# HUMAN RESOURCES LINE OF BUSINESS

# INTEGRATION SUPPORT PROJECT VERSION 1

# Integration Support Project Report

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## Executive Summary

This report describes the first phase of the Human Resources Line of Business (HR LOB) Integration Support Project (ISP). The goal of this project is to develop end-to-end integration views of governmentwide HR systems and their interrelationships.

In April 2008, the HR LOB Multi-Agency Executive Strategy Committee (MAESC) requested that this project be undertaken to address the various disparate HR application systems and initiatives across the Federal Government. A study was undertaken to understand the current state of these systems and initiatives, and this report presents the results of that study.

The ISP compiles system information and resources that will help HR LOB Shared Service Centers (SSC) and customer agencies effectively plan, design, and implement HR solutions that will interoperate with one another and with agency-specific solutions for an overall integrated environment. Over time, this view will be leveraged to build a conceptual solution architecture based on the HR LOB enterprise architecture. This conceptual solution architecture will help move the government towards integration, interoperability, and the realization of the HR LOB vision.

The report begins with the background of the HR Line of Business and the ISP initiative, and describes suggested uses of the report. It provides an overview of integration and the drivers and business value of integration. The main section of this report documents the end-to-end "as-is" view of governmentwide systems and viewpoints on integration of these systems. The systems included in this report are:

- Clearance Verification System (CVS)
- Electronic Questionnaire for Investigations Processing (E-QIP)
- EHRI Electronic Office Personnel Folder (eOPF)
- EHRI Data Warehouse and Analytics
- Employee Express
- GoLearn
- USAJOBS®

Finally, the report proposes the logical next steps for this project.

The publication of this report concludes the first phase of the Integration Support Project. The next phases will broaden and deepen the scope of this report by providing:

- Details of other governmentwide HR systems
- Integration recommendations and guidelines
- Conceptual solution architecture for an integrated environment for the HR LOB

These ISP results will help Federal service providers and customer agencies work together to address the following strategic needs:

- Coordination between e-Gov initiatives to ensure a comprehensive approach to integration
- Identification of best-practices for SSCs and agencies including implementation lessons learned
- Improved quality in the HR solutions – eliminating duplicate data and manual re-entry, minimizing the development of point-to-point interfaces, and leveraging common generic extracts to capitalize on common data requirements across systems

# 1 Introduction

## 1.1 HR LOB Vision, Goals, and Objectives

The HR LOB initiative was launched in 2004 to support the vision articulated in the President's Management Agenda.  The HR LOB is expected to help the Federal Government realize the potential of electronic government by significantly enhancing human resources service delivery within the Executive Branch of government.

The vision of the HR LOB initiative is to provide "governmentwide, modern, cost-effective, standardized, and interoperable human resource solutions providing common core functionality to support the Strategic Management of Human Capital and addressing duplicative and redundant HR systems and processes across the Federal Government."

To achieve this vision, the HR LOB Concept of Operations (CONOPS) provides a service delivery model in which designated core HR services relating to human resources information systems (HRIS) and payroll operations move from agencies to HR Shared Service Centers (SSCs).  Over time, as HR SSCs evolve and expand their capabilities, more transactional and administrative activities may shift from the agency to its SSC.

Under the HR LOB CONOPS, SSCs must provide, at a minimum, HRIT services for the core functions of Personnel Action Processing and Benefits Management.  SSCs may also offer core Compensation Management (payroll operations).  The HR LOB CONOPS also states that agencies must obtain from the Shared Service Centers Compensation Management (payroll operations) and HRIT services for the core functions of Personnel Action Processing and Benefits Management.  SSCs will deliver the designated HR LOB core services defined in the HR LOB CONOPS in an efficient and cost-effective manner with a focus on customer and service quality.

SSCs may offer additional HR LOB non-core services.  While agencies must obtain HRIT services for Personnel Action Processing and Benefits Management, and Payroll Operations from an SSC, the decision to obtain other services is solely at the discretion of the agency.  This approach allows agencies at their discretion select services as needed to increase their focus on core mission activities and the strategic management of human capital.

