human resources managers had to actively seek ways to give managers and employees more access to the information contained in human resources data bases and tools to make their participation easier than it is today.

The study found that human resources managers have taken positive steps to change the way their work is performed and identified the automation tools necessary to accomplish these changes. Although they were not required to, agencies have used their combined knowledge and resources to help one another and further information systems capabilities in the Federal Government. This unstructured networking has gone from some agencies providing human resources information system support to other agencies, to organized user groups of privately developed human resources software.

The study reinforced the value of competition and the sharing of information among the relatively few agencies developing “modernized” systems (and the commercial-off-the-shelf [COTS] products incorporated into those systems). The competition among private sector companies who are vying for shares of the Federal human resources information system business is healthy, and will result in better, faster, and cheaper solutions for the Federal Government. This competition is pushing companies who are developing new systems toward a higher standard, and agencies are moving from cost effectiveness to cost and quality competitiveness as a standard of fiscal responsibility. With the flexibilities and discretion provided to agency management, there is no one “best” human resources information system.

The developing or new agency human resources systems will meet (or have the capacity to meet) all of the core information systems requirements, but their means for doing so vary considerably. They include the use of in-house development, minimally customized COTS, and substantially customized COTS software. The trend, however, appears to be moving towards utilizing COTS software and joining in partnership with the private sector. This is a dynamic shift in the thinking of only a few years ago when in-house development was the only viable method of providing Federal human resources systems. Changes in technology and willingness of private sector companies to venture into the Federal information systems market have helped cause this positive paradigm shift.

OPM will continue to exercise leadership in human resources technology. In those instances where OPM has worked cooperatively with agencies, systems development and implementation have been successful. For example, the impact Employee Express has made in streamlining employees' changes to personnel and payroll information has been recognized as an excellent example in streamlining and automating cumbersome practices across Federal agencies. This initiative, along with others, shows that the human resources community has embraced the spirit of the National Performance Review, as well as the Government Performance and Results Act's objectives and goals.

## **Next Steps**

The Study also provides recommendations for areas of further study to be undertaken by the Human Resources Technology Council and the OPM. These include:

- Developing a strategy to move toward Governmentwide electronic human resources record keeping.
- Evaluating the cost of implementation and maintenance of human resources information systems.
- Evaluating the best practices of other Government entities and the private sector.
- Ensuring that up-to-date functional requirements and data elements are identified in the payroll area.

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## Core HRIS Requirements - Introduction

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Over the past few years, Federal agencies have been working to improve human resources information systems and the service provided to managers and employees. These efforts are driven by a variety of initiatives that are designed to reinvent and streamline the internal organization and operations of agencies to cut costs, simplify administrative processes, and improve service and productivity. Some of these initiatives are described in the following paragraphs.

On September 7, 1993, the first National Performance Review Report was issued that formally recognized the need to change the Federal human resources management program<sup>2</sup>. The report called for the delegation of human resources management authority to agency line managers at the lowest level practical, a reduction in regulatory requirements, the reengineering of processes, and the increased application of automation technology. These mandates began the transformation of agency human resources management programs from being primarily a regulatory and technical compliance function to becoming more of an advising and counseling service to managers and employees.

On September 11, 1993, the President issued a memorandum to Federal agency heads which was the first step of his plan for streamlining the bureaucracy in accordance with the recommendations of the National Performance Review. Among other things, agency streamlining efforts were to reduce the number of human resources staffs by fifty percent by the close of fiscal year 1999. As a result, most agencies recognized the need to reengineer their human resources operations, and make better use of information technology to be able to continue to provide the same level of support to their managers and employees.

The Government Performance and Results Act (GPRA) of 1993 requires agencies to develop strategic plans with performance measures and report on past goals and performance as part of their budget submissions. The implementation of GPRA reinforces the need for agencies to improve performance and reduce costs. In particular, the Act requires managers to become more results- and performance-oriented, and adopt management techniques that measure real cost effectiveness, an area that has not received much attention from the human resources management community in the past.

On February 10, 1996, the Information Technology Management Reform Act (ITMRA), referred to as the Clinger-Cohen Act, became law. The Act, which was implemented by Office of Management and Budget Memorandums 96-20 and 97-02, requires Business Process

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<sup>2</sup> The report of the National Performance Review "From Red Tape to Results: Creating a Government that Works Better and Costs Less," September 7, 1993.

Reengineering before agencies can invest in information technology. This Act also requires agencies to determine whether a new system should be purchased or developed by the private sector or by another Federal agency. The budget process is to be used to analyze, track, and evaluate costs and benefits, as well as the risks associated with information technology investments. Performance measures and metrics are required to project and evaluate benefits.

A number of special emphasis programs have been implemented which also affect human resources programs and the systems to support them. Two significant programs are the Interagency Career Transition Assistance Plans (ICTAP) and the Welfare-To-Work Program. ICTAP requires each agency to develop career transition assistance programs to help Federal employees affected by downsizing. Annual reports are required on each agency's program operations. The Welfare-to-Work program requires agencies to make special efforts to help welfare recipients obtain employment. Agencies must prepare plans to recruit welfare recipients to fill entry-level positions within their agencies, and report statistical information on employees hired. There are a number of other special emphasis programs which require the screening of agency databases which must be considered when developing information system requirements.

To meet the increased demands to improve the efficiency of their operations and provide the required support for new programs, Federal human resources managers are increasingly looking to automation technology for solutions. Undoubtedly changes to human resources practices will continue in the future. As resources shrink, managers and employees will be compelled to assume greater responsibility for their human resources needs. The application of information technology will continue to evolve to meet the dynamic changes in the Federal work force.

In recognition of the need to develop a Governmentwide strategy for exploiting automation technology to improve the efficiency of agency human resources operations, The Strategic Plan for Personnel Automation was published by the Office of Personnel Management in 1992. The plan noted that the Federal personnel community had not defined either essential functional or information requirements. The need to define and standardize these core requirements should be a priority issue in the human resources community. In response to this shortcoming and recent legislation, the President's Management Council tasked the Human Resources Technology Council, which is sponsored by the Office of Personnel Management, to review ongoing agency efforts to develop and upgrade human resources information systems, and establish minimum uniform core functional and system requirements that meet the basic needs of Federal agencies.

This document has been developed by an interagency task force under the auspices of the Human Resources Technology Council. The Council is composed of agency senior human resources and information executives as well as representatives from the Chief Information Officer and Chief Financial Officer Councils. This document is intended for use primarily by the Federal human resources community in their human resources information systems oversight responsibilities. The information and concepts, however, are valuable to all functional communities in an agency who participate in managing other information systems or are involved in information systems decisions. Agencies should use this document to ensure that the

information systems they currently operate, are developing or intending to purchase, operate within these established guidelines. In that organizations with functional and financial oversight responsibilities may evaluate an agency's human resources information systems strategy against this document, agencies are encouraged to perform their own self-evaluation prior to seeking support for their information systems initiatives.

The full spectrum of all possible functional requirements can not be presented in this document since each agency's size, organizational structure, mission, and human resources management practices differ in varying degrees. Agencies should exercise sufficient latitude to develop information systems that best meet their needs. For this reason, this document should be used only as a benchmark for developing new systems or for evaluating current systems, and is not intended to provide a complete design for a fully operational, modern human resources information system.

This document does not address, in depth, payroll and payroll-related functions as an integral part of the human resources information system even though these functions are integrated in some agencies. Payroll and work standard requirements are not included in any detail in this document since they are available in financial management system core requirement documents. Agencies which have combined their human resources and payroll systems should refer to these documents for payroll related system requirements.

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## Federal Government Policy

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The Information Technology Management Reform Act (Clinger-Cohen Act) and other related management laws, direct the Office of Management and Budget (OMB) to:

- Ensure that automated systems are being used to achieve performance improvements in human resources management as agencies revamp processes and restructure their organizations;
- Facilitate this performance improvement on an interagency basis; and,
- Enforce this direction through the budget process.

Clear direction regarding these systems investments is found in a memorandum from the Director of OMB dated October 25, 1996<sup>3</sup>. The following requirements list is from the OMB memorandum.

Investments in major information systems should:

- Support core/priority mission functions that need to be performed by the Federal Government;
- Be undertaken by the requesting agency because no alternative private sector or Governmental sources can efficiently support the function;
- Support work processes that have been simplified or otherwise redesigned to reduce costs, improve effectiveness, and make maximum use of commercial off-the-shelf technology;
- Demonstrate a projected return on investment that is clearly equal or better than alternative uses of available public resources. Return may include: improved mission performance in accordance with GPRA measures; reduced cost; increased quality, speed, or flexibility; and increased customer and employee satisfaction. Return should be adjusted for such risk factors as the project's technical complexity, the agency's management capability, the likelihood of cost overruns, and the consequences of under or non-performance;
- Be consistent with Federal, agency, and bureau information architectures which: integrate agency work processes and information flows with technology to achieve the agency's strategic goals; reflect the agency's technology vision and year 2000 compliance plan; and

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<sup>3</sup> Known as Raines' Rules, the document establishes criteria for major systems funding.

specify standards that enable information exchange and resource sharing, while retaining flexibility in the choice of suppliers and in the design of local work processes;

- Reduce risk by: avoiding or isolating custom-designed components to minimize the potential adverse consequences on the overall project; using fully tested pilots, simulations, or prototype implementations before going to production; establishing clear measures and accountability for project progress; and, securing substantial involvement and buy-in throughout the project from the program officials who will use the system;
- Be implemented in phased, successive chunks as narrow in scope and brief in duration as practicable, each of which solves a specific part of an overall mission problem and delivers a measurable net benefit independent of future chunks; and
- Employ an acquisition strategy that appropriately allocates risk between Government and contractor, effectively uses competition, ties contract payments to accomplishments, and takes maximum advantage of commercial technology.

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## Agency Planning Requirements

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A human resources information system needs to be developed in the context of its ability to effectively and efficiently support the mission and programs of the agency, including planned changes to them. Because of the diversity in mission and programs, each agency must have the authority to define its final functional requirements and develop a system that best supports its needs. This includes decisions relative to the most efficient means of providing human resources and payroll services whether they are operated as integrated systems or with a system interface that allows for the flow of data between the two systems.

Agencies should strive to have only one information system as their corporate human resources system which operates on a standard agency defined system architecture. The single system may include any number of subsystems, applications or modules that are interoperable and are linked together electronically in an efficient and effective manner. As part of the decision-making process for developing or purchasing new systems, agencies which do not have one standard human resources information system should document and have available for review the reason why the additional human resources system(s) is (are) required based on the cost benefits of this course of action, or the mission imperatives that could not be satisfied by a single system.

Agencies are expected to find the most cost-effective and efficient solutions to their information needs. Small agencies are encouraged to forge partnerships and cooperative ventures to concentrate and share their limited resources and prevent unnecessary duplication of system development efforts. Agencies with their own information systems are expected to assist smaller agencies by making available their existing software or systems whenever feasible and cost effective. The Office of Personnel Management should facilitate information systems solutions by helping agencies seek the most cost-effective approach to meeting their human resources information and processing needs.

System design and acquisition considerations require a balanced decision between providing discretion and flexibility within the established legal and regulatory framework and efficiencies derived from standardization. The careful evaluation of existing systems operated by another agency and commercial off-the-shelf software will reduce the risks inherent in developing and implementing a new system; however, the agency has the ultimate accountability for implementing sound practices, processes and systems and therefore must select a system which is best for the agency. When making a decision to purchase commercial off-the-shelf software, agencies must weigh the versatility this solution offers against the degree of customization that will be required. The cost advantages of commercial software can be greatly diminished when extensive customization is needed to satisfy unique agency requirements. Agencies may have to develop their systems incrementally over time, due to budgetary and other considerations.

Many of today's Federal human resources information systems have institutionalized outdated and cumbersome functional practices and are wasteful and costly in addition to being slow and inflexible. Most do not ensure the effective management of information, or provide the desired level of automation in performing human resources management functions. Some of these shortfalls include:

- Time consuming and expensive maintenance.
- Duplicate data entry.
- Repetitive databases.
- Difficulty in use.
- Deferred batch processing which precludes real-time data retrieval.
- Multiple systems which are not interoperable and have high maintenance costs.
- System architecture which is too complex to retrieve information easily.
- Lack of management information and decision support capability.
- Limited access for managers.
- No access for employees.
- Old system designs were based on automating old paper flows.

Agency systems should be reliable, responsive, and easy to use. They must be flexible enough to accommodate diverse human resources activities and users, adaptable to rapidly changing technology and program approaches, and cost effective. Agency systems should allow for all the different employee categories and appointment authorities authorized for the agency. There must also be sufficient flexibility to test different human resources management concepts like those found in demonstration projects authorized under Title 5, United States Code, 4703. These systems must include certain basic characteristics that will allow them to:

- operate in accordance with laws, regulations and applicable functional and technical standards;
- automate appropriate human resources management processes;
- collect and supply accurate, timely, complete, reliable and consistent information;

- deliver accurate and timely human resources information to managers;
- support Governmentwide and agency-level policy decision-making needs;
- provide for timely and adequate agency management reporting;
- handle organization and program changes with maximum flexibility; give users easy access to human resources data and reports; and
- fully support process reengineering efforts enabling the delivery of human resources management services in a more efficient and cost effective manner.

Agencies are responsible for developing, maintaining, and operating their information systems in compliance with relevant personnel laws, regulations, and guidance, and must ensure that the integrity of the merit-based civil service is fully supported by such systems. In its leadership role, the Office of Personnel Management ensures and facilitates adherence to these compliance requirements.

Human resources management officials need to ensure coordination of their system modernization projects with their agency's Information Technology (IT) investment review group (or similar management group), if applicable. Most agencies require an independent review of IT decisions before being incorporated in the organization's overall budgeting or capital programming decision-making process. Reviews may encompass all IT spending proposals or IT spending proposals that meet or exceed defined decision thresholds--based on cost; level of risk; cross-functional, bureau, or office impact; or involving common infrastructure needs such as telecommunications, data centers, or networks.

In implementing changes or modifications to existing systems, or developing new systems, agencies must consider full life-cycle management activities. Life-cycle management is a disciplined approach to the management of information systems from inception through discontinuance. It includes: planning and developing a new system, installing software and hardware, establishing procedures, training users, preparing documentation, converting data from existing systems, and providing ongoing maintenance.

## **Flexibility Versus Standardization**

Human resources programs within the Federal sector will continue to change. In fact, these changes are likely to become more prevalent particularly as agencies are given greater autonomy in determining which human resources policies, programs, and procedures best correspond to their mission and their strategic direction in attaining work force productivity, cost-competitiveness, and the objectives of the Government Performance and Results Act.

In view of this trend, it is imperative that human resources and payroll information systems accommodate the flexibility and discretion needed by agency management. Yet with flexibility there is a cost. The efficiencies and cost savings that can be derived through standardization must be considered. The ideal system will use modern automation technologies such as relational databases and table driven systems to derive the benefits from common data system approaches; while at the same time, permitting legitimate management discretion and be flexible enough to meet unique human resources program requirements through adaptation rather than system customization.

Agencies should make every effort to adopt standard data elements and descriptions to provide a degree of interoperability and compatibility of human resources information systems across the Government. Data standardization will facilitate the sharing and passing of data among Federal agencies, and will maximize the efficiency in meeting Governmentwide information needs. Data standardization needs to be an integral part of each agency's information systems development effort since it reduces data handling costs, and leads to better accuracy, consistency and timeliness of data. The ultimate Federal human resources goal is to have a standard set of data elements sponsored by the Office of Personnel Management, Department of Labor, Department of Treasury and other agencies needing data from human resources systems. Agencies would then be required to recognize these standard elements by using them in their system or provide for direct mapping from the agency data element to the Government standard data element. The Office of Personnel Management is responsible for leading this initiative and should build upon the previous effort of the OPM/Agency Personnel Automation Council<sup>4</sup> by endorsing and updating the set of voluntary personnel and payroll data standards already developed.

## **Business Process Reengineering**

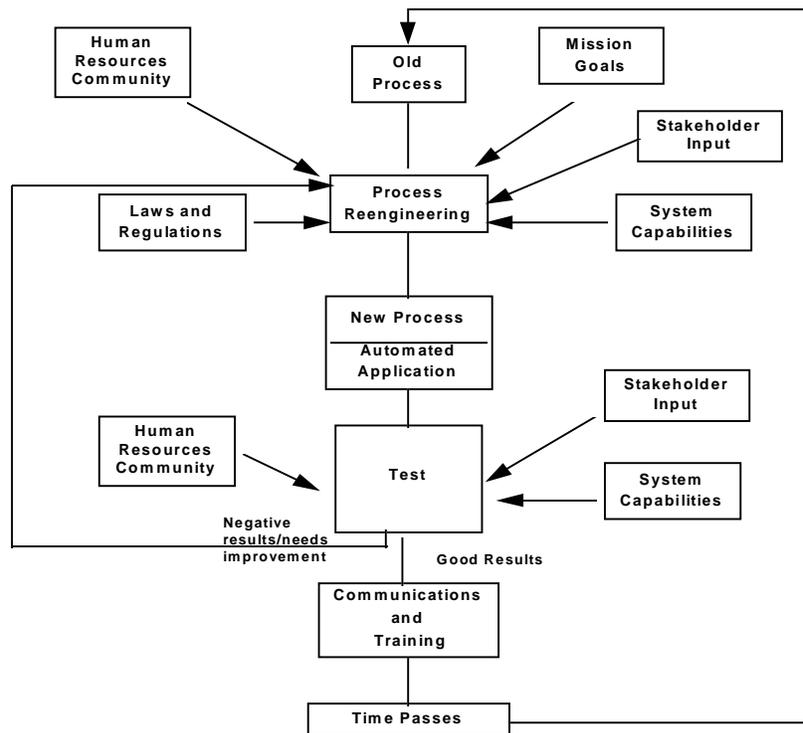
Business Process Reengineering (BPR) is an effective approach for redesigning the way work is done to better support the agency's mission and reduce costs. A structured BPR methodology should be followed to critically examine, rethink, and redesign agency human resources management programs before embarking on the development of new information systems. The human resources operating program for the agency, after initial and subsequent

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<sup>4</sup> Reconstituted as Human Resources Technology Council.

reengineering, should be used to establish the baseline system requirements. The reengineering effort should use process, cost and other modeling techniques to analyze, refine, and gain improvements to human resources practices with the aim of achieving enhanced performance in cost, quality, service and speed. The reengineering efforts should be done prior to developing an automated system. Agencies, however, are encouraged to continue their reengineering efforts during and after system development to create and foster a climate of continuous improvement. Reassessing information and processing needs, and redesigning processes, procedures and policies, can lead to dramatic improvements if well managed. To implement a successful business process reengineering program, agencies should follow a methodology similar to the one depicted in Figure 1.

Figure 1. Human Resources Business Process Reengineering



The General Accounting Office has published the Business Process Reengineering Assessment Guide dated May 1997, which discusses the nine major assessment issues considered by experts to be stepping stones to successful business process reengineering. These issues cover a wide range of activities, such as identifying customer needs and performance problems, projects, controlling risks and maximizing benefits, managing organizational changes and successfully implementing new processes. The Guide provides a general framework for assessing a BPR project, from the initial strategic planning and goal-setting to post-implementation assessments. Agencies should review this document when initiating human

resources business process reengineering projects.

## **Other Federal System Reviews**

An agency first must review other existing agency information systems to determine if anyone of them can satisfy their need before they make a decision to purchase or develop a new system. In plain terms, an agency must take a hard look and make a compelling business case for purchasing or developing a new information system if an already existing system contains the functionality required by the agency looking for a new system. Neither is it appropriate for agencies to purchase commercial-off-the-shelf software, and then pay contractors to customize the software when other agencies have already paid for customization of the same product. The review of existing systems should involve the completion of a business case analysis as described in the following section.

To the extent that agencies decide to use the same core software product, it is recommended that these agencies work together and encourage the software vendor to include required Federal functionality in the core product. Agencies are also encouraged to consider forming user groups to discuss common use of the software product across agency lines.

## **Business-Based Decisions and Continual Evaluation**

As agencies determine how and when their existing systems should be replaced, their decisions should be based on a business case analysis relative to the cost of replacing the system and migrating to the new system (be it a commercial-off-the-shelf or custom-developed system) versus modernizing the existing system, or receiving system support from an outsourced or another Federal provider. The business case analysis should present a cost benefits comparison of the alternatives to include such factors as development, customization, maintenance, conversion and implementation costs, potential costs of future upgrades, and overhead costs.

As part of this determination, agencies must consider their mission, impending changes in that mission, and the imperatives of the agency as reflected in its specific strategic plan. The ultimate decision must be the one that provides a solution that meets not only the requirements outlined in this document, but also any specific functional requirements that are unique to the agency's mission and service timeliness. Finally, the decision must provide a solution that yields a positive benefit to cost comparison.

The General Accounting Office (GAO) stresses in its February 1997 publication, Assessing Risks and Returns: A Guide for Evaluating Federal Agencies' IT Investment Decision-making that the management of an information technology investment is a continual feedback loop based on revisiting the original decision and verifying that continuing on the course established is still the appropriate action. A review of this Guide is important because it establishes an excellent check and balance for any information technology decision. The Guide states that information technology management processes should have three essential phases-- select, control, and

evaluate.

- Select - The selection phase is to ensure that the agency selects information technology projects that best support the organization's mission needs and identifies and analyzes the project's risks and proposed benefits before a significant amount of project funds are spent.
- Control - The control phase occurs as the agency assess progress on the project and pre-established goals and cost parameters. Formal progress reviews should take place in which the progress of the project is compared against projected costs, schedule and expected mission benefits. If any problems arise during this phase, mitigating steps should be taken to address any deficiencies.
- Evaluate - The evaluation phase allows the agency the opportunity to look at what has been accomplished. As part of an evaluation, the agency can assess the project's impact on mission performance, identify any changes or modifications to the project and revise the investment management process based on lessons learned.

GAO suggests that anyone evaluating systems decisions use a three pronged approach in reviewing the selection, control and evaluation phases. The three levels of review are process, data and decisions.

- Process - This is an assessment of the investment management process that the organization is following to select information technology investments, control and monitor progress of these investments and evaluate final results. GAO states that at this part of the review, an evaluator should be looking to answer the question: *"Does the organization have defined, documented processes for selecting, controlling and evaluating its information technology investments?"*
- Data - This evaluation focuses on accurate, reliable and up-to-date data on project costs, benefits and risks. GAO recommends evaluating the audit trail of data and information used to make management decisions.
- Decision - The central theme of this level of evaluation is on whether management decisions are being taken using the investment control processes and requisite project data.

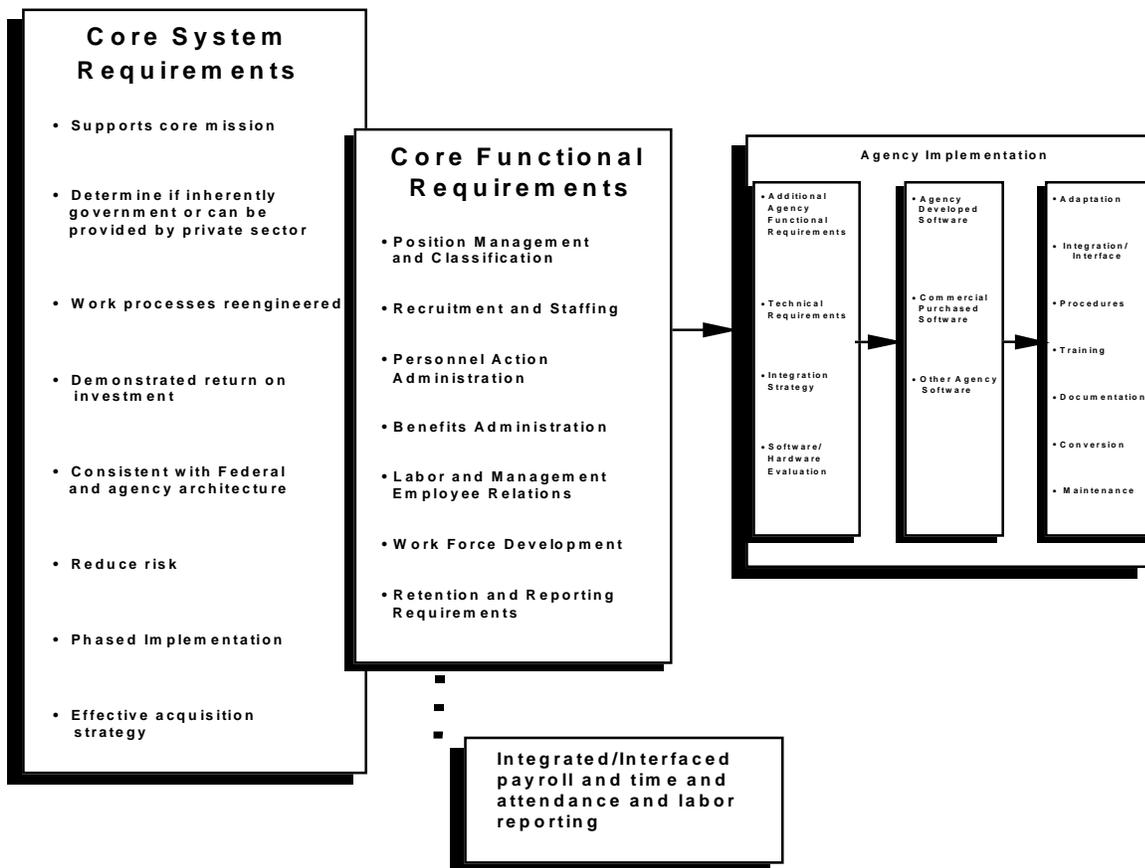
GAO indicates that in addition to these three phases, there are three critical attributes -- repeatability, efficiency and completeness -- that cut across each phase and should be assessed at each review level.

- Repeatability - This factor focuses on the extent to which the processes, data, or decisions being reviewed are conducted consistently over time and across different organizational units.
- Efficiency - This factor focuses on how well management processes, the generation of project data, and decision-making is working. This entails looking at the overall quality (accuracy, reliability and timeliness) of the investment approach.
- Completeness - This factor focuses on the extent to which all phases of the process (select, control and evaluate) are being followed and whether use of the information technology investment process is institutionalized across the organization.

# Functional Requirements

This section defines uniform core information system requirements and creates a framework for designing an effective and efficient human resources information system. The identified standard core requirements, when integrated with agency unique requirements, will move the Federal Government towards a higher degree of uniformity in the design and capabilities of human resources information systems while, at the same time, support the special information management needs of individual agencies. An overview of the core functional requirements and implementation strategy for developing Federal human resources information systems is shown in Figure 2.

**Figure 2. Overview of Human Resources Core Requirements and Implementation Strategy**



The following core functional requirements have been identified by key human resources

functional areas and are expected to be integrated with agency unique requirements in a manner that best supports the agency's programs, operations, technical environment and management philosophy. The requirements listed for each functional area are not intended to be exhaustive, but are aimed at providing a high-level description of the major information and processing capabilities needed for a modern human resources information system.

## **Position Management and Classification**

**Manager Self-Service:** The system should facilitate full manager empowerment of delegated position classification authority. The system should allow managers to structure organizations under their control and quickly develop classification documents through the use of standard position descriptions or generation of new classification determinations through the use of expert or decision support systems as appropriate to their requirement. It must also provide the capability to produce pertinent information in response to classification appeals. An important aspect which the system should support is full identification of position requirements. For example, managers should be able to annotate a position's unique requirements such as mobilization responsibilities, drug testing requirements, position sensitivity, financial disclosure obligations, position-based skill and competency requirements, and a wide variety of other position-based requirements that emerge and change over time. The system should also automatically generate documents which facilitate related human resources management activities (e.g., recruitment, performance management, and training and development). A related functionality that must be provided is organizational decision support for managers that will simplify their organization and position design decisions (e.g., budget and Full Time Equivalent (FTE) management, activity based costing, work effort as related to performance measures and indicators). Further, the system should provide sufficient flexibility to enable management to account for total work force utilization that can encompass the efforts and associated costs of contractors, military members, and volunteers.

**Regulatory Compliance and Administration:** The system must be designed to take statutory and regulatory requirements into account and comply with them when processing transactions and providing decision support capabilities for position management and classification activities. This includes documenting regulatory determinations that are derived from the position, and applying appropriate classification standards. For example, Fair Labor Standards Act, competitive level, bargaining unit status, and applicable classification determinations (title, series, and grade).

### **Functional Requirements:**

- **Analyze Organization Structure.** Provides the analysis, recommendations, and maintenance of position structures supporting an assigned task.
- **Evaluate Duties and Responsibilities.** Describe the work of a position and apply standards, policies, and guidelines to determine the type and level of work, to include identification of

knowledge, skills, abilities, and competencies.

- **Classify Positions.** Classify positions according to OPM standards.
- **Process Associated Personnel Data.** Update position and manpower information in the appropriate personnel files and produce the necessary documentation.

## **Recruitment and Staffing**

**Manager Self-Service:** The system should enable managers to electronically initiate the full range of recruitment-based actions (e.g., internal and external recruitment actions, reassignment actions, details) and flow these actions to the appropriate individuals and offices for approvals and processing. Using position-based requirements, the system should provide expert or decision support capabilities to generate documentation needed to complete the recruitment process. This includes preparation of vacancy announcements which contain specific selection criteria (e.g., knowledges, skills and abilities (KSAs) and competencies, and conditions of employment). The system should also have the flexibility to allow managers to electronically receive and act upon referral lists, resumes that contain appropriate candidate qualification information, and fully take into account regulatory requirements. It should also provide a means for applicants and employees to apply as either external or internal candidates for vacant positions. In addition, the system should also provide the capability to process reduction in force actions including the determination of retention rights, issuance of notices, and generation of required documentation.

**Regulatory Compliance and Administration:** The system must be designed to take statutory and regulatory requirements into account and comply with them when processing transactions and providing decision support capabilities in accomplishing recruitment, staffing, and reduction in force activities. This includes, for example, priority placement entitlements, time-in-grade restrictions, and minimum qualification criteria for processing recruitment and staffing actions, and veterans preference, type of appointment, length of service, and performance data for processing reduction in force actions.

### **Functional Requirements:**

- **Prepare staffing plans.** In conjunction with managers, process historical information to identify both short and long term staffing needs.
- **Recruit Applicants.** Includes all activities involved in acquiring applicants and recording them in an automated system. Major tasks include job analysis, soliciting applications, evaluating candidates, and notifying applicants of status.
- **Assign Employees.** Includes those actions necessary to process requests by management or the employee that affect employees during Federal employment. This involves actions that

promote, reassign, detail, and voluntarily separate employees.

- **Issue Referrals.** This involves referring candidates to the selecting official, monitoring the status of the issued referrals, and documenting the entire process.
- **Apply Recommended Pay Scales.** Determine and apply the appropriate pay scale for the employee.
- **Document Recruitment and Staffing Actions.** Maintain historical files documenting the recruitment and staffing process, including delegated examining authority, in a manner that provides a complete audit trail of all actions. This is particularly important in responding to data calls associated with grievances, appeals, and equal employment opportunity complaints.

## **Personnel Action Administration**

**Personnel Action Processing:** The system must preclude duplicate data entry by automatically accessing position and employee information already residing within the system. The system must process (with both current and future effective dates) the full range of individual and mass personnel actions such as appointments, reinstatements, transfers, promotions, separations, retirements, terminations, furloughs, change to lower grades, reassignments, pay changes (including locality and national adjustments, allowances, differentials, premium pay, movement between pay plans or schedules, and pay and grade retention), and details. In addition, the system must fully document the associated personnel action with all regulatory required information such as legal authority and nature of action citations. Incumbent-related information such as date of hire, service computation date, retirement service date, severance pay date, Civil Service Retirement System, Federal Employees Retirement System, Federal Employees Group Life Insurance and Thrift Savings Plan eligibility dates, Federal Employee Health Benefits enrollment date, step increase and prior military service information must also be recorded. There is also a need for the capability to correct or cancel these actions, and provide the necessary audit trail.

**Personnel Action Tracking:** The system must enable managers and human resources staffs to track past, current, and pending personnel actions. It must also automatically generate personnel action reminders that will prompt management decisions on such actions as within-grade-increases, completion of probationary period and temporary appointments, and any similar time-sensitive actions. The system should enable on-line approval or disapproval of such recurring actions.

**Official Personnel Folder:** The system should support the conversion of the paper Official Personnel Folder (OPF) to an electronic medium. An electronic OPF system would help agencies reduce the significant operational burden of maintaining paper OPFs while affording human resources professionals, managers and employees easier access to historical employment information.

**Regulatory Compliance and Administration:** The system must ensure that statutory and regulatory authorities that authorize the processing of the action is correctly cited and documented. This includes entering the prescribed remarks for example, retained grade expiration date, career-conditional conversion date, probationary period expiration date, and leave accrual category.

### **Functional Requirements:**

- Finalize Personnel Actions. This involves the consummation of management and employee requested personnel actions by either the generation of a paper SF-50 or the electronic storage of data associated with the SF-50. Also included in this process are those actions ancillary to employment, such as requesting security investigations, arranging physical examinations and identifying drug testing requirements, requesting and providing SF-75 information, and the administration of the in-processing activities.
- Records Upkeep. All activities associated with establishing, updating, purging, storing and disposing of a variety of human resources documents and records. This also includes miscellaneous record maintenance activities such as corrections, employee record validation, and record keeping personnel action processing. The requirements presently being developed in support of an electronic OPF by the interagency Digital OPF project<sup>5</sup> must also be planned for and supported by agencies' information systems.

### **Benefits Administration**

**Employee Self-Service:** The system should have the capability to enable maximum employee access to self-service personal benefits information and automated transaction processing. The intent of this requirement is to allow employees to manage their own benefits, such as requesting information and initiating actions, with a minimum exchange of forms or other paper documents. System coverage should, for example, include:

- Federal Employees Health Benefits Life Event and Open Season Elections.
- Thrift Savings Plan Life Event and Open Seasons Elections.
- Federal Employees Group Life Insurance Life Event and Open Season Elections.
- Leave Administration which includes at a minimum the capability for employees to track and monitor leave. Automated time and attendance and leave processing functions (on-line leave request, application for advance leave, donation of leave, etc.) should also be included when

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<sup>5</sup> Also sponsored by the Federal Human Resources Technology Council.

human resources and payroll functions are integrated.

- Retirement Calculations for all categories of employees under all applicable retirement programs to the agency.
- Miscellaneous Changes (e.g., Address, name, emergency contact information).
- Alternative data and processing entry points for individual with disabilities in compliance with the American Disability Act.

**Regulatory Compliance and Administration:** The system must ensure that employee initiated transactions are authorized by law or regulation, are accurately effected and documented, and are confirmed in a timely manner to the employee.

### **Functional Requirements:**

- Provide Basic Information. Explain requirements, benefits, and procedures related to employee benefits.
- Determine and Process Employee Entitlements. Determine employee eligibility for entitlements and process and document the action.
- Flow of information. Any new information system should have the capability to allow for the paper less flow of information directly from the system to benefit providers (i.e., health care and insurance providers).

## **Labor-Management and Employee Relations**

**Manager Self-Service:** The system must preclude duplicate data entry by electronically producing position-embedded performance criteria necessary to generate individual performance appraisal plans. The system should be sufficiently flexible to allow for multiple performance rating configurations and evaluation methods. It should provide for electronic routing, completion, approval and recording of the performance plan and resulting rating from management to the human resources office. In addition, the system should also provide for support capabilities to electronically generate, approve and process the full range of monetary and honorary awards for employees, and be flexible enough to tailor to individual agency needs. Finally, the system should have the capability to create, monitor and maintain performance improvement plans.

**Case Management and Administration:** The system must provide the capability to track and record the full range of employee, management, or third-party generated appeals and grievances. This includes events such as performance and conduct cases, Unfair Labor Practices,

and labor contract administration. The tracking functionality must include such information as case nature, case date, case steps and resolution.

**Regulatory Compliance and Administration:** The labor and management employee relations functional activities and processes performed by the system must comply with statutory and regulatory requirements, and the guidance provided by the Executive Order on Management-Labor Partnerships.

### **Functional Requirements:**

- Administer Incentive Programs. Assure eligibility edits, obtain necessary approvals, and process necessary documentation for incentive awards.
- Conduct Employee Relations. Includes the ability to track employee relations actions from initiation through completion.
- Administer Performance Management. Includes all tasks involved in administering a system for evaluating employee performance, probationary periods, and related reports.
- Administer Labor Relations. Gather and store data in support of negotiations or other labor-management discussions, contract administration and to resolve disputes. Data on the dollar value of time spent by union employees on representational activities including travel and per diem and the dollar value of services provided to unions (telephones, office space, computers, etc.) should also be tracked and reported by human resources or financial management systems.

## **Work Force Development**

**Manager and Employee Self-Service:** The system must provide the capability to use position and personal data already residing within the system to facilitate on-line initiation of the full range of work force development activities. These activities include nomination, approval, enrollment, evaluation, and personnel record documentation. The system must also record essential data relative to the cost and source of developmental activities and enable analysis of such activities to determine future budget needs and return on investment.

**Regulatory Compliance and Administration:** The work force development functional activities and processes performed by the system must comply with statutory and regulatory requirements.

### **Functional Requirements:**

- Administer Employee Development Program. Support the planning, development and

delivery of training and career development programs to meet agency and employee needs. Track completion of training by employees.

- **Develop Training Budget.** Support the preparation of financial projections and implementation of controls which maximize the utilization of training funds.
- **Evaluate Development and Training Activities.** Support the evaluation of the effectiveness and quality of course design, program content, delivery methodology and instructional value.

## **Retention and Internal Reporting**

An agency system must maintain, store, and permit ready retrieval of employment data. The time frames for varying pieces of this requirement differ depending on the subject matter and the system must be sufficiently flexible to retain and purge data consistent with the varying record keeping requirements. Beyond this, the system must provide employee and manager self-service in obtaining information pertinent to their needs. For example, employees should have access to their personal employment data and managers should have access to their organizational and subordinate work force non-personal data. Human resources professionals should be able to perform a wide range of organization and work force analyses that will facilitate the strategic needs of their serviced managers and organizations.

**Regulatory Compliance and Administration:** The retention and reporting services performed by the system must comply with statutory, regulatory and security requirements.

### **Functional Requirements:**

- **Preparing and Evaluating Human Resources Program Plans.** Support reviewing and issuing statistical and narrative human resources program plans based on goals and management objectives. Inquiries are normally complex and cover all activities during periods of up to one year or longer when doing comparisons.
- **Reporting Requirements.** Provide the capability to generate routine human resources reports that are prescribed by the functional users. The system must also contain ad hoc reporting and data browsing tools with rapid-response, graphically-oriented, and user-friendly access to the system database.
- **Historical Data.** The system should be able to maintain an employment history of the employee with information comparable to that in the employee's Official Personnel Folder.

## **External Reporting**

The system must provide for automatic data conversion and electronic transfer of required

reports and files to the Office of Personnel Management (OPM) and other recipients of Governmentwide reporting information. OPM will take the lead in working with all agencies to standardize data for reporting and working on updated electronic flow of data needed to meet reporting requirements.

**Regulatory Compliance and Administration:** The external reporting requirements performed by the system must comply with statutory and regulatory requirements.

**Reporting Requirements:** As the central management agency for human resources management, OPM has established the following Governmentwide reporting requirements:

- Central Personnel Data File Submissions (CPDF).
- SF-113 Reports (i.e., SF-113a: Monthly Report of Federal Civilian Employment).
- Federal Equal Opportunity Recruitment Program (FEORP).
- Disabled Veterans Affirmative Action Program (DVAAP).
- Buyout and Voluntary Early Retirement Authority (VERA) (Limited Term).
- Interagency Career Transition Assistance Program (ICTAP) (Limited Term).
- Career Transition Assistance Program (CTAP) (Limited Term).
- Welfare-to-Work (Limited Term).
- Executive Information System

Other recipients of Governmentwide reporting information include:

- The Department of Labor.
- The Equal Employment Opportunity Commission.
- The Federal Retirement Thrift Investment Board.