The objectives and goals of the HR LOB are outlined in Table 1.

| Objectives | Goals |
|---|---|
| **Improved Management of Human Capital**<br>Improve the governmentwide strategic management of human capital | Faster decision making<br>More informed policy making<br>More effective workforce management<br>Improved resource alignment with agency missions |

| Objectives | Goals |
|---|---|
| **Operational Efficiencies**<br>Achieve or increase operational efficiencies in the acquisition, development, implementation and operation of human resources management systems | Improved servicing ratio / response times<br>Reduced cycle times<br>Improved automated reporting |
| **Cost Savings / Avoidance**<br>Achieve or increase cost savings/avoidance from HR solution activities | Reduced duplicative software / hardware / operations / labor resources<br>Increased competitive environment |
| **Improved Customer Service**<br>Improve customer services | Increased accessibility to client and value<br>Improved communication and responsiveness<br>Enhanced quality<br>Enhanced timeliness<br>Enhanced accuracy<br>Enhanced consistency |

**Table 1:  HR LOB Goals and Objectives**

This ISP work has been undertaken to analyze integration and interoperability for HR applications and to develop an end-to-end view of these applications and their interrelationships.  The sections that follow describe the project approach, integration within HR LOB context, e-Gov initiatives and HR applications supporting these initiatives, the current end-to-end system context view of the HR applications, and the next steps for this project.

## *1.2 Integration Support Project Goals and Objectives*

The Federal HR application landscape consists of many application systems ranging from HR commercial off-the-shelf (COTS) packages to specially developed application systems.  These systems vary widely in terms of size, scope, complexity, and implementation technology and have functional overlap and redundant data.  Many of these systems are interrelated through data interfaces.

The goal of the HR LOB ISP is to develop end-to-end integration views of governmentwide HR systems and their interrelationships.  The ISP compiles system information and resources that will help HR LOB SSCs and customer agencies effectively plan, design, and implement HR solutions that will interoperate with one another and with agency-specific solutions for an overall integrated environment.

The ISP supports this goal by building an end-to-end view of governmentwide HR systems, documenting integration guidance, identifying integration and deployment best-practices, and formulating a set of recommendations for effective integration across

systems. The result will be a blueprint for integration available to both agencies and SSCs.

This report is the first step toward realizing the final goal of the ISP. It focuses on the current state of the governmentwide HR systems principally managed by OPM, documenting general descriptions, contacts, integration guidance, system context and interfaces.

## 1.3 Suggested Use of the ISP Report

This report contains technical details of OPM HR applications (governmentwide HR application systems owned or managed by OPM), end-to-end system context view of these applications, the business value of end-to-end integration, and the standards supporting the integration and interoperability. The report can be used in a number of ways by multiple stakeholders. Figure 1 shows usage scenarios for this report.
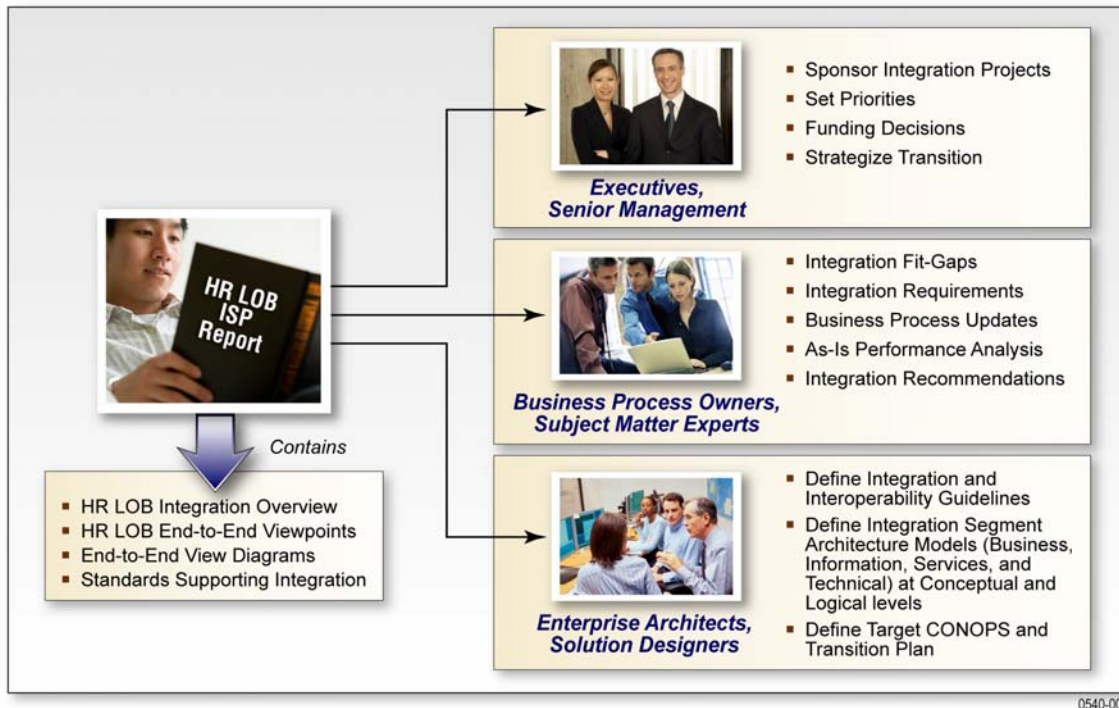


Figure 1 – Uses of the ISP Report

**Senior Management and Executive Leadership**
Senior Management and Executive Leadership can use this report as a reference when making funding and investment decisions related to the development of integration solution blueprints, prioritizing integration actions, and strategizing transitions.

**Business Process Owners and Subject Matter Experts**

Business process owners and subject matter experts can use this report to determine integration fits/gaps and requirements, define "as-is" performance analysis, and develop integration recommendations.

**Enterprise Architects and System Designers**

Enterprise architects and system designers can use this report to define integration and interoperability guidelines, develop a target integrated Concept of Operations (CONOPS), and develop integration solution architecture models and work products at the conceptual and logical level.

# 2 Project Approach

The first phase of the ISP focused on information collection and validation to document the current state of the following initiatives:

- E-Clearance
- EHRI
- Employee Express
- E-Training
- Recruitment One Stop

along with the OPM HR applications supporting these initiatives:

- Clearance Verification System (CVS)
- Electronic Questionnaires for Investigations Processing (e-QIP)
- Employee Express
- Enterprise Human Resources Integration (EHRI) Data Warehouse and Analytic Tools
- EHRI - electronic Official Personnel Folder(eOPF)
- GoLearn
- USAJOBS®

The HR LOB worked with system owners to explain the purpose and requirements of the ISP, collect the required information, and validate the findings. Only pre-existing, publicly available information was gathered to minimize the burden on the cooperating system owners and assuage concerns around proprietary content.

Section 5 of this report contains the following information about the above mentioned systems:

- **Functional Description** of the system including vision, goals, services, etc.
- **Points of Contact**
- **Integration Guidance** including interface specifications and implementation support
- **Touch Points** with external users and systems
- **Context Diagrams** graphically depicting these interfaces
- **Data Interfaces** describing the high-level system data flows

The list of source documents used to collect the above information is included in the section 1.4 - References.

# 3 The Case for Integration

A number of important influences – including landmark legislation, Federal initiatives, and key business and technology trends – have shaped the current Federal HR system landscape.  Although these influences collectively provide for a vision of governmentwide interoperable solutions, little progress has been made toward this vision.  The current reality has a long way to go to achieve the vision despite compelling dynamics that would appear to support it:

- Existing direction and guidance make a case for integration
- Integration provides real business value
- Open standards for integration already exist

The sub-sections that follow elaborate on these dynamics.

## 3.1 Guidance

The e-Government Act of 2002 establishes a broad set of mandates requiring use of Internet-based information technology to enhance citizen access to government information and services.  Section 212 of the this Act calls for enhancing interoperability, assisting the public in electronically submitting information to agencies, and enabling citizens to integrate information from different agencies.

In 2004, various lines of business – including the Human Resources Line of Business – emerged out of the e-Gov concept.  The vision of the HR LOB, first published in 2004, specifically identifies governmentwide interoperability as a key program outcome.  The vision of the HR LOB is to provide "*governmentwide*, modern, cost effective, standardized, and *interoperable* Human Resource solutions providing common core functionality to support the strategic management of Human Capital and addressing duplicative and redundant HR systems and processes across the Federal Government."

HR LOB program objectives – improved governmentwide strategic management of human capital; operational efficiencies; cost savings or avoidance; and improved customer service – can be achieved only in an end-to-end integrated environment where integration is achieved in multiple contexts:  business process, services, application systems, and information/data.  The HR LOB vision and objectives are very important drivers for achieving an end-to-end integrated environment.