The external reports fulfill statutory and regulatory mandates, as well as requirements of the Executive Branch leadership. Although agencies retain the ability to design systems and data structures to conform to their individual business strategies, information sharing and data transfer among agencies is essential to the modernization and efficiency of the human resources data collection process. To that end, agency information systems should allow for interfaces with

OPM and other Federal agencies.

## **Financial Management Systems**

Human resources support to an agency does not stop with just generation of an SF-50, or the movement of information to OPM's Central Personnel Data File. Human resources information must be integrated, interfaced, or capable of a data feed to the appropriate financial management systems that the agency uses. For the purpose of this document, pay and leave processing, time and attendance reporting, and labor accounting activities are identified as the primary financial management system requirements that must be integrated or satisfied by the human resources information system. This document does not address, in detail, these requirements since they have already been outlined by the Joint Financial Management Improvement Program (JFMIP). Of particular interest are the requirements specified in the JFMIP publication Personnel-Payroll System Requirements, FFMSR-2.

This document clearly establishes the need to have agency human resources systems capture the data required for financial management systems if such systems require the data. The ownership of the agency's financial systems is not at issue. Parts or all of an agency's financial systems can reside with either the agency's financial management community or other functional communities, to include human resources. The agency can also use financial management systems provided by a private source or another Federal agency. What is important is the transfer of data from the human resources information system to any financial system in the easiest and most economical fashion, and with minimal human intervention. The human resources system should be developed in such a manner that data required by a financial system is automatically moved to that system and returned or vice versa, and be available in a real time processing environment to that system. There should be no duplicate data entry on any of the common data elements required by the financial and human resources systems. As noted earlier, this requirement can be satisfied by integration or interface of the human resources system with the financial system whichever configuration best supports the agency needs.

The most efficient way to ensure that the human resources information system provides the data necessary for the financial management system(s) is to have the organization responsible for the appropriate financial systems participate in the development of data requirements for a new human resources system. The financial management systems should have already been reengineered in accordance with JFMIP requirements before the data transfer question is raised, but if they have not been reengineered, then the human resources information experts should also participate in the financial systems reengineering to allow for discussion on how data received from the human resources system can decrease the work necessary in the respective financial system(s). The human resources and financial management communities must consider themselves mutual stakeholders to ensure that the most efficient systems are developed.

**Regulatory Compliance and Administration:** The processing of data in support of financial

management requirements must comply with statutory and regulatory requirements.

**Functional Requirements:** Human resources information systems, should at a minimum, allow for the automated flow of appropriate financial management data which should include the following:

- All elements necessary to establish a basic pay record for the employee: type of appointment, pay scale, pay level, time-in-grade, service computation date, military or other Government retirement, home address, social security number.
- Employee benefits and entitlements: health and life insurance, leave category, retirement system, thrift savings plan, state and local tax preference, tax and union dues withholdings.
- Employee working conditions which modify basic pay: premium pay, availability pay, hazard and environmental pay.
- Elements necessary to effect a change in employee pay: new appointment type, pay scale, pay level, mass pay changes, awards, overseas and quarters allowances, severance pay, retention and relocation bonuses, voluntary separation incentives, grade and pay retention, and time restrictions.
- Elements necessary to effect a change in personal status: name change, address change, dependent change and additional life insurance coverage.
- Employee time and attendance and labor-related data necessary to determine gross pay for hours worked and leave taken, and to calculate labor productivity to preclude duplicate data entry.

## Demonstration Projects and Other Human Resources Systems

The system must provide sufficient flexibility to provide the full range of human resources management self-service, regulatory and administrative support to the unique requirements of the ever changing variety of personnel systems that are authorized via demonstration projects under Title 5, or are legislatively authorized by other Federal statutes. Some examples of the special legislatively authorized systems include Title 38, the Acquisition Corps, Title 10, the Intelligence Community, the full range of non-appropriated fund systems, and the performance-based organizations. Agency human resources information systems must be able to meet these diverse needs with minimum customization.

**Regulatory Compliance and Administration:** The processing and informational services performed by the system for the unique human resources programs must comply with statutory and regulatory requirements.

## Decision Support and Expert Systems

Agencies are encouraged to exploit the opportunities that decision support and expert systems offer in developing innovative approaches to their human resources management programs. In today's human resources environment, more and more managers and employees are expected to be engaged in the human resources management process than ever before. Decision support and expert systems allow agencies to "do more with less" by providing human resources expertise right at the user's desktop. It empowers managers and employees by:

- Providing instructions or training on "how to do" a particular task with step-by-step guidance;
- Serving as an on-line knowledge base enabling non-human resources experts to acquire answers to human resources management questions, or work through problems or issues without the burden of study and research, and
- Serving as the actual processor or calculator for actions that have complex rules or intricate computations which are time consuming and where errors could easily be made.

Decision support and expert system capabilities can be embedded in the agency's corporate human resources information system or in a standalone application whichever is most feasible and cost-effective.

## **Other Significant Requirements**

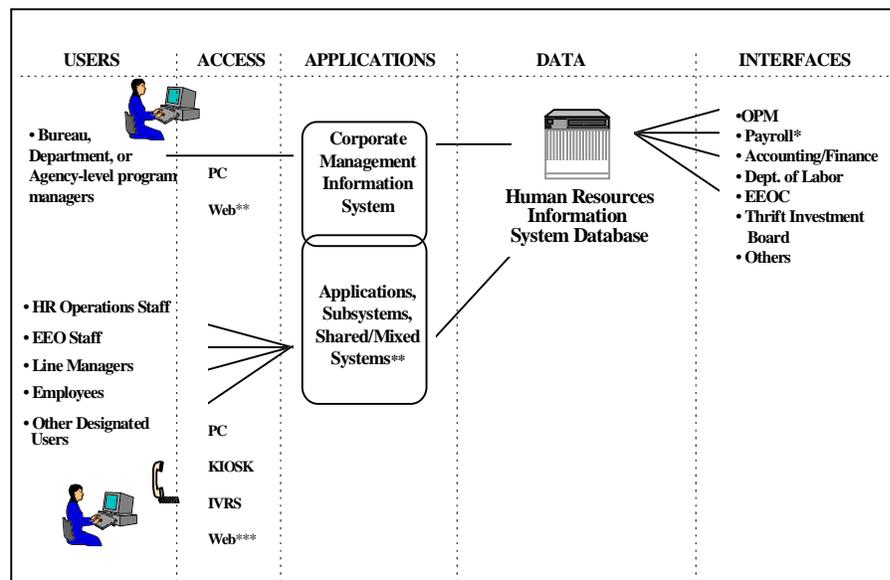
The system must provide the capability to record and provide on-line access to a variety of pertinent information that stems from the basic human resources administration requirements. Examples of these continuing information needs include such programs as equal employment opportunity, affirmative action, security, and occupational safety and health. Other emerging needs must be supported such as data required by Administration initiatives such as the Welfare-to-Work program. These requirements will change over time, but consistently present demands which the system must meet with a minimum of customization.

**Regulatory Compliance and Administration:** The processing and informational services performed by the system in support of the special programs and requirements must comply with statutory and regulatory requirements.

## Technical Requirements

New information technology such as client/server architecture, graphical user interface, relational database management systems, internet access, and distributed and remote data management offers flexible, cost-effective support. The new technology can be implemented through a combination of hardware architectures, networks, communication protocols, and development methodologies and environments. It permits the easy mixing of information system components from multiple vendors in a manner that stresses system flexibility and optimum performance whether operations are centralized or decentralized. Figure 3 presents an illustration of a modern human resources information system architecture.

Figure 3. Illustrated Human Resources Information System Architecture



\* The payroll function may be integrated in the human resources information system in some agencies.

\*\* Shared/Mixed systems could include manpower, time and attendance, mobilization, etc.

\*\*\* Intranet and Internet enabled.

## Hardware

The hardware requirements of any information system are critical in its usability at the operating level. Agencies need to determine the best hardware platform approach that leverages the capabilities of their system, and can be implemented efficiently, cost-effectively and

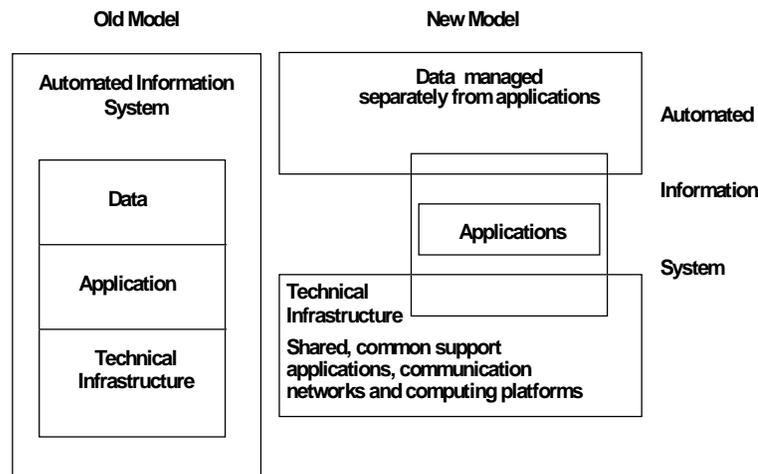
comprehensively. These considerations may include mainframe versus client-server based operations, the use of kiosks, internet, and interactive voice response technologies. When designing a new system, or looking to implement an upgrade of an already developed system, the human resources staff must work closely with their agency's information technology community to ensure that the technical solution desired is supported by the agency's computer systems infrastructure and communications architecture. Another critical consideration that needs to be addressed during the planning stage is whether the appropriate hardware and communications connectivity will be available to managers and employees who will be major users of the system. The hardware specifics required of the end users must be matched against the automation equipment already in place, and any agency plans to upgrade existing hardware. Since typically, the human resources functional area does not own, nor have the resources to support the purchase of new computer equipment for all of its system users, careful evaluation and planning are essential. The acquisition of the necessary hardware to connect end users to the system should be considered a mission imperative since much of the productivity and efficiency to be gained by the introduction of a new system will be lost without widespread user access.

## Infrastructure and Communications

Agencies human resources information systems are expected to address a wide range of requirements and needs. They must be designed to empower end users with better information and self-service capabilities, support ambitious reengineering efforts, hide application complexity, provide fast and easy access to data, and adapt to changing requirements. To maximize adaptability, portability and openness, the design of the system should follow an architecture that support the independence of data, applications, and technical infrastructure. Figure 4 illustrates an emerging model for developing a modern information system.

A key consideration in selecting and designing a modern human resources system is how the

Figure 4. Diagram of Data/Infrastructure/Applications  
(Old Versus New Model)



data is moved from one point to another. This is critically important when an agency has offices and employees located nation-wide or world-wide. The agency human resources staff must work with its information systems support organizations to ensure that the software solution it is seeking can work on the agency's communication infrastructure. When there are many different communication infrastructures, methods and networks, the agency may have to develop multiple operating methodologies to ensure that the majority of the system's functionality is available to most users.

## **Security, Access, and Control**

The agency's human resources information system is subject to the requirements of the Privacy Act of 1974, 5 United States Code Section 552a, and the information it contains must be handled in such a manner as to preclude unauthorized release. This should be accomplished by controlling access to data and functions. A security management package that ensures full security while providing support for access, distribution, control sharing and the approval of personnel and payroll actions is essential. Users should be provided training at the time they are given access to the system with emphasis on their accountability for system security and for the proper handling of documents produced by the system.

The system must be designed with sufficient security and validation features that ensure the integrity of the system and the information and products it produces, and protects against unauthorized access, fraud, embezzlement, theft, and sabotage. The Computer Security Act of 1987 and OMB Circular A-130, Appendix 3, provide details about the requirements for a system security plan, risk assessment, contingency plan, certification/accreditation, and rules for secure operation.

**Technical Requirements:** Agency security requirements for new systems should include, as a minimum, the following:

- Using Federal and agency guidance, determine if system data must be encrypted or another acceptable means of securing data is available.
- Be able to edit transactions, data and system products to ensure that they are properly authorized, complete, accurate, and within established ranges or predefined values as soon as the information is entered or product requested.
- Maintain a log of all transactions that have been rejected, both on-line and batch. On-line transactions will receive real-time notification of edit errors.
- Provide the capability to restrict who may see and use data, specify how timely data access will be (i.e., real-time or batch), determine how data will be presented and who may download data.

- Limit access to authorized users and programs to the data element level. The system will establish positive access controls in accordance with "Federal Information Resources" and OMB Circular A-123, "Internal Control Systems."
- Provide for the storage and retrieval of audit trails for all transactions affecting personnel and payroll data files.
- Provide the capability to maintain all collected data and control the overall structure of the database, integrity of data, updating of data, storage of data and archiving of data.
- Provide the capability to ensure that all transactions and processes meet standard personnel and payroll edits, validations, error-correcting procedures and have the ability to customize editing rules.
- Provide assurance that system and data integrity are safeguarded given the additional vulnerabilities that will result from the broader user access envisioned by this document.
- Provide controls which ensure that personnel and payroll systems are operating as intended in accordance with laws, regulations, judicial decisions and agency policy.

## **Systems Performance Standards**

There are many variables which impact the total time for human resources management processes to be accomplished. Agencies should establish performance standards for new information systems based on what they consider appropriate for their agency.

**Performance Requirements:** Agency performance standards for new systems should consider the following performance factors:

- **Timing** - Whether the data on the system should be real-time, or within an identified delay range acceptable to users. Systems that provide the capability for employee and manager self-service should establish system standards that keep the system's information and processing capabilities as current and available as possible.
- **Accuracy** - An agency's accuracy rate should be based on its business rules. The number and complexity of edit checks need to be considered since they have a direct relationship on the accuracy of the information in the system. An error condition should be provided with instructions on how to enter the corrected data.
- **Query** - Whether the system responds to user requested information and report queries in a reasonable time. Different query standards should be established for each category of query.

Complex queries requiring multiple data element screening should have longer query times than queries keyed against one record.

- Response Rates - A reasonable response time should be established for accomplishing keyboard operations. The time it takes for the system to respond to user log-ons, log-offs, data calls, screen changes and other executable commands needs to be determined. This factor also should include the time it takes the system to alert the user that the information input does not pass system edits.
- Mathematical Calculations - A standard should be established for all mathematical calculations performed by the system. Mathematical calculations should have high accuracy rates.

The following system design, environmental and operational factors will have a direct impact on the performance of the system, and need to be considered as influencing variables when establishing performance standards:

- Communication network.
- Personal computer specifications.
- Location (continental United States versus overseas).
- Ease of system use.
- Data input format.
- Training for system users.

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## Implementation Strategy

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### Testing

As part of replacing an existing system with the appropriate alternative, agencies must include and execute a sound testing strategy. An iterative and comprehensive verification and validation process is recommended to maximize an easy and efficient transition to a replacement system.

**Requirements:** Agency testing strategy for new systems should include the following elements:

- Designating an appropriately sized and scaled prototype,
- Data conversion testing,
- Unit and integrated testing of individual system modules and communications links as appropriate,
- Regression testing,
- Security and contingency plan testing and validation,
- Interface adequacy testing,
- Testing of associated revised business processes, and
- User acceptance testing, and parallel processing testing which ensures integrity in migrating from an existing environment to the replacement alternative.

### Training

The deployment and implementation of any new information system requires a well-planned training strategy to ensure that the system will be used in the most effective and efficient manner. This need for training is even more critical in light of the major cultural changes that are underway in agency human resources programs that involve having managers and employees perform more and more of the traditional functions of the human resources office. Agencies should ensure that training plans and training sessions, if required, are included in contracts as a deliverable if the agency wants the training to be provided by a contractor. Development of software by a contractor does not necessarily include training on that software.

The agency training approach should encompass the technical knowledge necessary to

perform the new tasks at the computer as well as covering any philosophical changes when there has been a shift in human resources management roles in the new system's environment.

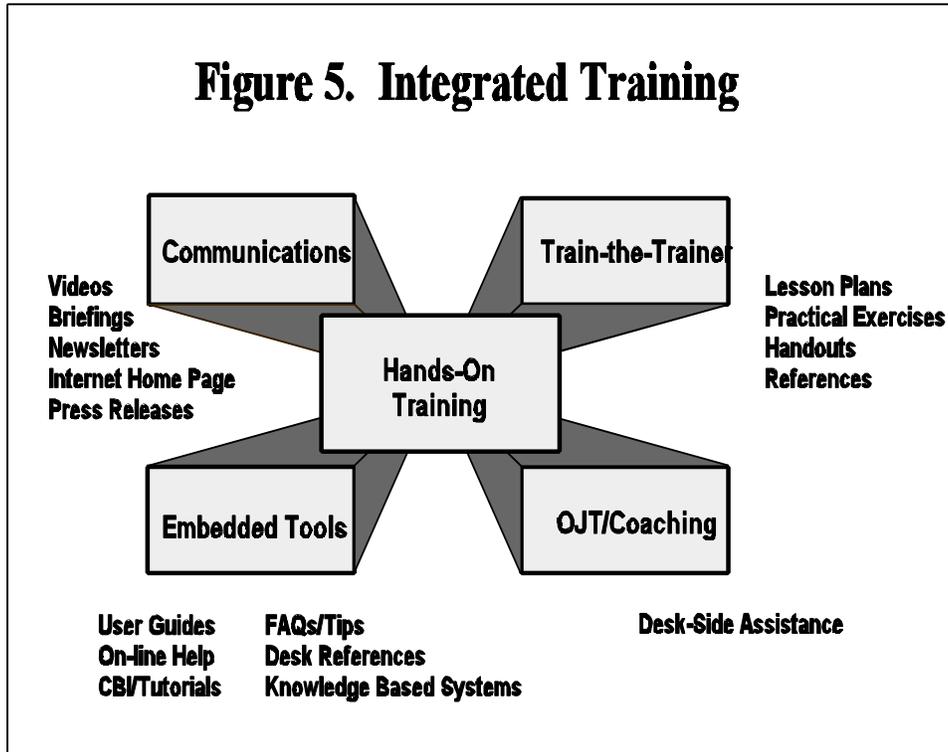
**Requirements:** Agency training plans for new systems should include at least the following training modules:

- Systems administrator training.
- Human resources specialist and assistant training.
- Maintenance training.
- Systems and network training.
- Security training.
- Change management training.
- Manager training.
- Employee training.

Various training options are available to consider in the method of delivery. Agencies are encouraged to look to technology for cost effective training delivery. The following list is provided for consideration.

- Train-the-trainer.
- Team training.
- Computer-based instruction.
- Video training.
- Satellite or TeleVideo training.
- On-line help and tutorials.
- Traditional classroom instruction.
- Written materials.

Figure 5 provides an example of an integrated training concept for implementing new human resources information systems.



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# Appendix A

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## Acronyms Used In this Document

BPR	Business Process Reengineering
CBI	Computer-Based Instruction
COTS	Commercial-Off-The-Shelf
CPDF	Central Personnel Data File
CTAP	Career Transition Assistance Program
DVAAP	Disabled Veterans Affirmative Action Program
EEOC	Equal Employment Opportunity Commission
FTE	Full Time Equivalent
FEORP	Federal Equal Opportunity Recruitment Program
FAQs	Frequently Asked Questions
GAO	General Accounting Office
GPRA	Government Performance and Results Act
HR	Human Resources
ICTAP	Interagency Career Transition Assistance Program
IT	Information Technology
ITMRA	Information Technology Management Reform Act
IVRS	Interactive Voice Response System
JFMIP	Joint Financial Management Improvement Program
KSAs	Knowledges, Skills and Abilities
OMB	Office of Management and Budget
OPM	Office of Personnel Management
PC	Personal Computer
SF	Standard Form
VERA	Voluntary Early Retirement Authority

## Appendix B

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### Terminology Used In this Document

**Activity-Based Costing:** A set of accounting methods used to compute and compare costs, resources and other performance metrics to determine the best possible practice within a distinct unit of work.

**Agency:** The term used throughout this document to refer generically to any department, bureau, agency, or major independent organization in the executive branch of the Federal Government.

**Benefit-Cost Analysis:** A technique used to compare the various costs associated with an investment with the benefits that it proposes to return. Both tangible and intangible factors should be addressed and accounted for.

**Business Case:** A documentable and defensible action-oriented plan to achieve process or system improvements. It functions as a decision package for organization decision-makers, and includes an analysis of business process or system performance and associated needs or problems, proposed alternative solutions, assumptions, constraints, and risk-adjusted cost-benefit analysis.

**Business Process Reengineering:** A systematic, disciplined improvement methodology that critically examines, rethinks, and redesigns mission-delivery processes in order to achieve dramatic improvements in performance in areas important to the organization.

**Change Management:** Activities involved in (1) defining and instilling new values, attitudes, norms and behaviors within an organization that supports new ways of doing work and overcoming resistance to change; (2) building consensus among customers and stakeholders on specific changes designed to better meet their needs; and (3) planning, testing, and implementing all aspects of the transition from one organization structure or business process to another.

**Client-Server Architecture:** A network-based computer platform that distributes processing logic and execution, and data presentation and data management functions in software processes called clients and servers. The client is the user's workstation or personal computer part of the process, and the server is the central processor that supports the client.

**Continuous Process Improvement:** A continuous effort to incrementally improve how products and services are provided and internal operations are conducted.

**Core/Priority Mission Functions:** Those functions that are vital to the organization's success and survival.

**Corporate Information System:** A shared information system within a functional area such as human resources management. Agencies should strive to have only one information system as their corporate system. The single system may include any number of subsystems, applications or modules of other systems that are interoperable and are linked together electronically in an efficient and effective manner.

**Customization:** To build, fit or alter an original product to individual specifications. This document uses the term customization to describe the process of modifying commercial-off-the-shelf software to meet unique agency requirements.

**Decision Support and Expert Systems:** Decision support systems are computer-based information systems which supply interactive and informative support for managers during the decision making process. Expert systems are computer programs that capture the knowledge of human experts. The program emulates the interaction a user might have with a human expert to solve a problem.

**Functional Area:** A functional area is comprised of a major segment of the human resources management function that is separately identifiable as contributing to the overall human resources' management objectives. Examples include position management and classification, recruitment and staffing, personnel action administration, benefits administration, labor-management and employee relations, work force development, etc.

**Functional Requirements:** A description of the functions to be performed, data required and the performance expectations for an information system. The functional requirements are described in non-computer-oriented language and are used by software engineers for translation into program specifications for the software development effort.

**Human Resources Information System:** Any combination of computer hardware, software, telecommunications, and information technology which collect, record, process, store, communicate, retrieve and display information relating to human resources management programs of Federal agencies.

**Information Technology:** Any equipment or interconnected system or subsystem of equipment, that is used in the automatic acquisition, storage, manipulation, management, movement, control, display, switching, interchange, transmission, or reception of data or information by the Federal agency. In simple terms, this is the hardware and software used to automate activities or processes to reduce paperwork, increase efficiency of operations and provide enhanced information services.

**Life-Cycle Management Activities:** A disciplined approach to the management of information systems from inception through discontinuance which includes installing software and hardware, establishing implementation procedures, training users, preparing documentation, converting data from existing systems, and continuing maintenance.

**Manager and Employee Empowerment and Self-Service:** A cultural change in human resources management practices that shifts the traditional responsibility for accomplishing human resources tasks or activities from the human resources professionals to the managers and employees.

**Modeling:** The application of a standard, rigorous, structured methodology to graphically define and document functional activities and subprocesses within a process and determine their interrelationships. Modeling is generally used to understand, analyze, improve, and/or replace a process, and define related information requirements.

**Open-Systems Environment:** A collection of specified information technology standards and profiles providing for computer interfaces, services and supporting formats that permit interoperability or portability of applications and data.

**Performance Measurements:** The process of developing measurable indicators that can be systematically tracked to assess progress made in achieving predetermined goals.

**Process:** A high-level grouping of logically related actions (tasks, steps) that are taken to accomplish a major activity of a functional area. For example, “Describe the work of a position and apply standards, policies and guidelines to determine the type and level of work.”

**Replacement System:** An existing information system that has undergone functional enhancement or a newly developed system that have completed the transition to a corporate system. A replacement system may be a hybrid system composed of applications, modules and subsystems of other systems.

**Risk-Analysis:** A technique used to identify and assess factors that may jeopardize the success of a project or achievement of a goal. It defines preventive measures to reduce the probability of these factors from occurring and identifies countermeasures to successfully deal with these constraints when they develop.

**Standard Core Requirements or Core Functional Requirements:** The terms used in this document which identify the basic products, services and information required of a human resources information system. The core functional requirements are integrated with agency unique requirements to establish the total requirements for a human resources system.

**System Integration:** An information system architecture that seamlessly integrates applications and data into a single system format that eliminates the need to reenter or reconcile data.

**System Interface:** An information system architecture that electronically connects disparate systems and databases and allows the passing of data without manual intervention.

**System Performance Standards:** Measurable indicators that establish a minimum acceptable level of performance for an information system. Factors that are considered include response time, accuracy, correctness, usability and speed of performance.

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## Appendix C

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### Selected References

The following references were used during the development of this document.

*Computer Security Act of 1987*, Public Law 100-235, (H.R. 145), January 8, 1988.

*Strategic Plan for Personnel Automation*, U.S. Office of Personnel Management, April 1992.

*Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs*, U.S. Office of Management and Budget Circular A-94, October 29, 1992.

*Government Performance and Results Act of 1993*, Public Law 103-62, August 3, 1993.

*From Red Tape to Results: Creating a Government That Works Better & Costs Less*, Report of the National Performance Review, Vice President Al Gore, September 7, 1993.

*The Paperwork Reduction Act of 1994*, Public Law 104-13, May 22, 1995.

*Core Financial System Requirements*, Joint Financial Management Improvement Program, FFMSR-1, September 1995.

*Evaluating Information Technology Investments: A Practical Guide, Version 1.0*, U.S. Office of Management and Budget, November 1995.

*Management of Federal Information Resources*, U.S. Office of Management and Budget Circular A-130, February 8, 1996.

*Information Technology Management Reform Act of 1996 (Clinger-Cohen Act)*, Public Law 104-106, Division E, February 10, 1996.

*Implementation of the Information Technology Management Reform Act of 1996*, U.S. Office of Management and Budget Memorandum 96-20, April 4, 1996.

*Strategic Plan for Personnel Action Documentation and Recordkeeping*, U.S. Office of Personnel Management, November 1996.

*Funding Information Systems Investments*, U.S. Office of Management and Budget Memorandum 97-02 (The Raines' Rules), October 25, 1996.

*Assessing Risks and Returns: A Guide for Evaluating Federal Agencies' IT Investment Decision-making, Version I*, United States General Accounting Office, February 1997.

*Business Process Reengineering Assessment Guide, Version 3*, United States General Accounting Office, May 1997.

*Capital Programming Guide, Version 1.0*, U.S. Office of Management and Budget Circular A-11, Part 3, July 1997.

*Governmentwide Human Resources Information Systems Study, Draft Charter*, U.S. Office of Personnel Management and Human Resources Technology Council.

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## Appendix D

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### Task Force Members

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Department of Health and Human Services  
Department of Agriculture  
General Services Administration  
Office of Personnel Management  
Office of Personnel Management  
Office of Personnel Management  
Department of Defense

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## HR Systems Review - Introduction

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The human resources systems environment is now extremely dynamic. Virtually all the Federal civilian systems that provide personnel and payroll services are changing, both in terms of technology and in the range of services offered.

In the late 1980s and early 1990s, the agencies operating these systems realized that their third generation hardware and software were simply not capable of keeping up with the needs of the workplace. While these systems usually did an adequate job of generating personnel actions and pay checks, they were becoming increasingly unwieldy and inefficient as they tried to keep up with expanding HR programs and requests for more sophisticated management information. As agencies began to plan new systems, the National Performance Review's recommendations added another stimulus for systems development -- *support the reengineering of business practices, and the concomitant reduction of HR staff, through automation.*

Consequently, in our review we looked at two groups of systems, the legacy<sup>6</sup> systems and the developing systems. (*Agencies and staff contributing to the review are listed at Appendix E.*)

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## The Legacy Systems

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In order to provide baseline information for a review of human resources systems, the Human Resources Technology Council surveyed Federal agencies in August 1997. The survey instrument solicited the following kinds of information:

- size of agency workforce serviced
- origin, type, and implementation date of legacy systems
- functional coverage of legacy HR systems
- cross-servicing information
- new system development projects underway or planned, including functional coverage and technical approaches where available (*A copy of the survey is at Appendix F.*)

The survey responses identified seventeen<sup>7</sup> HR systems that are currently operating. Table 1 summarizes key characteristics of these seventeen legacy systems.

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<sup>6</sup> "Legacy systems" refers to old systems being replaced or modernized.

<sup>7</sup> Of the 60+ Agencies that responded to the survey. Includes all Cabinet Agencies.

Table 1

■■■ Overview of “Legacy” Personnel Systems ■■■

<i>Agency</i>	<i>Legacy System Origin</i>	<i>Legacy System Age in Years</i>	<i>Number Employees Serviced</i>	<i>Number Employees Cross-Serviced</i>	<i>System Replacement?</i>
Department of Defense	Agency-developed	24	800,000	11,700 *	COTS modification began in 1996. Implementation in 1998-1999
Department of Veterans Affairs	Agency-developed	30	250,000	0	Implementation 1997-1999
Department of Agriculture	Agency-developed	14	140,000	357,600	Implementation of enhancement projects to begin 12/97.
Department of the Interior	Agency-developed	18	87,000	11,600	Implementation began 9/97
Department of Transportation	Agency-developed	16	63,600	300	Planned
Department of Health and Human Services	Agency-developed	8	60,000	65,000	Implementation began 10/97
Natl Aeronautics and Space Administration	Agency-developed	9	20,600	0	Plan to procure COTS 2-3 years

\* In addition to the 11,700 employees reflected as serviced by DOD, GSA and its customer agencies reimburse DOD for software development services. GSA uses the DOD system, on its own platform, to cross-service.

Note: COTS refers to “commercial-off-the-shelf” software.

<i>Agency</i>	<i>Legacy System Origin</i>	<i>Legacy System Age in Years</i>	<i>Number Employees Serviced</i>	<i>Number Employees Cross-Serviced</i>	<i>System Replacement?</i>
Environmental Protection Agency	DOI/EPA developed	13	18,000	0	COTS procured 4/97
Department of Energy	DOI & contractor	15	15,600	1,400	Implementation of new "front end" 12/97
Department of State	Agency-developed	13	15,000	900	HR COTS procured 6/97
General Services Administration	DOD/AF developed	13	14,500	23,800 *	Implementation begins 10/98
Panama Canal Commission	Agency-developed	15	9,900	0	Plan to procure COTS
Nuclear Regulatory Commission	Agency-developed	18	3,200	0	Implementation of FBI Paypers System 4/98
Securities & Exchange Commission	Agency-developed	3	3,000	0	Plan migration to DOI
Agency for International Development	Agency-developed	28	2,500	40	Plan to procure COTS 1/98
Railroad Retirement Board	COTS	12	1,350	0	None planned
Federal Election Commission	Agency-developed	19	300	0	Plan migration to NFC

## Observations on Legacy Systems

- The Department of Defense (DOD) civilian system alone services 42% of the workforce. (Excluding the 38,300 employees currently serviced by GSA utilizing DOD software.)
- Together, DOD and Agriculture service 67% of the workforce.
- All but one of the legacy systems were developed by Federal agencies.
- Five of the largest systems, servicing 91% of the total workforce, have already begun implementation of new systems or HR modernization efforts. As the average age of the legacy systems, based on original implementation date, is 14 years, it is not surprising that they are being replaced.
- Those systems that are in a planning phase are considering either a commercial-off-the-shelf (COTS) replacement or migration to an established cross-servicer.
- **Cross-Servicing:** Twenty-four percent of the workforce is cross-serviced. Based on the agency surveys, it does not appear that this percentage will change much in the next few years. However, based on the current climate, we expect that agencies will continue to reengineer HR processes and the systems to support those processes. Therefore, agencies will probably provide cross-servicing to other agencies at similar levels as in the past, but who they provide service to and the software vehicle they use may be significantly different.<sup>8</sup>

**Table 2,** Which follows, shows the agencies which cross-service and their customers.

**Table 3,** Which follows, depicts an assessment of the seventeen legacy systems against core functional requirements.

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<sup>8</sup>

The General Services Administration is pursuing its own COTS software and will continue to operate the software for other agencies. The Social Security Administration is moving from HHS to Interior next year, and the Department of Labor has announced plans to move from GSA to an internal COTS solution.

*Table 2***Current Cross-Servicing Relationships (As of October 1997)**

<u>Agency</u>	<u>Customers</u>
Department of Defense	Executive Office of the President, OPM, USIA
Department of Agriculture (National Finance Center)	Commerce, HUD, Justice, Treasury, GAO, Library of Congress, SBA, Smithsonian, and several small agencies
Department of the Interior	Education, FTC, and several small agencies
Department of Health and Human Services	Social Security Administration [Note: SSA migrates to DOI in 4/98]
Department of Transportation	National Transportation Safety Board
Department of Energy	Federal Energy Regulatory Commission and several small agencies
General Services Administration (Operating DOD Software)	Labor, EEOC, NARA, NCUA and numerous small agencies
Department of State	Peace Corps
Agency for International Development	Trade and Development Agency

Table 3

## Core Functional Requirements Legacy Personnel Systems

Key: Y = Yes, in primary system  
M = Yes, via module  
P = Partial functionality  
N = No

Agency Systems	Position Management and Classification	Recruiting and Staffing	Personnel Action Administration	Benefits Administration	Labor Management and Employee Relations	Workforce Development	Retention and Internal Reporting	External Reporting	Financial Management Systems
Defense	YM	YM	Y	YM	YM	YM	YM	YM	N
Veterans Affairs	P	N	Y	N	N	PM	YM	Y	Y
Agriculture	P	P	Y	Y	N	N	Y	Y	Y
Interior	YM	P	Y	YM	N	P	YM	Y	Y
Transportation	P	P	Y	P	N	P	Y	Y	Y
Health & Human Services	N	N	Y	Y	N	P	P	Y	Y
National Aeronautics & Space Adm	N	N	Y	Y	N	P	P	Y	YM
Environmental Protection Agency	N	N	Y	Y	N	P	P	Y	Y
Energy	N	N	Y	N	N	M	Y	Y	Y
State	P	N	Y	N	N	P	P	Y	Y
General Services Administration	P	P	Y	P	P	P	P	Y	M
Panama Canal Commission	Y	N	Y	N	N	Y	P	Y	Y
Nuclear Regulatory Commission	P	P	Y	M	M	P	P	P	P
Securities & Exchange Commission	P	N	Y	Y	N	M	P	Y	Y
Agency for Internat'l Development	P	N	Y	N	N	N	P	P	Y
Railroad Retirement Board	P	N	Y	N	N	P	Y	Y	Y
Federal Election Commission	Y	Y	Y	Y	Y	Y	Y	Y	Y

## Observations on Legacy Systems and Core Requirements

- The only requirement met by all of these main systems is *Personnel Action Administration*. This function encompasses personnel action generation, documentation, and payroll input which were the highest priorities when automation was initially introduced in HR. Much of the other functionality found in these systems was added incrementally over the years, in either a semi-integrated or semi-automated capacity.
- In view of the fact that these systems are already being replaced, a more detailed evaluation is not warranted at this time.

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## The Developing Systems

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Of the seventeen legacy HR systems, only one reported neither a development project underway nor a plan to modernize. All of the larger systems, with the exception of the Department of Transportation, already have development efforts underway.

The HRTC study team identified seven HR system development projects for a more detailed review. The seven selected represent a variety of technical approaches and cross-servicing arrangements. They include:

- Department of Agriculture
- Department of Defense
- General Services Administration
- Department of Health and Human Services
- Department of the Interior
- Department of Justice
- Department of Veterans Affairs

The study team visited each of the seven agencies and interviewed senior officials responsible for the development projects. (*The questionnaire used for these interviews is at Appendix G.*) From the information obtained in these interviews and supplemental agency submissions, the study team prepared brief narrative profiles of each development project. These profiles, along with a core requirements chart for each, follow.

### Observations on Developing Systems

- None of the new systems are fully deployed.
- While all of the agencies report their new systems will meet, or have the capacity to meet, core requirements, their means of doing so vary considerably. They include in-house development, minimally customized commercial-off-the-shelf software (COTS), and substantially customized COTS. Several efforts use multiple COTS products. Methods for relating personnel and payroll processing continue to vary, as do time and attendance modules.
- The variation in approaches reflects several influences: the size and dispersion of the workforce; the HR infrastructure and any associated streamlining objectives; and the lack of any proven “single solution” approach. Several systems officials noted that when the need for a new HR system became urgent, there were neither commercial products nor other agency

systems available to meet their needs.

- The difficult design issues faced in these efforts have not been meeting requirements *per se*, but rather accommodating concurrent reengineering of the human resources workflow, centralizing routine processing, and providing ready access to managers and employees. The significant downsizing of HR staff, without commensurate simplification of HR rules or workload reduction, leaves leveraging technology as the primary means of meeting customer needs.
- Several officials noted that there is a need to expedite the study of moving to digital Official Personnel Folders, providing for the Governmentwide sharing of personnel data, and improving the timeliness and responsiveness of Governmentwide reporting of HR information.
- All the development projects seek input from user groups. However, one official noted that, with the increasing degree of decentralization and deregulation, it is increasingly difficult to gain consensus among users.
- The cooperative involvement of human resources, finance, and IRM officials is evident in project planning, the reengineering of business practices, and project management.
- The systems being built have functionality and flexibility that may not be fully used for several years.
- The small agencies are at a disadvantage in attempting to obtain new HR systems. They often lack the in-house staff resources and funding to design and implement complete systems to meet their needs. While there are cross-service providers available, these are not always viewed as satisfactory solutions.

## HR Systems Review

### Profiles of Developing Systems

#### **\*\* Department of Agriculture / National Finance Center \*\***

#### Project Overview

The Department of Agriculture's National Finance Center (NFC) hosts the second largest personnel/payroll service. Including the Agriculture workforce, NFC cross-services 45 customer agencies totaling 450,000 to 500,000 employees each pay period. Rather than plan a single replacement or modernization project, NFC has chosen to make improvements incrementally so that the concepts and technology may be proven before committing to the next enhancement.

#### Background

The USDA/NFC system in its present IDMS form dates to 1983. The Office of Human Resources Management is the system owner. The system comprises fully integrated personnel and payroll processing. A personnel office may submit actions either online or by batch. Data access is controlled by users. Numerous "canned" reports are available for download, and *ad hoc* queries may be prepared by users using the FOCUS report generator. NFC supports use of Employee Express. The system is on schedule for achieving Year 2000 compliance. There is a users' group of USDA components, which in turn is represented on the users' group of all customers. At this time the NFC does not include front-end (e.g., SF-52 generation) processing.

#### System Improvement Projects

- ▣ *General Personnel/Payroll Upgrade.* This project will upgrade system structure and programs to a client-server technology with a relational database and support Windows (3.x, 95, & NT). The first deployment, Earnings and Leave statements, will be in December 1997. Personnel/pay entry applications are scheduled for six months later, followed by history correction. All user-seen applications are to be upgraded to the client-server environment within two years.
- ▣ *Standard Interface.* The purpose of this upgrade is to provide an advanced technology environment, and at the same time to facilitate customers' use of any front-end module with the USDA payroll/personnel system. This interface is being used by several agencies with COTS front-end systems, and tested by other agencies using PeopleSoft. It will be continually upgraded to meet customer needs.
- ▣ *SCIP.* This is a client-server front-end personnel processing system being developed in Oracle by the NFC. This first module, which includes the SF-52 and associated staffing and classification documents, is scheduled for pilot testing in January-March 1998.