The Federal HR application landscape consists of primarily two, core application systems (Human Resources Information Systems (HRIS) and Payroll) and many specialized systems (e.g., USAJOBS®., Entry on Duty (EOD), Electronic Questionnaires for Investigations Processing (E-QIP), Electronic Verify (E-Verify), Homeland Security Presidential Directive (HSPD-12), Enterprise Human Resources Integration/electronic Official Personnel Folder (EHRI / eOPF), Employee Express, Electronic Training/Learning Management System (E-Training / LMS), and RetireEZ).  These

application systems have multiple touch-points in terms of data interfaces and possibly data and functional overlap.

In April 2008, the Multi-Agency Executive Strategy Committee of the HR Line of Business requested an initiative to address these systems' issues. The Integration Support Project – the initiative for which this report is a culmination – was initiated to satisfy this request. This MAESC request highlights the need for a governmentwide solution-level architecture that provides a long-range view of how these issues are to be addressed. Agencies and service providers must commit to allocate sufficient resources to ensure systems:

- Work in sync with one another
- Exchange data smoothly
- Minimize and manage duplicate functionality

## 3.2 Business Value

Information technology has the potential to fundamentally alter HR service delivery in the Federal Government. The government is moving into an era driven by the need to improve business processes and to provide increasingly sophisticated technology-enabled capabilities and services to Federal employees, managers and HR staff. Processing transactions accurately, with appropriate human intervention as necessary, gathering data from multiple sources, and integrating it together or re-engineering business processes have become basic requirements for success in today's environment.

To deliver recognizable business value, applications in the integrated environment must help people work and collaborate effectively. A shift towards best-of-breed applications fuels the need for application integration because no single vendor is capable of delivering all required functionality; a multi-system computing environment is the logical result. The mission of end-to-end application integration is to control the resulting heterogeneous computing environment in such a way it behaves as one system.

Integration provides an opportunity for the Federal Government to realize many business benefits. Agencies can more easily modernize business practices by integrating human resource solutions and eliminating or minimizing data and functional overlaps. Integration can be achieved at business process, services, data, and technology levels, and each level provides different types of business value and benefits.

Process integration links many discreet HR sub-processes in ways that provide sufficient control in a cost effective manner. Processes that are linked across the HR spectrum create the ability to use an event-based approach where all relevant HR responses are provided to the employee in a comprehensive and user-friendly manner. Process-level integration helps organizations increase efficiency and mitigate risk through the automation, optimization and management of business and IT processes and rules. In

doing so, it provides employees with access to high quality HR services that allow them freedom to manage their own particular needs and requirements.

Service integration enables the linking of business services and the underlying data from these services, resulting in a more dynamic command of comprehensive HR information. Service integration facilitates a comprehensive service delivery method for HR LOB programs so that employees see all HR-related responses to a work/life event within appropriate time frames. Improved services to employees – achieved via service integration at the agency or SSC level – will include single points of access for HR services and the system's ability to provide escalating levels of response according to the employee's needs, from information on screen to contact with HR experts via a variety of means including call centers, e-mail, telephone and direct personal contact.

Data integration allows organizations to access all their fragmented data, create an accurate and consistent view of their core information assets, and easily leverage these assets across the enterprise to drive business decisions and operations. Data integration deals with how data is modeled and the meaning of the data. It deals with normalization, validation, integrity of data and what translations need to be applied to the data for exchange between applications within the enterprise or between the enterprise and outside systems. Data integration also deals with the methods, techniques, and technologies of extraction, restructuring, movement and loading of data to analytic data stores or repositories in order for it to be used by analytic/reporting applications and systems.

Application/systems integration deals with getting different applications in multiple environments to work together as one unit using different technological options. Application/systems integration may include aspects of other types of integration such as data integration.

In summary, integration:

- Allows enterprises to leverage existing data assets to build new software applications
- Enables enterprises to connect to and reuse information assets in enterprise information systems
- Enables the automation of business processes across enterprise "silos of automation" to reduce costs and increase efficiency
- Reduces cost through automation and customer self-service

## 3.3 Open Standards

Open industry standards have emerged for enterprise application integration during the last few years. HR LOB Technical Model (TM) version 2 compiles relevant standards, including interoperability standards, to facilitate their adoption and usage by Federal agencies and SSCs. The standards contained in the HR LOB TM version 2 are based

upon open systems technology that is strongly supported in the commercial marketplace.