- ▣ *Time and Attendance Upgrade.* This project will upgrade the T&A application to Windows. Development time will be 18 months after a final decision to initiate the project is made. In a related effort, USDA/OHRM is exploring COTS T&A products and plans to complete a proof-of-concept analysis by April 1998.

### Special Features

USDA notes that it offers the only fully integrated personnel and payroll system. It is supported by an experienced staff; and, it has a long history of being flexible in accommodating different customer needs and different front-end modules.

### Cross-Servicing

After adding substantially to its customer base with the Departments of Justice and the Treasury about three years ago, NFC deferred taking on new customers for a two-year period. At present NFC is actively seeking new customers.

### Point of Contact

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*Note: Information in this profile was obtained via interview of agency officials.*

**FEDERAL HUMAN RESOURCES INFORMATION SYSTEMS  
CORE FUNCTIONAL REQUIREMENTS  
SYSTEMS UNDER DEVELOPMENT**

***Department of Agriculture / National Finance Center***

**KEY:**

Y = Yes, core requirement included under current system development initiative.

N = No, core requirement not included under current system development initiative.

P = Possible under current development initiative. Core requirement not included under current system development initiative, but capability exists under current design.

<b>Position Management and Classification</b>		
<b>SPECIFIC AREA:</b>	<b>Y/N/P ?</b>	<b>COMMENTS:</b>
<b>Manager Self-Service</b>	<b>P</b>	No consensus yet among users as to degree of delegation of classification to managers.
<b>Regulatory Compliance and Administration</b>	<b>Y</b>	
<b>Functional Requirements</b>	<b>Y</b>	Actual evaluation of positions against OPM classification standards not yet included.

<b>Recruiting and Staffing</b>		
<b>SPECIFIC AREA:</b>	<b>Y/N/P ?</b>	<b>COMMENTS:</b>
<b>Manager Self-Service</b>	<b>Y</b>	Expert and/or decision support capabilities not yet fully developed.
<b>Regulatory Compliance and Administration</b>	<b>Y</b>	
<b>Functional Requirements</b>	<b>Y</b>	

<b>Personnel Action and Administration</b>		
<b>SPECIFIC AREA:</b>	<b>Y/N/P ?</b>	<b>COMMENTS:</b>
<b>Personnel Action Processing</b>	<b>Y</b>	
<b>Personnel Action Tracking</b>	<b>Y</b>	Current system supports all requirements in this section except personnel action tracking.
<b>Official Personnel Folder</b>	<b>Y</b>	
<b>Regulatory Compliance and Administration</b>	<b>Y</b>	
<b>Functional Requirements</b>	<b>Y</b>	

<b>Benefits Administration</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
Employee Self-Service	Y	Using Employee Express system to be supplemented by other systems.
Regulatory Compliance and Administration	Y	
Functional Requirements	Y	Access to be through telephone and desktop PC.

<b>Labor Management and Employee Relations</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
Manager Self-Service	P	Requirements not yet developed.
Case Management and Administration	P	Requirements not yet developed.
Regulatory Compliance and Administration	Y	
Functional Requirements	Y	

<b>Work Force Development</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
Manager and Employee Self-Service	Y	Most agencies download data using FOCUS and load into agency workforce planning software.
Regulatory Compliance and Administration	Y	
Functional Requirements	P	Current system tracks and pays bills for training. Requirements for on-line HR development system not yet complete.

<b>Retention and Internal Reporting</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
Regulatory Compliance and Administration	Y	Employee self-service provided through Employee Express. Personnel offices provide reports to managers.
Functional Requirements	Y	FOCUS, by Information Builders, is reporting tool.

<b>External Reporting</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
Regulatory Compliance and Administration	Y	Requirements met by existing system.

<b>Reporting Requirements</b>	Y	Requirements met by existing system.
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<b>Financial Management Systems</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
<b>Regulatory Compliance and Administration</b>	Y	Fully integrated payroll/personnel system.
<b>Functional Requirements</b>	Y	Fully integrated payroll/personnel system.

<b>Demo Projects and Other HR Systems</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
<b>Regulatory Compliance and Administration</b>	P	Commerce's NIST, USDA Demo Project, and other agencies with specific pay authorities are covered.

<b>Decision Support and Expert Systems</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
<b>Regulatory Compliance and Administration</b>	P	Plan to incorporate directives information into on-line help.

<b>Other Significant Functional Requirements</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
<b>Regulatory Compliance and Administration</b>	Y	Transmit data to contractors (Frick Corp., TALX), Employee Express, HHS for new database, EEOMAS for EEO tracking. System has proven flexibility to adapt to new requirements.

<b>Core Technical Requirements</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
<b>Hardware</b>	Y	Supports multiple platforms; using IVR, WWW; interfaces with client-server systems.
<b>Infrastructure and Communications</b>	Y	Will support TCP/IP.
<b>Security, Access and Control</b>	Y	Uses "Top Secret" security software. Will support encryption and digitized signatures.
<b>Systems Performance Standards</b>	Y	

## HR Systems Review

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### Profiles of Developing Systems

#### **\*\* Department of Defense \*\***

#### Project Overview

The Department of Defense (DOD) is reengineering and modernizing its Human Resources (HR) processes and systems. DOD employs separately developed, maintained, and owned HR and payroll systems which share data through an interface. The Defense Civilian Personnel Management Service (CPMS) directs the HR modernization effort for DOD (Military Departments and Defense Agencies). The Defense Finance and Accounting Service (DFAS) oversees the payroll and accounting services for DOD (Military Departments and Defense Agencies). This profile is limited to the HR modernization effort which is scheduled to be fully deployed in 1999.

#### Background

The separate branches of service in DOD have historically developed and implemented their own automated systems to support HR. Personnel software, and software support, was obtained from a variety of sources throughout DOD. The decision was made to “centralize” the oversight of HR systems in DOD and reengineer the delivery of HR services.

The DOD HR reengineering/restructuring project began in 1990. In 1993 the “regionalization” effort began. Regionalization involves consolidating over 450 independent personnel offices into 23 regional HR processing centers and 300-350 customer support units. DOD expects to ultimately reduce HR resources by 50% through regionalization.

The workforce covered by DOD HR systems is over 800,000 at various locations worldwide. DOD has historically provided HR system services to agencies outside of DOD and will continue to do so after regionalization.

In 1995 DOD began development of its new HR system. After rejecting the possibility of developing an “in-house” system and conducting a review of a number of available public and private HR “COTS” systems, the Oracle HR product was purchased to serve as the “core” DOD HR processing system.

#### New System -- Technical Features

*Infrastructure:* The modernized DOD HR system is designed to accommodate the reengineered HR processes being put in place through the regionalization project. The system will incorporate a “3 Tier” approach to minimize resource drain at the processing centers. Tier 1: Each

Customer Support Unit will have access to a limited, locally based, file for data inquiries. If a record needs to be changed, the change request is automatically re-routed to the processing database in the Regional Office. Tier 2: The Regional Office will provide all HR processing services and will maintain the “database of record.” Tier 3: A “corporate level” database of all DOD information will be available to headquarters staff and will be refreshed daily by the Regional Office databases.

*Hardware:* Client-server based. Manager and employee access will be accomplished through PC, Web, Kiosk, and Telephone. The DOD HR system has been designed to run on a HP/Unix platform but can be adapted to other platforms if necessary.

*Software:* Incorporates a customized version of the Oracle HR program. Other value-added modules have been purchased (e.g., Resumix) or developed in-house to provide support for specific functions.

*Schedule:* Regionalization is well underway. Many of the value-added HR system modules have been deployed as “stand-alone” products. The modernized HR system will begin a phased deployment in 1998, with full deployment expected by December 31, 1999.

### Special Features

- ▣ Only system known to exist that has been designed to support a population of this size. The system is designed to accommodate just about any type of employee/occupation.
- ▣ The DOD system will incorporate a wide variety of Knowledge Based “expert-on-line” Systems to guide personnelists, managers, and employees through various HR processes.
- ▣ The Web will be used extensively for manager and employee self-service applications.
- ▣ System, technical, user, and personnel action documentation will be available on-line. Links will be established to non-DOD help sites to provide additional assistance.
- ▣ The DOD HR system incorporates more internally developed value-added modules than any other Federal HR system.

### Cross-Servicing

While DOD does not actively seek to provide HR system services to non-DOD clients, it has traditionally been one of the largest cross-service providers in the Federal Government. The modernized DOD HR system has been designed with flexible functionality that will allow for the continued servicing of non-DOD clients.

Point of Contact

Robert Gibson  
Defense Civilian Personnel Management Service  
(703) 696-1726

*Note: Information in this profile was obtained via interview of agency officials.*

**FEDERAL HUMAN RESOURCES INFORMATION SYSTEMS  
CORE FUNCTIONAL REQUIREMENTS  
SYSTEMS UNDER DEVELOPMENT**

**Department of Defense**

**KEY:**

- Y = Yes, core requirement included under current system development initiative.**
- N = No, core requirement not included under current system development initiative.**
- P = Possible under current development initiative. Core requirement not included under current system development initiative, but capability exists under current design.**

<b>Position Management and Classification</b>		
<b>SPECIFIC AREA:</b>	<b>Y/N/P ?</b>	<b>COMMENTS:</b>
<b>Manager Self-Service</b>	<b>Y</b>	
<b>Regulatory Compliance and Administration</b>	<b>Y</b>	
<b>Functional Requirements</b>	<b>Y</b>	

<b>Recruiting and Staffing</b>		
<b>SPECIFIC AREA:</b>	<b>Y/N/P ?</b>	<b>COMMENTS:</b>
<b>Manager Self-Service</b>	<b>Y</b>	
<b>Regulatory Compliance and Administration</b>	<b>Y</b>	
<b>Functional Requirements</b>	<b>Y</b>	

<b>Personnel Action and Administration</b>		
<b>SPECIFIC AREA:</b>	<b>Y/N/P ?</b>	<b>COMMENTS:</b>
<b>Personnel Action Processing</b>	<b>Y</b>	
<b>Personnel Action Tracking</b>	<b>Y</b>	
<b>Official Personnel Folder</b>	<b>P</b>	Provides data in electronic form.
<b>Regulatory Compliance and Administration</b>	<b>Y</b>	
<b>Functional Requirements</b>	<b>Y</b>	
<b>Benefits Administration</b>		
<b>SPECIFIC AREA:</b>	<b>Y/N/P ?</b>	<b>COMMENTS:</b>

<b>Employee Self-Service</b>	Y	Not at initial implementation.
<b>Regulatory Compliance and Administration</b>	Y	
<b>Functional Requirements</b>	Y	

<b>Labor Management and Employee Relations</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
<b>Manager Self-Service</b>	Y	
<b>Case Management and Administration</b>	Y	
<b>Regulatory Compliance and Administration</b>	Y	
<b>Functional Requirements</b>	Y	

<b>Work Force Development</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
<b>Manager and Employee Self-Service</b>	Y	Limited to managers at implementation.
<b>Regulatory Compliance and Administration</b>	Y	
<b>Functional Requirements</b>	Y	

<b>Retention and Internal Reporting</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
<b>Regulatory Compliance and Administration</b>	Y	
<b>Functional Requirements</b>	Y	

<b>External Reporting</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
<b>Regulatory Compliance and Administration</b>	Y	
<b>Reporting Requirements</b>	Y	CPDF, EEOC

<b>Financial Management Systems</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
<b>Regulatory Compliance and Administration</b>	Y	
<b>Functional Requirements</b>	Y	

<b>Demo Projects and Other HR Systems</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
<b>Regulatory Compliance and Administration</b>	Y	

<b>Decision Support and Expert Systems</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
<b>Regulatory Compliance and Administration</b>	Y	

<b>Other Significant Functional Requirements</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
<b>Regulatory Compliance and Administration</b>	P	

<b>Core Technical Requirements</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
<b>Hardware</b>	Y	HP UNIX, HP9000 series servers
<b>Infrastructure and Communications</b>	Y	10mbps LAN; TCPIP compliant
<b>Security, Access and Control</b>	Y	
<b>Systems Performance Standards</b>	Y	

## **HR Systems Review**

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### Profiles of Developing Systems

#### **\*\* General Services Administration \*\***

##### Project Overview

The General Services Administration (GSA) is modernizing its independent “legacy” personnel and payroll systems into an integrated, client-server based system. The modernized payroll system was deployed in February of 1995. Full implementation of the modernized core HR system is scheduled for October 1, 1998 for GSA and its existing customers. Value-added modules and 3rd party software will be deployed, as warranted, after October 1, 1998. The final integrated HR and payroll product will be referred to as the Comprehensive Human Resources Integrated System (CHRIS)/Payroll, Accounting and Reporting(PAR).

##### Background

GSA originally developed and implemented its own automated system to support payroll. Personnel software, and software support, was obtained from the Department of Defense (DOD) but was installed and supported, by GSA staff, on GSA mainframe computers. GSA personnel services clients pay GSA for mainframe computer support including communications services and, in addition, pay DOD for software support services.

The workforce covered by GSA systems is 40,000 (HR) and 25,000 (Payroll) at various locations nationwide. GSA itself employs approximately 14,500 employees. The coverage includes numerous small agencies and commissions. GSA provides full HR & payroll services for small agencies and commissions with no administrative support staffs.

GSA purchased the Oracle Human Resources software in October of 1996. The “Federalized” version of the software was delivered to GSA on October 1, 1997. GSA expects to have all of its existing clients migrated to the new Oracle HR platform by September 30, 1998.

##### New System -- Technical Features

*Infrastructure:* The modernized CHRIS/PAR software, and the platform upon which the software resides, will be owned and maintained by GSA. There is a single HR & payroll data center located in Beltsville, MD. CHRIS has been developed in partnership with current GSA clients and is designed to allow those clients the ability to customize the software to meet individual needs. GSA will cross service payroll only, HR only, or full HR and payroll functionality.

*Hardware:* Client-server based. Web based applications support employee self-service. Both the HR and payroll applications reside on IBM RS/6000 servers.

*Software:* Incorporates Oracle COTS modules for HR. The payroll system was designed and developed “in-house,” using Oracle software, by GSA staff. The HR system is based on the Oracle Government HR product. Other COTS modules (e.g., COHO, Resumix) may be purchased to provide support for specific functions in the future.

*Schedule:* Implementation has already begun. The modernized payroll system was deployed in February of 1995. The modernized HR system will begin a phased deployment in June of 1998, with full deployment of the core HR system to all clients expected by September 30, 1998. Incorporation of “value-added” modules and 3rd party software will be performed on an on-going basis.

### Special Features

- ▣ GSA provides HR and/or payroll services in two forms: 1) Systems support for those agencies with their own HR and payroll offices but no system(s) of their own; and, 2) Full HR and payroll services for small agencies and commissions with no internal HR or payroll offices.
- ▣ GSA offers real time, interactive Web access to CHRIS/PAR.
- ▣ CHRIS/PAR will contain, in addition to employee & position records, applicant records, vendor records, volunteer records, and an interface with GSA’s security “Smart Card” system.

### Cross-Servicing

GSA is actively seeking to cross-service other Federal/state/local agencies utilizing its new system. GSA has extensive experience in supplying HR and payroll services to other Federal agencies.

### Point of Contact

Judy Westbrook  
CHRIS Program Manager  
(202) 208-7037.

*Note: Information in this profile was obtained via interview of agency officials.*

**FEDERAL HUMAN RESOURCES INFORMATION SYSTEMS  
CORE FUNCTIONAL REQUIREMENTS  
SYSTEMS UNDER DEVELOPMENT**

***General Services Administration***

**KEY:**

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<b>Position Management and Classification</b>		
<b>SPECIFIC AREA:</b>	<b>Y/N/P ?</b>	<b>COMMENTS:</b>
<b>Manager Self-Service</b>	<b>Y</b>	Allows managers to do "what if" scenarios to determine impact of alternative organization structures. Library of standard PDs can be maintained in system.
<b>Regulatory Compliance and Administration</b>	<b>Y</b>	
<b>Functional Requirements</b>	<b>Y</b>	

<b>Recruiting and Staffing</b>		
<b>SPECIFIC AREA:</b>	<b>Y/N/P ?</b>	<b>COMMENTS:</b>
<b>Manager Self-Service</b>	<b>Y</b>	
<b>Regulatory Compliance and Administration</b>	<b>Y</b>	
<b>Functional Requirements</b>	<b>Y</b>	

<b>Personnel Action and Administration</b>		
<b>SPECIFIC AREA:</b>	<b>Y/N/P ?</b>	<b>COMMENTS:</b>
<b>Personnel Action Processing</b>	<b>Y</b>	
<b>Personnel Action Tracking</b>	<b>Y</b>	
<b>Official Personnel Folder</b>	<b>Y</b>	Could become an electronic OPF.
<b>Regulatory Compliance and Administration</b>	<b>Y</b>	
<b>Functional Requirements</b>	<b>Y</b>	

<b>Benefits Administration</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
Employee Self-Service	P	Envision WEB capability from office or home.
Regulatory Compliance and Administration	Y	
Functional Requirements	Y	

<b>Labor Management and Employee Relations</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
Manager Self-Service	P	
Case Management and Administration	P	
Regulatory Compliance and Administration	Y	
Functional Requirements	Y	

<b>Work Force Development</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
Manager and Employee Self-Service	P	A full range of standard reports will be available and others can be developed.
Regulatory Compliance and Administration	Y	
Functional Requirements	Y	

<b>Retention and Internal Reporting</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
Regulatory Compliance and Administration	Y	
Functional Requirements	Y	

<b>External Reporting</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
Regulatory Compliance and Administration	Y	All Governmentwide requirements are supported.

Reporting Requirements	Y	
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<b>Financial Management Systems</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
Regulatory Compliance and Administration	Y	System is integrated with payroll system. Capability exists to feed HR data for cost and budget requirements.
Functional Requirements	Y	

<b>Demo Projects and Other HR Systems</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
Regulatory Compliance and Administration	Y	System can be configured to support unique requirements without programming or customization.

<b>Decision Support and Expert Systems</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
Regulatory Compliance and Administration	Y	

<b>Other Significant Functional Requirements</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
Regulatory Compliance and Administration	Y	

<b>Core Technical Requirements</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
Hardware	Y	2 IBM RS/6000 R50 mirrored configuration.
Infrastructure and Communications	Y	GSA has a LAN/LBAN/WAN infrastructure in place. All employees have access to the Internet and an internal intranet.
Security, Access and Control	Y	Roles and responsibilities will be established for all users. Triggers and audit trails identify individual's updating information in systems.
Systems Performance Standards	Y	System Administrator and Database Administrator will monitor based on industry standards.

## **HR Systems Review**

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### Profiles of Developing Systems

#### ***\*\*Department of Health and Human Services\*\****

##### Project Overview

The Department of Health and Human Services' (HHS) fee-for-service organization, the Program Support Center (PSC), is developing and implementing the new personnel/payroll systems for the Department. HHS is currently redesigning both its personnel and payroll systems, moving from a batch-oriented "legacy" system to a relational database, client-server environment. The Center has chosen to develop its own systems using third-party vendor software such as Oracle and Inpower. This profile covers recent, current and proposed modernization efforts which will culminate in full implementation in 1999. The PSC's Human Resources Service owns both the personnel and payroll processes.

##### Background

The HHS legacy system dates back to the early 1970s, although it has been improved and upgraded many times. Also, some of the individual components within HHS over time have developed and implemented their own automated systems to support various HR functions which interface with the master systems. When it became apparent that the multiple flat-file structure was no longer viable, HHS decided to build a new system. The legacy system is not Year 2000 compliant.

After evaluating a number of off-the-shelf products and reviewing in-house resources, HHS decided to use a combination of COTS which could be customized to meet specific needs. In January 1995 HHS entered a partnership arrangement with Integral to use InPower as the core for the new system. In addition, HHS is in the process of selecting a COTS package to replace its current time and attendance system. Oracle is also being used to support the personnel/payroll systems upgrade. The initial pilot implementation began on October 27, 1997. As new customers and modules are deployed, HHS will run parallel processing with the current "legacy" system. A board of component representatives provides user input for design and implementation.

The workforce currently covered by HHS' systems total 120,000 regional and headquarters employees, 65,000 of whom belong to the Social Security Administration. [Note: SSA is converting to the Department of Interior system in April 1998.]

## New System – Technical Features

*Hardware:* Client-server based. Manager and employee access will be accomplished through PC, Web and telephone.

*Software:* Incorporates a customized version of the Oracle and InPower HR programs. HHS is considering an “interactive voice response system” tied in with the time and attendance replacement system. Other value-added packages such as Coho and Resumix are being considered or developed in-house to provide support for specialized functions.

*Schedule:* Many of the HR modules are planned for development, with the InPower pilot begun in October 1997. Other modules will be implemented as they are tested and piloted. An automated training system which interfaces with their accounting system will be rolled out in June 1998. This system allows for employee self-enrollment in courses. HHS is expecting to fully implement all these new systems, including payroll, by June 1999.

## Special Features

- ▣ Extensive automation of the retroactive pay process is unique to this system. It is designed to maintain four years of payroll data and twelve years of personnel data.
- ▣ The new time and attendance system will be web-based and will permit full flexibility (e.g., allow supervisors and employees to make entries from wherever they are). It provides for exception reporting and features on-line leave requests and automatic notification of supervisors.
- ▣ Automated updating of electronic funds transfer routing when banks change/merge allows timely and correct deposit of employee pay.
- ▣ Ad hoc queries will be supported with an SQL report generator and on-line data dictionary.

## Cross-Servicing

HHS is actively seeking to provide HR personnel/payroll services from the new system upon internal implementation.

Point of Contact

Thomas King  
Director, Human Resources Service  
(301) 443-1200

*Note: Information in this profile was obtained via interview of agency officials.*

**FEDERAL HUMAN RESOURCES INFORMATION SYSTEMS  
CORE FUNCTIONAL REQUIREMENTS  
SYSTEMS UNDER DEVELOPMENT**

***Department of Health and Human Services***

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<b>Position Management and Classification</b>		
<b>SPECIFIC AREA:</b>	<b>Y/N/P ?</b>	<b>COMMENTS:</b>
<b>Manager Self-Service</b>	Y	
<b>Regulatory Compliance and Administration</b>	Y	
<b>Functional Requirements</b>	Y	

<b>Recruiting and Staffing</b>		
<b>SPECIFIC AREA:</b>	<b>Y/N/P ?</b>	<b>COMMENTS:</b>
<b>Manager Self-Service</b>	Y	
<b>Regulatory Compliance and Administration</b>	Y	
<b>Functional Requirements</b>	Y	

<b>Personnel Action and Administration</b>		
<b>SPECIFIC AREA:</b>	<b>Y/N/P ?</b>	<b>COMMENTS:</b>
<b>Personnel Action Processing</b>	Y	
<b>Personnel Action Tracking</b>	Y	
<b>Official Personnel Folder</b>	Y	
<b>Regulatory Compliance and Administration</b>	Y	
<b>Functional Requirements</b>	Y	
<b>Benefits Administration</b>		
<b>SPECIFIC AREA:</b>	<b>Y/N/P ?</b>	<b>COMMENTS:</b>

Employee Self-Service	Y	
Regulatory Compliance and Administration	Y	
Functional Requirements	Y	

<b>Labor Management and Employee Relations</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
Manager Self-Service	Y	
Case Management and Administration	Y	
Regulatory Compliance and Administration	Y	
Functional Requirements	Y	

<b>Work Force Development</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
Manager and Employee Self-Service	Y	
Regulatory Compliance and Administration	Y	
Functional Requirements	Y	

<b>Retention and Internal Reporting</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
Regulatory Compliance and Administration	Y	
Functional Requirements	Y	

<b>External Reporting</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
Regulatory Compliance and Administration	Y	
Reporting Requirements	Y	

<b>Financial Management Systems</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
Regulatory Compliance and Administration	Y	
Functional Requirements	Y	

<b>Demo Projects and Other HR Systems</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
Regulatory Compliance and Administration	Y	

<b>Decision Support and Expert Systems</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
Regulatory Compliance and Administration	Y	

<b>Other Significant Functional Requirements</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
Regulatory Compliance and Administration	Y	

<b>Core Technical Requirements</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
Hardware	Y	
Infrastructure and Communications	Y	
Security, Access and Control	Y	
Systems Performance Standards	Y	

## **HR Systems Review**

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### Profiles of Developing Systems

#### **\*\* Department of the Interior \*\***

##### Project Overview

The Department of the Interior (DOI) is in the process of replacing its mainframe legacy system, PAY/PERS, which began development in 1976 and was implemented in 1979. In late 1990 the DOI began its in-house development to modernize PAY/PERS through the building of a replacement system. This development was in two phases. The first was building an automated SF52 System to serve as a front end to PAY/PERS. The SF52 System was implemented in late 1992 and is a totally online application that supports the processing of all SF52-related transactions. At the time of this implementation, planning had begun on the second phase, which was the full system that would replace the PAY/PERS System. This new application is known as the Federal Personnel/Payroll System (FPPS). The initial implementation of the FPPS began in September 1997. It includes organizations totaling 3,500 employees. Full deployment to all customer agencies will be completed by the end of calendar year 1998. At that time, the FPPS will be handling all personnel and payroll processing for ten DOI agencies and ten non-DOI agencies totaling over 160,000 employees.

##### Background

DOI originally developed and implemented the PAY/PERS system to support both personnel and payroll functions. After the implementation of this system for DOI, it was made available to other agencies. PAY/PERS is a transaction-based, overnight batch system utilizing third-generation COBOL programming. The SF52 System is interfaced with the PAY/PERS so as to provide transaction entry and real-time editing, with update processing occurring in batch mode nightly.

A systems modernization effort began formally in October 1990 with the development of the SF52 system and was consummated in September 1997 with initial development of the FPPS. Key attributes of this new IBM mainframe system are the total integration of personnel and payroll functions, online access with real-time editing and update, and an architecture built around a modern data base management system with a single database concept, design modularity, and system portability. Other features are improved user-friendliness, increased management information, paper less process, and enhanced functionality throughout.

In addition to the personnel and pay processing performed by the FPPS, the DOI provides full centralized payroll operations services. The workforce receiving personnel and payroll processing and operational support from the DOI currently totals about 98,000, consisting of almost all types of pay plans and schedules. DOI itself employs approximately 87,000 employees. The cross-servicing coverage includes one Cabinet Department as well as small agencies and commissions.

## New System -- Technical Features

*Infrastructure:* The FPPS system and database is maintained by the Administrative Service Center of the Bureau of Reclamation (a DOI agency) in Denver, Colorado. The system owner is the DOI Director of Personnel. FPPS was developed in partnership with the cross-serviced agencies along with the DOI Inspector General's office. FPPS was designed and built using modern development methodologies, modern DBMS software and Fourth Generation Language, and CASE technology so as to posture it to meet a dynamic business and technological environment. The System will be accessible by most serviced employees, and all agency locations.

*Hardware/Software:* The system is completely integrated and has interfaces to other DOI standard systems. A pilot project is underway to improve the user interface, i.e., through a graphical user interface, client-server or Web-based technologies, or some combination of these. FPPS is interfaced with and performs processing of Employee Express transactions.

*Schedule:* The FPPS will be fully deployed to all existing clients by the end of calendar year 1998.

## Special Features

- ▣ Totally on-line, integrated, table driven system, from SF-52 processing to payroll.
- ▣ 26 or 27 pay periods of automatic pay recomputation function, depending on the pay year. Carries the recomputation forward into all subsequent actions.
- ▣ Application security is down to the data element level and supports whatever business process a client chooses.
- ▣ Full CPDF editing is done on line (the full 296-33 is on line); immediate updating and error notification and correction; virtually no paper.
- ▣ On line, real-time Query capability governed by the application's sophisticated security.
- ▣ Electronic signature authority and notification of personnel actions.
- ▣ A New Client Conversion staff dedicated to responding to prospective clients and meeting the needs of new clients - from implementation planning, through conversion, to deployment.
- ▣ On-line system and field level help.

## Cross-Servicing

DOI is actively seeking to cross-service other Federal/state/local agencies utilizing its new system. DOI has extensive experience in supplying HR and payroll services to other Federal agencies.

Point of Contact

Dennis Locke  
(303) 969-7200

*Note: Information in this profile was obtained via interview of agency officials.*

**FEDERAL HUMAN RESOURCES INFORMATION SYSTEMS  
CORE FUNCTIONAL REQUIREMENTS  
SYSTEMS UNDER DEVELOPMENT**

***Department of the Interior***

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<b>Position Management and Classification</b>		
<b>SPECIFIC AREA:</b>	<b>Y/N/P ?</b>	<b>COMMENTS:</b>
<b>Manager Self-Service</b>	<b>Y</b>	Functions related to classification and training are performed by PC applications, i.e., Satellite Systems, that are either LAN-based or are Web-capable. Training is available on these applications, including CBT.
<b>Regulatory Compliance and Administration</b>	<b>Y</b>	
<b>Functional Requirements</b>	<b>Y</b>	

<b>Recruiting and Staffing</b>		
<b>SPECIFIC AREA:</b>	<b>Y/N/P ?</b>	<b>COMMENTS:</b>
<b>Manager Self-Service</b>	<b>Y</b>	Recruitment and referral functionality are accomplished through Satellite Systems that are interfaced. Some of these applications require no training. For those that do, training is available, including CBT. Assignment of employees is accomplished on the mainframe application using a very sophisticated and flexible security and routing scheme, with electronic signature authority.
<b>Regulatory Compliance and Administration</b>	<b>Y</b>	
<b>Functional Requirements</b>	<b>Y</b>	

<b>Personnel Action and Administration</b>		
<b>SPECIFIC AREA:</b>	<b>Y/N/P ?</b>	<b>COMMENTS:</b>
<b>Personnel Action Processing</b>	<b>Y</b>	This functionality is totally online with real time validity and CPDF editing. System and field level help is also online, including OPM's 296-33 Guide. Signatures are electronic.
<b>Personnel Action Tracking</b>	<b>Y</b>	Comprehensive online tracking. Also includes use of email to notify managers of actions that they must review or approve.
<b>Official Personnel Folder</b>	<b>Y</b>	The system supports a paper less office but currently does not provide for scanning certain documents.
<b>Regulatory Compliance and Administration</b>	<b>Y</b>	

<b>Functional Requirements</b>	Y	Some ancillary activities are not automated within the FPPS.
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<b>Benefits Administration</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
<b>Employee Self-Service</b>	Y	Employees can perform all functions online with the mainframe application, except retirement calculations which are provided through a PC system that is LAN-based. Also, an interface exists between Employee Express and the FPPS. The FPPS also provides extensive online help. The FPPS data reside in one database with no data redundancy so that accuracy of data is assured.
<b>Regulatory Compliance and Administration</b>	Y	
<b>Functional Requirements</b>	Y	

<b>Labor Management and Employee Relations</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
<b>Manager Self-Service</b>	Y	Performance management and improvement are accomplished via Satellite Systems. Awards processing is handled online within the FPPS.
<b>Case Management and Administration</b>	Y	This capability is being developed via Satellite System.
<b>Regulatory Compliance and Administration</b>	Y	
<b>Functional Requirements</b>	Y	Functionality not already available is being developed.

<b>Work Force Development</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
<b>Manager and Employee Self-Service</b>	Y	These functions are provided through use of a Satellite System.
<b>Regulatory Compliance and Administration</b>	Y	
<b>Functional Requirements</b>	Y	

<b>Retention and Internal Reporting</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
<b>Regulatory Compliance and Administration</b>	Y	
<b>Functional Requirements</b>	Y	The FPPS offers a comprehensive set of online views, "canned reports," and a sophisticated EEO reports subsystem that satisfy these requirements. In addition, an online ad hoc query capability exists, controlled by the same security as the rest of the FPPS, to supplement the existing online information.

<b>External Reporting</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
<b>Regulatory Compliance and Administration</b>	Y	
<b>Reporting Requirements</b>	Y	The FPPS reporting process is totally automated.

<b>Financial Management Systems</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
<b>Regulatory Compliance and Administration</b>	Y	
<b>Functional Requirements</b>	Y	All pay functions are totally integrated with personnel functions and the data resides on one database with no redundancy. Also, all pay functions are online with real-time update, except for the pay calculation process which is batch. Accounting data is passed to the accounting systems through automated interfaces.

<b>Demo Projects and Other HR Systems</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
<b>Regulatory Compliance and Administration</b>	Y	The FPPS architecture, design, and CASE environment provide the flexibility and power necessary to meet the dynamic processing demands of the present and future.

<b>Decision Support and Expert Systems</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
<b>Regulatory Compliance and Administration</b>	Y	The FPPS offers such capability through online system and field level help and through Satellite Systems.

<b>Other Significant Functional Requirements</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
<b>Regulatory Compliance and Administration</b>	Y	Data access is controlled by the application security, which is very sophisticated and user-controlled for ultimate business process and functional flexibility. Specific functionality supported includes all areas listed, plus the leave share and Family Friendly Leave programs.

<b>Core Technical Requirements</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:

<b>Hardware Infrastructure and Communications</b>	<p style="text-align: center;">Y</p>	<p>The FPPS has been designed, and built so as to meet the challenges posed by a dynamic technological environment and changing customer needs. Even now a pilot project is underway to explore enhancements to the user interface and alternative platforms. The current environments reflects optimum processing effectiveness and efficiency based on existing customer requirements. However, in addition, sufficient planning has gone into this environment so that the FPPS is portable, satisfies the DOI standard architecture for openness, and thereby exemplifies the characteristics of a modern IS model.</p>
<b>Security, Access and Control</b>	<p style="text-align: center;">Y</p>	<p>FPPS application security is the heart of the system and permits agencies to operate however they wish, while at the same time enforcing comprehensive online editing with real-time error reporting and correction. Superb security training and user manual are provided.</p>
<b>Systems Performance Standards</b>	<p style="text-align: center;">Y</p>	<p>FPPS editing is extensive, online, and real-time. Data resides on a single database with no redundancy. These attributes ensure data accuracy, completeness, and consistency. Standards have been set by FPPS customers and are met.</p>

## **HR Systems Review**

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### Profiles of Developing Systems

#### **\*\* Department of Justice \*\***

##### Project Overview

The Department of Justice (DOJ) began deployment of its new “front-end” personnel system (CAPPS) in April 1997 and expects completion by December 1998. The new system integrates the functionality of three COTS products -- PeopleSoft, Resumix, and Coho -- and follows reengineering of the personnel action workflow.

##### Background

The Department of Justice receives personnel and payroll services from the National Finance Center (NFC). The DOJ workforce is 116,000 and growing. It includes many excepted service employees and several pay and work schedule variations. The workforce is spread among both large and small organizational components nationwide.

The new personnel system effort reflects DOJ’s desire to add, to the NFC service, a state-of-the-art “front end” component for generating transactions and for supporting other HR functions. The effort does not encompass payroll.

The DOJ procurement of PeopleSoft (in September 1995) followed an analysis of requirements and a review of alternatives. Projects staff noted that, at the time of initial planning, there were no other systems of this type available from other agencies. At Headquarters personnel operations (site of initial implementation), the workflow and “all who touch” personnel actions were studied and are being reengineered to take full advantage of the new system. A decrease in Hq operations FTE of one-third is projected. This project is a Department of Justice NPR Reinvention Laboratory.

##### New System -- Technical Features

The Human Resources Office is designated the “system owner” for both personnel and payroll. The new system uses client-server technology.

PeopleSoft is Year-2000 compliant, provides extensive documentation, and enables web applications and associated security features. Managers and employees will access the same database (limited to their own data.)

### Next Steps

DOJ will continue deployment and expansion of the system modules to all of its bureaus. The varied size of the DOJ bureaus, along with differing mission requirements and extant infrastructures, necessitates individually tailored plans and strategies. However, the Headquarters has taken the lead in developing programs, scripts, and modifications needed to accommodate the NFC system and these will be provided to their components. This will decrease the components' cost for implementation as well as the time to deploy the CAPPs. By taking the lead on development and implementation, the DOJ's Headquarters will ensure their components are not paying for the same development and implementation costs that they have already paid. DOJ is also anticipating the need for Governmentwide progress in facilitating HR information commonality and data sharing.

### Special Features

- ▣ Project staff cite the quick, streamlined workflow as one of the new system's major advantages.
- ▣ The total integration of its modules and its web-enablement capability are also key to moving non-value added HR services out to managers and employees. Such decentralization not only results in better service to customers, it is necessary if the HR staffs are to manage the growing workloads.

### Cross-Servicing

DOJ is not actively marketing its new system, but has been approached and is willing to consider this.

### Point of Contact

Lois O. Hickey  
Office of Personnel  
(202) 616-3617

*Note: Information in this profile was obtained via interview of agency officials.*

**FEDERAL HUMAN RESOURCES INFORMATION SYSTEMS  
CORE FUNCTIONAL REQUIREMENTS  
SYSTEMS UNDER DEVELOPMENT**

***Department of Justice***

**KEY:**

Y = Yes, core requirement included under current system development initiative.

N = No, core requirement not included under current system development initiative.

P = Possible under current development initiative. Core requirement not included under current system development initiative, but capability exists under current design.

<b>Position Management and Classification</b>		
<b>SPECIFIC AREA:</b>	<b>Y/N/P ?</b>	<b>COMMENTS:</b>
<b>Manager Self-Service</b>	Y	Delegated classification.
<b>Regulatory Compliance and Administration</b>	Y	
<b>Functional Requirements</b>	Y	

<b>Recruiting and Staffing</b>		
<b>SPECIFIC AREA:</b>	<b>Y/N/P ?</b>	<b>COMMENTS:</b>
<b>Manager Self-Service</b>	Y	
<b>Regulatory Compliance and Administration</b>	Y	
<b>Functional Requirements</b>	Y	Staffing plans = P

<b>Personnel Action and Administration</b>		
<b>SPECIFIC AREA:</b>	<b>Y/N/P ?</b>	<b>COMMENTS:</b>
<b>Personnel Action Processing</b>	Y	
<b>Personnel Action Tracking</b>	Y	
<b>Official Personnel Folder</b>	Y	
<b>Regulatory Compliance and Administration</b>	Y	
<b>Functional Requirements</b>	Y	
<b>Benefits Administration</b>		
<b>SPECIFIC AREA:</b>	<b>Y/N/P ?</b>	<b>COMMENTS:</b>

Employee Self-Service	Y	Future
Regulatory Compliance and Administration	Y	Future
Functional Requirements	Y	Future

<b>Labor Management and Employee Relations</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
Manager Self-Service	Y	
Case Management and Administration	Y	
Regulatory Compliance and Administration	Y	
Functional Requirements	P	Union time and \$ spent

<b>Work Force Development</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
Manager and Employee Self-Service	Y	Future
Regulatory Compliance and Administration	Y	Future
Functional Requirements	Y	Future

<b>Retention and Internal Reporting</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
Regulatory Compliance and Administration	Y	
Functional Requirements	Y	

<b>External Reporting</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
Regulatory Compliance and Administration	Y	CPDF
Reporting Requirements	Y	NFC does now -- Future=P

<b>Financial Management Systems</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
<b>Regulatory Compliance and Administration</b>	Y	NFC now -- Future=P
<b>Functional Requirements</b>	Y	T&A NFC now -- Future=P

<b>Demo Projects and Other HR Systems</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
<b>Regulatory Compliance and Administration</b>	Y	

<b>Decision Support and Expert Systems</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
<b>Regulatory Compliance and Administration</b>	Y	

<b>Other Significant Functional Requirements</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
<b>Regulatory Compliance and Administration</b>	Y	

<b>Core Technical Requirements</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
<b>Hardware</b>	Y	
<b>Infrastructure and Communications</b>	Y	
<b>Security, Access and Control</b>	Y	
<b>Systems Performance Standards</b>	Y	

## HR Systems Review

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### Profiles of Developing Systems

#### **\*\* Department of Veterans Affairs \*\***

#### Project Overview

The Department of Veterans Affairs (VA) is in testing for Phase 2 of its project, named "HR LINK\$™," to replace both its personnel and payroll systems. Implementation is scheduled for completion in December 1999. However, the scope of the project extends well beyond just the revamping of automated systems -- VA is reengineering the entire human resources function.