Web services standards represent a set of standards that allow computers to communicate with each other via a network (typically via, but not limited to the Internet).  One of the core standards is Extensible Markup Language (XML).  The portability and rapid adoption of XML throughout the industry make it the obvious choice for enabling cross-platform data communication.

XML provides the foundation for the other core standards, such as Simple Object Access Protocol (SOAP), Web Services Description Language (WSDL), and Universal Description, Discovery, and Integration (UDDI).  SOAP is a messaging protocol.  WSDL is a contract between the server and client processes.  UDDI is a framework that defines an XML-based registry in which businesses can publish information about themselves and services they provide.  Adoption of these open technical standards will facilitate end-to-end integration.

# 4 OPM Initiatives

Five OPM e-Gov initiatives – Recruitment One-Stop; e-Clearance; Enterprise Human Resources Integration (EHRI); e-Training; and e-Payroll – have been defined as part of OMB's e-Gov Internal Efficiency and Effectiveness Portfolio.  These initiatives are intended to provide a set of electronic support tools for the Federal Government's human resources functions including recruitment, security clearances, personnel records, training, and payroll.  OPM's vision is for these initiatives to streamline and improve the process for moving employees through the entire life-cycle of their employment with the Federal Government and to do so consistently with the evolving Federal Enterprise Architecture, while utilizing necessary security and privacy standards.

These OPM e-Gov initiatives, their application systems, and their approach to delivering world-class services through cutting-edge technologies play a critical role in implementing the HR LOB end-to-end integrated solution.  Over time, the majority of core HR IT functions will be delivered either directly by or through an interface with Shared Service Centers.

The HR LOB has already established five Federal Shared Service Centers (SSCs) and has selected four private-sector vendors to provide agencies with core HR processing services plus other IT services.

The Federal Shared Service Centers are:

- Department of Agriculture's National Finance Center (NFC)
- Department of Defense (DoD)
- Department of Health and Human Services (HHS)
- Department of the Interior's National Business Center (NBC)
- Department of the Treasury (Treasury)

Private-sector SSCs are:

- Accenture National Security Services (Accenture)
- Allied Technology Group, Inc. (Allied)
- Carahsoft Technology Corporation (Carahsoft)
- International Business Machines (IBM)

Accenture, Allied, and Carahsoft offer all of the mandatory core and non-core SSC functions.  IBM offers the mandatory core functions for Personnel Action Processing and Benefits Management services and all non-core SSC functions, but is not approved at this time to deliver core Compensation Management services.

The HR LOB takes a phased approach to delivering core HR IT services through Shared Service Centers that are based upon modern solutions and open architecture concepts.

SSCs create economies of scale by offering core HR IT services common to most, if not all, Federal agencies. Core HR and payroll services include the processing of personnel actions, compensation management and benefits management. The SSCs also can offer non-core HR services, as well as consulting services. The decision to obtain any non-core services from a SSC is solely at the discretion of the agency.

Federal agencies, SSCs, and managing agencies, such as OPM, supporting HR LOB efforts have shown signs of moving from traditional independent HR IT systems towards an integrated approach. This move towards the integrated approach is evident by the increased use of portals by agencies. The overarching goal of the e-Gov initiatives is "to leverage information technology in a cost effective way to enable the Federal Enterprise to be more citizen-centered and market-driven."

The specific goals (abbreviated) of the five OPM managed initiatives are:

- To improve the efficiency and speed of granting Federal Government security clearances and reduce duplicative investigative efforts (e-Clearance)
- To establish an enterprise HR data warehouse; create electronic Official Personnel Folders; and provide HR data analysis, forecasting, and reporting tools (EHRI)
- To reduce redundancies and achieve economies of scale in the purchase and/or development of e-learning content and infrastructure (e-Training)
- To position the Federal Government as the first stop for job seekers (Recruitment One-Stop)
- To consolidate Federal payroll providers in the executive branch and standardize payroll policies affecting payroll processing (e-Payroll)

The President's Management Agenda has given OPM an opportunity to expand cross-cutting activities. As the President's human capital management advisor, OPM has accepted the challenge of leading agencies to improve the strategic management of the Federal workforce. OPM also has emerged as a leader in the President's initiative to expand e-Government.

OPM leads five (Recruitment One-Stop; e-Clearance; Enterprise Human Resources Integration (EHRI); e-Training; and e-Payroll) of the 24 major e-Gov projects identified by OMB through the Quicksilver initiative. The following diagram (Figure 2) shows the high-level view of the e-Gov initiatives, application systems, and the service providers from the HR LOB perspective.
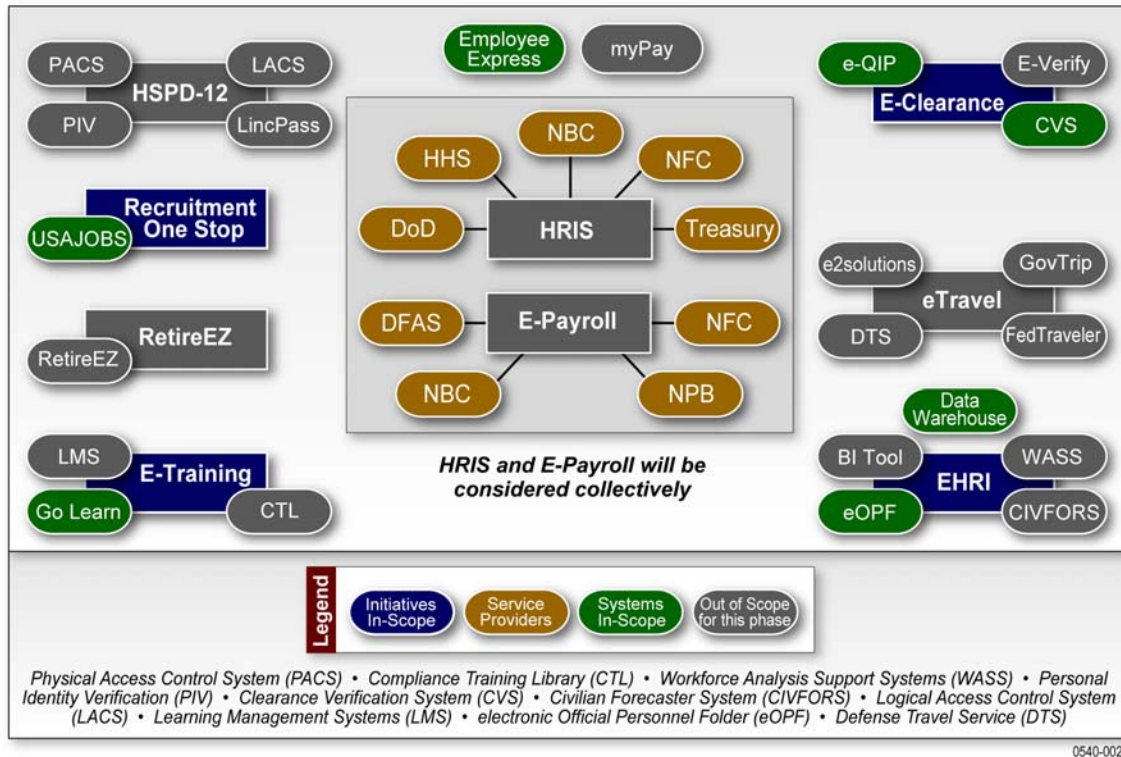
Figure 2 – HR Initiatives, Systems, and Service Providers

The following subsections contain brief descriptions of the five e-Government initiatives and Employee Express, all led by OPM. More information about each initiative can be found on the OPM website at www.opm.gov/egov.
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## 4.1 E-Clearance

The Office of Personnel Management's e-Clearance initiative streamlined the investigation process for an employee's security clearance, enabling an important process that is critical to national security. This initiative implemented three new components to improve the security clearance process:

- The Electronic Questionnaires for Investigations Processing (e-QIP) is a web-based system which captures, collects, and validates the subjects' background information and electronically submits in an online mode along with imaged fingerprints and supporting documents. It consists of automated versions of the Questionnaires for National Security Positions (SF-86), Public Trust Positions (SF-85P), and Non-Sensitive Positions (SF-85), as well as the Supplemental Questionnaire for Selected Positions (SF-85PS). With e-QIP, certain work processes changed from a paper-based environment to an electronic environment. See section 7.3 of this document for more information.
- The cross-agency Clearance Verification System (CVS) provides access to authorized agency users to the background investigation, clearance, suitability and HSPD-12 records of the government.