#### Background

VA originally developed and implemented its own automated systems to support human resources and payroll. Parts of these "legacy" systems date back to 1965, with the most recent modules having been implemented in 1994.

The workforce covered by VA systems is 250,000 at 250 locations nationwide. The workforce includes Title 5 and Title 38 employees. The coverage also includes numerous non-standard pay, classification, and work schedule variations (e.g., firefighter, cemetery workers, medical residents, seasonal staff, non-appropriated fund, and fee-basis workers).

The legacy system replacement was funded beginning in FY95. Broader reengineering recommendations were approved for prototype in July 1996. There is on-going CIO oversight.

#### New System -- Technical Features

*Infrastructure:* The entire HR/Payroll function is being restructured. There will be a single HR/Payroll processing center in Topeka, Kansas. Small cadres of HR professionals will continue to provide on-site strategic/management advisory services. Many work processes have been reengineered to take advantage of new technology and achieve cost savings. The changes are resulting in a very substantial decrease in HR/Payroll-dedicated FTE.

*Hardware:* Client-server base. Kiosks, IVR, PC's and WEB will support employee self-service. Telecommunications is supported by an extant network.

*Software:* Incorporates PeopleSoft COTS modules for HR, time and labor and payroll. PeopleSoft will be customized to the minimum extent possible in order to preserve/optimize best business practices inherent within the system and simplify future upgrades. A "data warehouse" will be created for use as the database for non-HR staff access activities. Other COTS modules (e.g., Coho, Resumix) have been purchased to provide support for specific functions. Some

applications use Lotus Notes and the IVR COTS product is TALX.

*Schedule:* Implementation is in four phases. Phase 1, which provides initial People Soft functionality, is underway. Phase 2 (starts 3/98) will include the opening of the service center and employee self-servicing. Phase 3 will add manager self-service (e.g., SF-52 generation, classification) about August 1998. Implementation of these first three phases will provide baseline functionality and most cost savings. Payroll processing and other HR features will be implemented in Phase 4. VA expects it will take five years to “max out” the functionality of the new software.

### Special Features

- ▣ VA will support extensive employee self-service through multi-function kiosks, IVR , PC’s and WEB access. Should an employee encounter difficulty in completing a transaction, an attached phone will connect the employee to the service center staff member, who will have displayed the employee’s data and current transaction. If the “Tier 1” staffer cannot resolve the issue, a case file is automatically created and forwarded to an HR/Payroll specialist. (Note: Tier 1 staff are not HR professionals. They are supported by scripted answers for the most common questions.) Employee self-service transaction and query data is automatically captured for analysis.
- ▣ VA will move all Official Personnel Folders to the service center. Minimum essential documents in current OPFs will be scanned to facilitate, along with data accessible from PeopleSoft, a move to an almost entirely digital OPF.
- ▣ VA expects that its combination of modern technology and reengineered business practices will enable offering complete, competitive payroll and personnel services to other agencies.

### Cross-Servicing

VA is actively seeking to franchise its new system. At this time, VA has finalized an agreement for payroll services with the Federal Energy Regulatory Commission.

### Point of Contact

Pam Creek  
Office of Human Resources  
(202) 565-8049

*Note: Information in this profile was obtained via interview of agency officials.*

**FEDERAL HUMAN RESOURCES INFORMATION SYSTEMS  
CORE FUNCTIONAL REQUIREMENTS  
SYSTEMS UNDER DEVELOPMENT**

**Department of Veterans Affairs**

**KEY:**

**Y = Yes, core requirement included under current system development initiative.**

**N = No, core requirement not included under current system development initiative.**

**P = Possible under current development initiative. Core requirement not included under current system development initiative, but capability exists under current design.**

<b>Position Management and Classification</b>		
<b>SPECIFIC AREA:</b>	<b>Y/N/P ?</b>	<b>COMMENTS:</b>
<b>Manager Self-Service</b>	<b>Y</b>	
<b>Regulatory Compliance and Administration</b>	<b>Y</b>	
<b>Functional Requirements</b>	<b>Y</b>	

<b>Recruiting and Staffing</b>		
<b>SPECIFIC AREA:</b>	<b>Y/N/P ?</b>	<b>COMMENTS:</b>
<b>Manager Self-Service</b>	<b>Y</b>	
<b>Regulatory Compliance and Administration</b>	<b>Y</b>	
<b>Functional Requirements</b>	<b>Y</b>	

<b>Personnel Action and Administration</b>		
<b>SPECIFIC AREA:</b>	<b>Y/N/P ?</b>	<b>COMMENTS:</b>
<b>Personnel Action Processing</b>	<b>Y</b>	
<b>Personnel Action Tracking</b>	<b>Y</b>	
<b>Official Personnel Folder</b>	<b>Y</b>	
<b>Regulatory Compliance and Administration</b>	<b>Y</b>	
<b>Functional Requirements</b>	<b>Y</b>	

<b>Benefits Administration</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
Employee Self-Service	Y	
Regulatory Compliance and Administration	Y	
Functional Requirements	Y	

<b>Labor Management and Employee Relations</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
Manager Self-Service	Y	
Case Management and Administration	Y	
Regulatory Compliance and Administration	Y	
Functional Requirements	Y	

<b>Work Force Development</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
Manager and Employee Self-Service	Y	
Regulatory Compliance and Administration	Y	
Functional Requirements	Y	

<b>Retention and Internal Reporting</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
Regulatory Compliance and Administration	Y	
Functional Requirements	Y	

<b>External Reporting</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
Regulatory Compliance and Administration	Y	

Reporting Requirements	Y	
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<b>Financial Management Systems</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
Regulatory Compliance and Administration	Y	Through Interface to Financial Management System
Functional Requirements	Y	

<b>Demo Projects and Other HR Systems</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
Regulatory Compliance and Administration	Y	

<b>Decision Support and Expert Systems</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
Regulatory Compliance and Administration	Y	Provided through Decision Support and Expert Systems within functional areas (Position Management & Classification, etc)

<b>Other Significant Functional Requirements</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
Regulatory Compliance and Administration	Y	As they are identified.

<b>Core Technical Requirements</b>		
SPECIFIC AREA:	Y/N/P ?	COMMENTS:
Hardware	Y	
Infrastructure and Communications	Y	
Security, Access and Control	Y	
Systems Performance Standards	Y	

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## Appendix E - Review Team

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Department of the Interior.....	Ron Bowman
Department of Energy.....	J. Wickert
Social Security Administration .....	Jan Becker, Frances Steburg
Department of Health & Human Services .....	Jacques Jolie (Team Leader)
General Services Administration .....	Tom Cowley
Department of Transportation .....	Bill Freed
Office of Personnel Management .....	Karen Leydon, David LeDoux, C.C. Christakos

The following agency officials, in addition to the Review Team members listed above, participated in the development of the final draft of the Human Resources Systems Review document, the Executive Summary, and the Next Steps:

Maurice (Mo) Brice	Social Security Administration
Nancy Tomford	Department of Energy
Ginger Groeber	Department of Defense
Craig Conlin	National Aeronautics & Space Administration
Dennis Sullivan	Department of Labor
Edward Powell	Department of Treasury
Glenn Sutton	Office of Personnel Management

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## Appendix F - Survey

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### HUMAN RESOURCES INFORMATION SYSTEMS SURVEY

#### I. INTRODUCTION

This survey is being conducted by the Office of Personnel Management's Human Resources Technology Council (HRTC) at the request of the President's Management Council. This survey is intended to collect summary level descriptive information on both existing and planned (or under development) automated Human Resources and Payroll systems. Information from this survey will be used by the HRTC to review the ongoing development and modernization of human resource systems across the Government.

#### II. GENERAL INSTRUCTIONS

**For the purpose of this survey, a Human Resources (HR) system means the primary HR information system that is used to process personnel transactions and is the main repository for the agency's HR information data base. Systems that enhance the operation of the primary system or provide additional HR related functionality, but that are not integral to the primary system, will be referred to as system modules.**

For the purpose of this survey, the primary HR system is considered to either be integrated or interfaced with the Payroll system. An integrated HR/Payroll system is one in which Payroll is an integral part of the primary HR system (or conversely the HR system is an integral part of the Payroll system). An interfaced HR/Payroll system is a system in which the HR system exchanges data with the Payroll module/system, normally in a fully automated manner.

Please complete this survey for your Department or Agency.

- **If you have more than one primary HR system in your Department/Agency, submit a complete and separate survey for each current system.**
- If you receive your primary HR system support from another Department/Agency (i.e., Cross Serviced), complete a survey for the services that your Department/Agency receives.
- If you Cross Service other Departments/Agencies, complete one survey for your own Department/Agency, and then complete a separate survey to provide information on the services that you provide to other Departments/Agencies. (See Section IV, Questions 4 & 5.)

**Explanatory notes, included as attachments and keyed to the various sections and questions of the survey, are strongly encouraged to clarify your responses and to provide the most useful survey information to the Human Resources Technology Council.**

Mail or fax completed survey forms to David LeDoux, Office of Personnel Management, Room 6538, 1900 E Street, NW., Washington, DC 20415, fax 202-606-0945. Questions on this survey should be directed to Mr. LeDoux at 202-606-4481, or email [daledoux@opm.gov](mailto:daledoux@opm.gov).

**III. IDENTIFYING INFORMATION**

- Identify the organization covered by the current HR system described in this survey. If this survey does not cover the entire Department/Agency, indicate the Bureau or other subordinate organizational component that is covered.
- The Number of employees is the approximate number of employees serviced by the primary HR system covered by this survey for this Department/Agency/Bureau.
- The Point of Contact is the individual who can provide additional information or answer questions on this survey document.

1. Department/Agency: \_\_\_\_\_  
 Bureau/Component: \_\_\_\_\_  
 Number of Employees: \_\_\_\_\_
  
2. Point of Contact: \_\_\_\_\_  
 Title: \_\_\_\_\_  
 Phone Number: \_\_\_\_\_  
 Fax Number: \_\_\_\_\_  
 Email Address: \_\_\_\_\_

**IV. SYSTEM INFORMATION**

- This section is designed to collect general information about your primary current HR and Payroll systems.
- **If your Department/Agency uses system modules in addition to the primary HR or Payroll system, please provide additional information in an attachment in the format of questions 1 and 2 to identify those modules.**

1. What is the source for your current primary **HR** automation services?

- Department/Agency developed** system: System Name: \_\_\_\_\_  
 Date Started: \_\_\_\_\_ Date Implemented: \_\_\_\_\_
  
- Commercial Off The Shelf (COTS):** Vendor: \_\_\_\_\_  
 System Name: \_\_\_\_\_ Version/Release: \_\_\_\_\_  
 Date Procured: \_\_\_\_\_ Date Implemented: \_\_\_\_\_
  
- Cross Serviced** by another Federal Department/Agency:  
 Department/Agency: \_\_\_\_\_  
 System Name: \_\_\_\_\_ Date Implemented: \_\_\_\_\_
  
- Developed by another Federal Department/Agency** and operated by this Department/Agency:  
 Developing Department/Agency: \_\_\_\_\_  
 System Name: \_\_\_\_\_  
 Date Procured: \_\_\_\_\_ Date Implemented: \_\_\_\_\_
  
- Other:** Describe in an attachment.

2. What is the source for your current **Payroll** automation services? (**Note: If the payroll system covers a different population than the primary HR system identified above, provide additional information on the organizations and population covered in an attachment.**)

**Department/Agency developed** system: System Name: \_\_\_\_\_  
Date Started: \_\_\_\_\_ Date Implemented: \_\_\_\_\_

**Commercial Off The Shelf (COTS):** Vendor: \_\_\_\_\_  
System Name: \_\_\_\_\_ Version/Release: \_\_\_\_\_  
Date Procured: \_\_\_\_\_ Date Implemented: \_\_\_\_\_

**Cross Serviced** by another Federal Department/Agency:  
Department/Agency: \_\_\_\_\_  
System Name: \_\_\_\_\_ Date Implemented: \_\_\_\_\_

**Developed by another Federal Department/Agency** and operated by this Department/Agency:  
Developing Department/Agency: \_\_\_\_\_  
System Name: \_\_\_\_\_  
Date Procured: \_\_\_\_\_ Date Implemented: \_\_\_\_\_

**Other:** Describe in an attachment.

3. What is the relationship between your current HR and Payroll systems identified above?

Integrated                       Interfaced                       Other (Describe in an attachment.)

4. Do you provide HR automation services for other Departments/Agencies?

No.

Yes. Please complete a separate survey for the services you provide and include a list of Departments/Agencies serviced and the number of employees serviced in each.

5. Do you provide Payroll automated services for other Departments/Agencies?

No.

Yes. Please complete a separate survey for the services you provide and include a list of Departments/Agencies serviced and the number of employees serviced in each.

## V. CURRENT SYSTEM FUNCTIONS

- This section is designed to collect information on the HR and Payroll automation support functions provided by your current HR and Payroll systems. Indicate whether the particular function is provided by the primary HR or Payroll system, a system module, not provided, or partially provided.
- If system modules provide some functions, check the appropriate box, and then identify which module supports the function. Departments/Agencies may identify the module by providing the module name in the space below the Yes, Module block or by entering a Department/Agency developed identifying code in the Yes, Module block.
- If Partial is checked, provide a description of the function in an attachment.
- If your system provides automated HR or Payroll functions that are not listed, include them at the end of the list below.

Function/Description	Yes, Prim.	Yes, Module	No	Partial
<p><b>1. Personnel Administration</b></p> <p>Support basic personnel action processing (SF52/50), personnel documentation, and data base management including: editing/validation, printing, correction/cancellation, suspense correction, retroactive actions, mass changes, pay administration and calculation (including pay raise and locality pay), automated generation of actions and notifications, SCD calculations, and integrate/interface with payroll and accounting systems.</p>				
<p><b>2. Recruitment</b></p> <p>Maintain employee and applicant skills data base; screen, rank, and generate referral lists; and automate vacancy announcements and application status notices.</p>				
<p><b>3. Position Classification</b></p> <p>Maintain PD data base, generate PDs and KSAs, and automate classification.</p>				
<p><b>4. Position Management</b></p> <p>Maintain position data base, obligate and track positions, track reviews, and track special position requirements.</p>				
<p><b>5. Training and Career Development</b></p> <p>Maintain employee training records and skills data base, track service agreements, and support IDPs.</p>				
<p><b>6. Performance Management and Evaluation</b></p> <p>Maintain evaluation data base, track performance, facilitate performance based actions, generate notifications and evaluation forms, and track WGI certification.</p>				
<p><b>7. Merit Promotion</b></p> <p>Automate competitive and non-competitive placement, candidate rating and ranking, priority placement, and electronic posting of vacancy announcements.</p>				

Function/Description	Yes, Prim.	Yes, Module	No	Partial
<b>8. Benefits Administration</b>  Automate benefits changes, including employee initiated changes during open seasons; maintain service history for retirement counseling; and generate retirement calculations and employment benefit summaries.				
<b>9. Awards</b>  Maintain award data base and automate award processing and tracking including suggestion, incentive, and honorary awards.				
<b>10. EEO</b>  Maintain EEO data base and track statistics, generate affirmative action reports (internal, OPM, EEOC) and track discrimination complaints.				
<b>11. Complaints and Grievance Processing</b>  Automate complaint and appeals processing and tracking.				
<b>12. Worker's Compensation</b>  Maintain data base and track, report, and validate injury compensation claims.				
<b>13. Personnel Security</b>  Maintain employee and position data base, track status of investigations, drug testing, and generate notifications.				
<b>14. Reports</b>  Generate required and ad hoc reports including CPDF data submissions.				
<b>15. RIF Calculations</b>  Automate calculations and retention register generation.				
<b>16. Queries and Information</b>  Provide standard and ad hoc queries				
<b>17. Online Access</b>  Provide access to information, including manager access.				
<b>18. Privacy</b>  Maintain access restrictions, provide employee access and correction, and track disclosures.				
<b>19. Workflow Automation</b>  Automate customer initiation of actions, electronic routing and tracking, and electronic approvals.				

Function/Description	Yes, Prim.	Yes, Module	No	Partial
<p>20. Payroll</p> <p>Support basic payroll action processing, documentation, and data base management including: editing/validation, printing, correction/cancellation, retroactive corrections, mass changes, issuance of checks, EFT processing, track employee leave, cash awards, earning and leave statements, automated generation of actions and notifications, and integrate/interface with personnel, work reporting, and accounting systems.</p>				
<p>21. Time and Attendance</p> <p>Automate time and attendance data entry and documentation, interface with work reporting and payroll systems.</p>				
<p>22. Other:</p> <p>Description</p>				
<p>23. Other:</p> <p>Description</p>				

**VI. PLANNED SYSTEM INFORMATION**

- This section is designed to collect general information about your HR and Payroll system development plans, regardless of the stage of the plans or development.
- If you are developing or plan to develop more than one HR or Payroll system in your Department/Agency, submit a separate survey (Sections VI and VII) for each system.
- **If your Department/Agency plans to develop or use system modules in addition to a primary HR or Payroll system, please provide additional information in an attachment in the format of questions 4 and 5 below to identify those modules.**

1. Is your Department/Agency currently developing, modernizing, or procuring a new HR or Payroll system or planning to do so?

- No  
 Yes  HR System  Payroll System  Both

2. If your Department/Agency is currently developing, modernizing, or procuring a new HR or Payroll system or planning to do so, how will the HR and Payroll systems relate?

- Integrated  Interfaced  Other (Describe in an attachment.)

3. If your Department/Agency is currently developing, modernizing, or procuring a new HR or Payroll system or planning to do so, indicate the organization to be covered by the new system.

Department/Agency: \_\_\_\_\_  
 Bureau/Component: \_\_\_\_\_  
 Number of Employees: \_\_\_\_\_

4. What approach are you pursuing or planning to pursue to develop, modernize, or procure the new **HR** system?

**Develop own** new system: System Name: \_\_\_\_\_  
 Date Started or Projected to Start: \_\_\_\_\_  
 Date Projected to Implement: \_\_\_\_\_  
 Date Projected to Fully Deploy \_\_\_\_\_ (If different from Implement)

**Modernize existing** Department/Agency system: System Name: \_\_\_\_\_  
 Date Started or Projected to Start: \_\_\_\_\_  
 Date Projected to Implement: \_\_\_\_\_  
 Date Projected to Fully Deploy \_\_\_\_\_ (If different from Implement)

**Commercial Off The Shelf (COTS):** Vendor: \_\_\_\_\_  
 System Name: \_\_\_\_\_  
 Date Procured or Projected to Procure: \_\_\_\_\_  
 Date Projected to Implement: \_\_\_\_\_  
 Date Projected to Fully Deploy \_\_\_\_\_ (If different from Implement)

**Cross Servicing** by another Federal Department/Agency:  
 Department/Agency: \_\_\_\_\_  
 System Name: \_\_\_\_\_  
 Date Procured or Projected to Procure: \_\_\_\_\_  
 Date Projected to Implement: \_\_\_\_\_  
 Date Projected to Fully Deploy \_\_\_\_\_ (If different from Implement)

**Obtain system Developed by another Federal Department/Agency** and operate by this  
 Department/Agency: \_\_\_\_\_ Department/Agency: \_\_\_\_\_  
 System Name: \_\_\_\_\_  
 Date Procured or Projected to Procure: \_\_\_\_\_  
 Date Projected to Implement: \_\_\_\_\_  
 Date Projected to Fully Deploy \_\_\_\_\_ (If different from Implement)

**To be Determined:** Project is in the needs identification, options evaluation, or early decision stage, and the approach has not be determined.