- OPM PIPS Imaging System (OPIS) electronically captures and stores images of all cases and relevant documents for investigative processing. OPIS also is used to facilitate the electronic delivery of completed investigations to the customer agencies via security images in an XML file format.

These three systems, plus five others, comprise EPIC, FISD's Investigative Suite of Applications:

- Personnel Investigations Processing System (PIPS), the core system used for the processing of all background investigations by OPM-FISD. It houses the Security/Suitability Investigations Index (SII), a repository of 11.4 million subject and 19.6 million investigation records of OPM-conducted investigations and notifications of other investigative agencies' records. PIPS maintains disclosure information as required by the Freedom of Information and Privacy Act, periods of subjects' debarment from Federal service and post appointment arrest information.
- Fingerprint Transaction System (FTS) is an automated system used to route fingerprints between the customer agency, OPM and the Federal Bureau of Investigation (FBI). It sends fingerprint images electronically to the FBI and receives the results of identification checks. Any fingerprints received in hard-copy format are imaged in FTS and processed electronically to the FBI.
- PIPS-Reporting (Fieldwork Reporting System) is the secure mechanism utilized by investigators to compile reports of investigation, documenting the results of the field work conducted. PIPS-R is a PC-based application where the investigator enters the information off line and securely transmits the report to PIPS.
- FISD Dashboard (Management Reporting System) provides a series of COTS software products that support management reporting to the investigative process timeliness and workload. The Dashboard provides Web-based tools that enable reporting from multiple OPM and FISD systems and data sources. This tool will provide greater analytic insight which will promote enhanced management of resources.

With an eye to the future, OPM is engaged in a wide-ranging transformation of the EPIC application suite. The robust plan will extend over the next three to five years, and will include the following initiatives:

- Platform enhancements to update hardware and software
- Implement a state-of-the-art, event-driven architecture
- Maximize use of additional COTS products
- Incorporate relational data base functionality to increase system flexibility
- Provide additional utility for field investigative staff by taking advantage of state of the art technology
- Enable the EPIC Suite to accept a single sign-on (one door into the system) for our customer and agent base

The plan includes provisions to mitigate the risk of incorporating new technology to our critical, time-sensitive processes by maintaining parallel operations and provide for a safe recovery path through the legacy systems.

## 4.2 E-Training

The e-Training initiative is creating a premier, governmentwide technology-enabled, training environment that supports the development of the Federal workforce. The Government Online Learning Center (www.golearn.gov), which serves as the portal site, utilizes competency-management tools and targets curriculum based on both individual and agency needs. This allows agencies to focus their training efforts on specific needs and to match employee professional and individual development to courses and services.

By providing agencies with on-demand, competency-management e-learning tools and services, and training-data management, the government is better able to attract, retain, manage and continuously educate the highly skilled professionals needed for a flexible and high-performing government workforce.

## 4.3 Employee Express

Employee Express is an electronic system that empowers Federal employees to manage their own discretionary payroll and personnel transactions. Initially piloted in 1995, the system has grown to include more than 60 agencies and more than 772,000 users. Employee Express is governed by a user-board representing the Federal agencies.

The system is accessible through a web site or an interactive phone system by using Personal Identification Numbers (PIN) and facilitates actions related to:
- Federal and State Tax Withholdings
- Financial Allotments
- Home and Check Mailing Address
- Direct Deposit
- Federal Employees Health Benefits (FEHB) including Qualifying Life Event (QLE) Changes
- FEHB Pre-Tax Waiver
- Thrift Savings Plan (TSP) and TSP Catch-up
- Savings Bonds
- Combined Federal Campaign (with automated pledge reports)
- Personal Identification Number changes and validation
- Earnings and Leave Statement, and Online W-2

Employee Express is designed to be used in conjunction with existing personnel and payroll systems. It does not perform all basic personnel and payroll functions. Instead, it allows employees to interface with the existing personnel and payroll systems.

## *4.4 Enterprise Human Resources Integration (EHRI)*

Enterprise Human Resources Integration (EHRI) is a comprehensive, electronic personnel recordkeeping and analysis system that supports human resource management across the Federal Government.  EHRI is a collaborative e-Gov initiative designed to transform the way Federal HR Specialists and Managers access human resource information and the way all Federal employees access their personnel file information.