**Other:** Describe in an attachment .

5. What approach are you pursuing or planning to pursue to develop, modernize, or procure the new **Payroll** system?

**Develop own** new system: System Name: \_\_\_\_\_  
 Date Started or Projected to Start: \_\_\_\_\_  
 Date Projected to Implement: \_\_\_\_\_  
 Date Projected to Fully Deploy \_\_\_\_\_ (If different from Implement)

- Modernize existing** Department/Agency system: System Name: \_\_\_\_\_  
Date Started or Projected to Start: \_\_\_\_\_  
Date Projected to Implement: \_\_\_\_\_  
Date Projected to Fully Deploy \_\_\_\_\_ (If different from Implement)
- Commercial Off The Shelf (COTS):** Vendor: \_\_\_\_\_  
System Name: \_\_\_\_\_  
Date Procured or Projected to Procure: \_\_\_\_\_  
Date Projected to Implement: \_\_\_\_\_  
Date Projected to Fully Deploy \_\_\_\_\_ (If different from Implement)
- Cross Servicing** by another Federal Department/Agency:  
Department/Agency: \_\_\_\_\_  
System Name: \_\_\_\_\_  
Date Procured or Projected to Procure: \_\_\_\_\_  
Date Projected to Implement: \_\_\_\_\_  
Date Projected to Fully Deploy \_\_\_\_\_ (If different from Implement)
- Obtain system Developed by another Federal Department/Agency** and operate by this  
Department/Agency: \_\_\_\_\_ Department/Agency: \_\_\_\_\_  
System Name: \_\_\_\_\_  
Date Procured or Projected to Procure: \_\_\_\_\_  
Date Projected to Implement: \_\_\_\_\_  
Date Projected to Fully Deploy \_\_\_\_\_ (If different from Implement)
- To be Determined:** Project is in the needs identification, options evaluation, or early decision stage, and the approach has not be determined.
- Other:** Describe in an attachment .

**VII. PLANNED SYSTEM FUNCTIONS**

- This section is designed to collect information on the HR and Payroll automation support functions to be provided by your planned HR and Payroll systems. Indicate whether the particular function is planned to be provided by the primary HR or Payroll system, a system module, not provided, or partially provided.
- If system modules will provide some functions, check the appropriate column and identify which module supports the function. Departments/Agencies may identify the module by providing the module name in the space behind the Function name or by entering a Department/Agency developed identifying code in the Yes, Module block.
- If Partial is checked, provide a description of the function in an attachment.
- If your system will provide automated HR or Payroll functions that are not listed, include them at the end of the list below.

<b>Function/Description</b>	<b>Yes, Prim.</b>	<b>Yes, Module</b>	<b>No</b>	<b>Partial</b>
1. Personnel Administration				
2. Recruitment				
3. Position Classification				
4. Position Management				
5. Training and Career Development				
6. Performance Management and Evaluation				
7. Merit Promotion				
8. Benefits Administration				
9. Awards				
10. EEO				
11. Complaints and Grievance Processing				
12. Worker's Compensation				
13. Personnel Security				
14. Reports				
15. RIF Calculations				
16. Queries and Information				
17. Online Access				
18. Privacy				
19. Workflow Automation				
20. Payroll				
21. Time and Attendance				
22. Other				
23. Other				

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## Appendix G - Interview Questionnaire

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### *Human Resources Systems Review Overview of Developing Systems*

#### I. BACKGROUND

- a. Briefly describe your old (or current) system.
  - How is payroll handled?
  - What are its major limitations?
- b. What is the size of your covered workforce? What unusual workforce characteristics or environmental issues must you accommodate?

#### II. DESIGN AND DEVELOPMENT STRATEGIES

- a. What has been your organizational process for arriving at design decisions?
  - Determining requirements
  - Alternatives considered
  - Customer input
  - Assuring mission support and return on investment
  - Cross-servicing

#### III. NEW SYSTEM -- TECHNICAL FEATURES

- a. Mainframe based or client-server?
- b. Who is Systems Owner?
- c. What is relationship/interface between personnel data and payroll? Does personnel and payroll data reside in the same database, or are periodic updates conducted?
- d. What is the interface mechanism between personnel data and financial systems for labor costs?
- e. Describe T&A entry; batch, online?

- f. Do you produce CPDF submissions? If not, do you intend this as a future enhancement?
- g. Do you intend to migrate to web-based application for your system? If so, what encryption strategy do you intend to use?
- h. What is the condition of your System documentation?
- I. What is the condition of your User documentation?
- j. Do you incorporate on-line User Help?
- k. Does your system incorporate an RDMS? If so, is it homegrown, or proprietary?
- l. How does your system's security accommodate different organization structures (flat, hierarchical)?
- m. What phase are you in for Y2k compliance? (assessment, renovation, validation, implementation)?
- n. If franchising includes processing, describe methodology for providing this service?
- o. How does your system accommodate electronic signature?
- p. Do you intend to continue any current cross-servicing arrangements and/or add new clients?
- q. Do you intend to provide "payroll only" processing as a cross-servicing option?
- r. Is your system using industry and agency standard reengineering, development, testing, and deployment strategies and tools?

#### IV. SPECIAL FEATURES

- a. To what extent does your system accommodate the full range of potential HR functionality (EEO, Training, Health and Safety, Work Force Planning, Benefits, etc.) now? In the future?
- b. What are the unique/value-added/innovative features of your new system?
- c. What enhancements do you have planned over the next 5 years? 10 years?

## Next Steps

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This Study is the first undertaking in what will be a continuing commitment by the Human Resources Technology Council to serve as the focal point in Federal human resources business process evaluation, improvements and/or redesign, as well as system modernization efforts. The Council, along with the U.S. Office of Personnel Management (OPM), will:

- provide ongoing analysis of human resources issues that will improve human resources management.
- provide information systems recommendations that will enable managers to meet the challenges of a changing business environment.
- support efforts to move toward manager and employee self-service, e.g., Employee Express.
- provide agency managers with the decision tools necessary to implement the Clinger-Cohen Act of 1996 and move human resources information systems toward the 21st Century.

This move toward the 21st Century is highlighted in the Office of Personnel Management's Strategic Plan, Federal Human Resources for the 21st Century. Specifically, the plan states:

“OPM has a leadership interest in ensuring that agencies are able to make the best and most cost-effective use of automation to achieve human resource management objectives. To fulfill this role, OPM leads the interagency Human Resources Technology Council, which is responsible for crafting a long-term strategic vision and goals for human resource management Governmentwide, particularly as it relies on automation to accomplish those goals.”<sup>9</sup>

The Human Resources Technology Council and OPM will work together to assist Federal managers in addressing the human resources issues of today's dynamic work environment. Toward that end, the Human Resources Technology Council recommends four areas where study and/or action is warranted.

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<sup>9</sup> U.S. Office of Personnel Management, Strategic Plan, FY1997-FY2002, Federal Human Resources Management for the 21st Century, 1997, pg. 5.

**1. *Develop a Governmentwide electronic human resources record keeping strategy.*** This was the key initiative identified by the agencies participating in this study. The Council will build upon the previous work of the digital Official Personnel Folder workgroup. Failure to quickly develop a Governmentwide strategy would:

- Limit the ability of agencies to benefit from efficiencies that can be gained from increased use of technology.
- Maintain a status quo in an area when benefits can easily be achieved.
- Continue to place excessive manual requirements on field level human resources offices.

The Human Resources Technology Council's Planning Committee has identified this action item as key to the future integration of human resources data across Government. In addressing this issue, the Human Resources Technology Council will focus on the following:

- Electronic employment history to ease archiving and transfer of employee records;
- Data collection from agencies and the maintenance of central employee databases by OPM;
- Technical feasibility of alternative technologies, including commercial-off-the-shelf (COTS) products and Federal demonstration projects already underway, and how these technologies can be used; and
- Real-time or near real-time data in the OPM archives.

**2. *Identify and define the key cost areas in today's human resources information systems.*** The Council will look at the important factors associated with the cost of building, deploying and maintaining new human resources information systems. The importance of looking at the costs of processing human resources actions, had there been no changes in technology or personnel practices, will also be factored into the cost equation. While agencies have performed this type of analysis themselves, the Council finds that agencies may look at different parameters in costing major systems efforts. A solid understanding of what cost categories should be identified will ensure a more consistent approach in providing a clear picture of the costs associated with new human resources systems. The need to critically examine information technology costs has been highlighted in a recent General Accounting Office Report.

The management of information technology projects has long been a significant problem for Federal agencies. The Government obligated more than \$23.5 billion toward information technology products and services in fiscal year 1994--about five percent of the Government's total discretionary spending. Yet the impact of this spending on agency

operations and service delivery has been mixed at best. Federal computer systems often cost millions more than expected, take longer to complete than anticipated, and fail to significantly improve the speed and quality of Federal programs--or reduce their cost.<sup>10</sup>

**3.** *Initiate a review of human resources business processes and information systems found in international Governments, State and local Governments, and the private sector to determine any best practices that may be portable to the Federal Government.* This review will identify the best practices of the program reviewed and will also provide a benchmark for how the Federal Government is moving in relation to its private and other public sector counterparts.

**4.** *Work with the Federal financial management community in finalizing the DRAFT Core Payroll Requirements that were submitted by the Office of Management and Budget (OMB) and are provided as an attachment to this Study.* The HRTC will cross-reference the final payroll requirements with the human resources core requirements to provide a comprehensive human resources and payroll reference tool.

The Human Resources Technology Council and OPM will identify a strategy and schedule for each of the action items identified above. In addition, this Study will be periodically reviewed and updated so it may continue to serve as a relevant and valuable resource.

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This Study has, for the first time, established minimum core functional requirements and reviewed agency efforts to develop and upgrade human resources information systems. As such, it provides agencies with a benchmark for developing new systems and evaluating current systems. The Study serves as a valuable first step in providing worthwhile information to human resources managers looking for information technology solutions.

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<sup>10</sup> General Accounting Office, *Information Technology Investment: Agencies Can Improve Performance, Reduce Costs, and Minimize Risks*, 1996.

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## Attachment

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*The DRAFT Core Payroll Requirements were submitted to the Human Resources Technology Council by the U.S. Office of Management and Budget (OMB). The Human Resources Technology Council will work with OMB in the future to cross-reference the final payroll requirements with the human resources core requirements to provide a comprehensive human resources and payroll reference tool.*

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### Labor Cost and Distribution

**Cost Accumulation:** Cost information is used for budgeting and controlling costs, performance measurement, determining fees and prices for services, assessing programs, and management decision making. Labor costs are an integral part of determining the cost of doing business. Work units must be accumulated by cost object (e.g., organization, activity) and responsibility center and be provided to other systems performing cost accounting functions.

#### Functional Requirements:

- Accumulate work units by predefined data elements.
- Provide flexibility to update data elements driving the cost accumulation process.
- Provide electronic output on distributed work units from the labor distribution process for use in other systems.
- Provide electronic output on undistributed employer contributions and benefits for use in other systems.

### Payroll Administration

**Payroll Processing:** The system must calculate earnings, gross pay, deductions, net pay, and employer contributions for each employee on an effective pay period basis. Pay calculations are performed at the end of each pay period after properly authorized inputs have been received from the Time and Attendance Processing function. Retroactive calculation of prior-period earnings is similar to current-period processing, except that time and attendance data for prior periods are obtained from adjusted hours of retroactive pay transactions rather than from the weekly time

transaction. Statutory limit and reasonableness tests are performed on gross pay, and net pay is tested to ensure that deductions do not exceed gross pay. At the end of each processing cycle detailed audit and control data are generated.

**Functional Requirements:**

- Compute net pay, deductions, and employer contributions by:
  - computing gross pay as the sum of each rate of pay times the number of units related to it plus all appropriate allowances and/or other gross pay components,
  - classifying and totaling deductions,
  - subtracting the sum of deductions from gross pay, and
  - applying formulas or utilizing tables to determine employer contributions required for certain payroll taxes and benefits.
- Accommodate special pay actions (e.g., pay actions not processed in the normal pay cycle) including computing deductions and net pay.
- Process both current-period and prior-period adjustments as an integral part of the payroll cycle.
- Compute pay according to the time worked and/or leave taken, based on data approved by the relevant certifying official.
- Compute various types of pay/special pay plans (e.g., entitlements for employees eligible for foreign service allowances, special pay and retention pay for commissioned officers, awards for SES, merit pay, cash awards, etc.)
- Compute earnings amounts for partial pay periods when entitlement dates do not coincide with pay period beginning and ending dates.
- Support adjustments and regular calculations that cross fiscal and/or calendar years, providing proper information to accounting systems.
- Initiate the pay calculation cycle only after time and attendance data have been certified and leave has been processed.
- Calculate overtime based on FLSA and Title 5 requirements.
- Calculate premiums and differentials as a percentage of base pay, and set dollar amounts.
- Calculate shift differential amounts based on hours actually worked and certified by a certifying official.

- Provide for percentage computation of deductions (e.g., 20 percent Federal taxes on awards).
- Support Unemployment Compensation for Federal Employees processing and responding to 931 requests.
- Record gross pay, deductions, and net pay, generating information to update other functions and other systems, as appropriate, including the Standard General Ledger accounts maintained in the Core financial system and other data elements necessary for related management information.
- Accept allowance and premium pay entitlement as set dollar amounts or compute them as percentages of pay without some or all entitlement, as defined by law and regulation.
- Calculate the following deductions for each employee:
  - mandatory deductions (e.g., Federal retirement, Federal, state, local, and FICA taxes)
  - voluntary deductions (e.g., life insurance, health insurance, thrift savings deductions, allotments, and bonds), and
  - involuntary deductions (e.g., IRS levies, court ordered child support and alimony, and administrative debt collections).
- Provide the capability to handle deductions that apply in various pay periods.
- Adjust taxable gross pay by deducting untaxed items (e.g., thrift savings deductions, quarters deductions) and civil service retirement annuity offsets.
- Support mass rate changes and individual entitlement changes for current and retroactive processing.
- Offset advanced sick leave balances against annual leave balances. Accommodate waivers of collections for leave advances.
- Compute the maximum variable levy deduction based on available net pay and the outstanding amount owed IRS.
- Prorate insurance deductions for part-time, seasonal, and newly hired employees using the “four-day rule.”
- Accelerate deductions for employees paid an annual salary in less than one year (e.g, teachers).
- Calculate deductions specified in Chapter 5, Title 6, of GAO’s Policy and Procedures Manual for Guidance of Federal Agencies, using tables and making such computations as necessary

and providing for such things as limitations on the maximum amount of salary subject to certain deductions and amount allowed for other deductions; adjustment of taxable gross pay for certain purposes by deducting untaxed items, including penalties, before computing taxes; and proration of certain deductions for part-time or seasonal employees.

- Subtract the deductions calculated in the order of precedence provided for in GAO's Title 6, while ensuring that net pay is not negative.
- Determine when a bond may be issued given its denomination per pay deduction. Other systems outside the pay system may support bond processing and issuance.
- Provide for variations in the schedule for deductions (i.e., only in specified pay periods rather than each period).
- Offset the dollar amount of advanced leave balances (computed at the rate of pay in effect when the leave was taken) against the dollar amount of final net pay and any unused annual leave (based on the current pay rate) on termination of an employee from Federal employment.
- Offset the dollar amount of other receivables owed the agency against final net pay or, if applicable, lump sum annual leave payments on separation from the agency.
- Generate payment for severance pay.
- Accommodate various methods of payment (e.g., electronic funds transfer/direct deposit) and provide for certification of payments.
- Generate supplemental payments and recertified payments.
- Generate payment to beneficiary of unpaid compensation.
- Provide for electronic funds transfers/intragovernmental payments of amounts withheld to appropriate organizations.
- The system should be capable of generating outputs providing:
  - information on gross pay by type, deductions by type, and net pay by pay period, made available for retention.
  - employee earnings statements detailing the composition of gross pay, deductions and net pay for the period and year to date.
  - data in electronic formats for transfer to Treasury or other authorized disbursing officers supporting disbursement of deductions, net pay, and employer contributions to intended payees; to Treasury for issuance of savings bonds; to the Thrift Investment Board for

Federal retirement thrift plan contributions and loan repayments; to administrators of retirement systems; to labor organizations for transfer of dues; and information to be passed to financial and other systems to update records and produce internal and external reports.

- Validate payee is authorized to receive pay (i.e., edit for valid appointment based on data in personnel files).
- Generate interest payments under Back Pay Act and provide for reporting of interest payments.
- Effect automatic payment from employer funds for health benefits deductions not taken (e.g., employee on leave without pay) and provide output to financial system for collection.
- Provide a pay history for each employee. Maintain deduction data to stop deductions when a target is reached.
- Make lump sum payments for annual/compensatory leave to separating employees. Provide data to Leave Processing function to reduce leave balance to zero.

## **Time and Attendance**

**Time Capture:** The system must capture information on time, or units of measurement, worked to determine gross pay. It must be flexible enough to capture multiple configurations for work measurement and all types of leave earned and used. Outputs of leave taken are submitted to the Leave Tracking and Processing function and work units go to the Pay Processing function.

### **Functional Requirements:**

- Support the collection of time and attendance data based upon an established tour of duty, including alternative work schedule/flexitime information. This requires, as a minimum, only positive acknowledgment from the timekeeper that the employee worked the established tour and that time and attendance data is available for supervisory review and approval.
- Support the collection of work hours, leave hours, and all other pay-related hours, as well as labor-related hours if required by agency management, from one source document for each employee.
- Support the collection of labor distribution hours by the defined classification code structure.
- Provide for the collection of time and attendance data on a daily, weekly, biweekly,

semimonthly, and/or monthly basis.

- Calculate and adjust weekly hours based on Fair Labor Standards Act (FLSA) requirements.
- Accept time and attendance data through various processing modes (e.g., interfaces with other systems, data entry, electronic means).
- Support the correction of current and prior period time and attendance records.
- Allow for processing to reflect time spend by employees who work temporarily in other pay classifications.
- Provide for capture of time and attendance data in fractions of hours or other units of measurement.
- Generate reports needed to monitor time and attendance.
- Provide the capability to receive electronic approvals from certifying official and release data for further system processing.
- Determine all work and leave hours to be paid under the Payroll Processing function.
- Provide for fiscal-year-end processing in accordance with established guidelines.

## Leave Processing

**Leave Tracking and Processing:** The system must capture all activities associated with determining proper leave balances for all types of leave, leave advances, accruals, usages, forfeitures, and transfers. This involves the application of current-period leave accruals and leave charges to each employee's available leave balances, leave transfers, donations to leave banks or individuals, and adjustments to leave balances for restored leave, EEO settlements, and similar after-the-fact situations. In addition, this function processes end-of-year leave forfeitures and carryovers for each employee, based on agency-established guidelines. Transactions are processed at the end of each pay period with advances, accruals, and restored leave processed before usages are applied to the appropriate available balances.

### Functional Requirements:

- Ensure that leave taken is supported by a sufficient balance. Insufficient leave balances are automatically converted based upon an established leave priority scheme and, when appropriate, specific management review (e.g., to determine advance leave, leave without pay,

or absence without leave).

- Each pay period, accrue each type of leave which can be accrued and to which an employee is entitled, based on entitlement established by the personnel office, including partial accruals and carryovers.
- Process variable leave accruals for part-time employees. Leave accruals for part-time employees are based on actual hours in a pay status.
- Determine compensatory time to be forfeited or compensatory hours to be paid based on predetermined elapsed time limits for compensatory time earned and maximum earning ceiling for combined leave and earnings.
- Generate detail audit trail and control data to ensure that all reported leave hours have been processed accurately and that the hours used in pay calculation are correct.
- Track and report job-related injury time (continuation of pay).
- Interface with other systems and alert that system to establish receivable or follow up on types of leave that may carry to the government employee indebtedness, including health and life insurance premiums for employees on approved leave without pay and certain jury duty fees while on court leave.
- Provide for year-end leave forfeitures processing using maximum carryover amounts maintained in the benefits administration function.
- Modify leave accruals for employees who change either leave systems, biweekly tours-of-duty, or from full-time to part-time.
- Process both current and prior period leave transactions on an effective period basis.
- Provide for recomputing leave balances due to prior-period hour adjustments or retroactive entitlement changes for each period subsequent to the effective period of the change in the following order: (1) retroactive entitlement changes and the (2) prior-period hour adjustments.