EHRI is comprised of three major component systems:
1. A **data warehouse and repository** for all Executive Branch employee data
2. An **electronic Official Personnel Folder (eOPF)**  that is securely accessible to individual Federal employees via EHRI's Portal
3. A set of **analytic tools** to support HR and Federal managers in forecasting human capital requirements, identifying trends, aggregating HR data across agencies, and managing HR knowledge

EHRI is replacing the current Official Personnel Folder (OPF) with an electronic employee record for all Executive Branch employees, resulting in a comprehensive electronic personnel-data repository covering the entire life-cycle of Federal employment. EHRI also provides HR managers and specialists with a data warehouse and workforce planning and analysis capabilities that are currently not possible with a paper-based system.  With these tools, trends for retirement, promotions and reassignments can be accurately forecast.  Personnel transactions across the Federal Government that currently take weeks to finalize will take days.

## *4.5 Recruitment One-Stop*

The Recruitment One-Stop initiative provides an online portal ([www.usajobs.gov](www.usajobs.gov)) through which citizens can easily search for employment opportunities throughout the Federal Government.  This initiative has evolved from an innovative e-Gov project to an overwhelmingly successful, fully operational, steady-state program.  USAJOBS® is a state of the art recruitment system that simplified the Federal job search process for both job seekers and agencies.  Recruitment One-Stop (ROS) simplifies the process of locating and applying for Federal jobs.  Through a series of enhancements to USAJOBS® ([www.usajobs.gov](www.usajobs.gov)),  ROS delivers a "create once, use many" basic job resume to apply to multiple vacancies, agencies and systems; a resume-mining feature that allows fast, cost-efficient, candidate-sourcing by Federal managers and HR specialists; and online, real-time application status tracking.

Recruitment One-Stop has increased job-seeker satisfaction with the Federal job application process because of its improved job-search capability; clean, concise, understandable and attractive job announcements; and improved response times.

## *4.6 E-Payroll*

The e-Payroll initiative is consolidating 26 Executive Branch Federal payroll providers, standardizing payroll policies and procedures, and simplifying and better-integrating payroll, human resources, and finance functions.  E-Payroll is leading efforts to establish

payroll policies and procedures that will be uniform and easy to understand and administer.  Governmentwide e-Payroll system solutions are best-in-class in terms of overall costs and ease of administration, while delivering high-quality service.  The e-Payroll initiative advanced the e-Government agenda by creating greater efficiencies in Federal payroll processing.

The four e-Payroll providers—the National Business Center, the National Finance Center, the Defense Finance and Accounting Service, and the National Payroll Branch—currently provide payroll services to approximately 1.4 million Federal employees.

The NBC, a component of the Department of the Interior, is located in Denver, CO. The NBC cross-services approximately 235,000 employees. It offers a fully integrated HR/Payroll solution.  The NFC, a component of the U.S. Department of Agriculture, is located in New Orleans, LA.  The NFC cross-services approximately 560,000 employees. It offers a fully integrated HR/Payroll solution, as well as standard interface capabilities to other HR solutions.  DFAS, a component of the Department of Defense (DoD), has payroll locations in Cleveland, OH, and Indianapolis, IN. DFAS cross-services approximately 766,000 employees located within the DoD and other non-DoD agencies. It offers a payroll solution that supports a standard interface to various HR solutions.  The National Payroll Branch (NPB), a component of the General Services Administration, is located in Kansas City, MO. GSA cross-services approximately 26,000 employees. It offers a payroll solution that supports a standard HR interface used by all of its customers.

## *4.7 End-to-end Integration*

End-to-end integration is the alignment and synchronization of integration strategy, business processes, information systems, services, technologies, and data across organizational boundaries to achieve business goals and objectives.  By definition, end-to-end integration has to address multiple applications running on multiple platforms in different locations; multiple implementation architectures; and multiple organizational constraints and procedures.  The fundamental purpose of end-to-end integration – toward which this report is the first step – is to remove stovepipes and create a heterogeneous environment that behaves as one system.

The following context diagram shows the application systems environment as it exists today.  It provides a synthesized end-to-end view of all of the governmentwide HR applications described in this section – from the perspective of system interactions and information exchange.  This diagram serves to focus attention on the current state of integration:  system boundaries; external touch points of one system with other systems in this environment; and information flows.
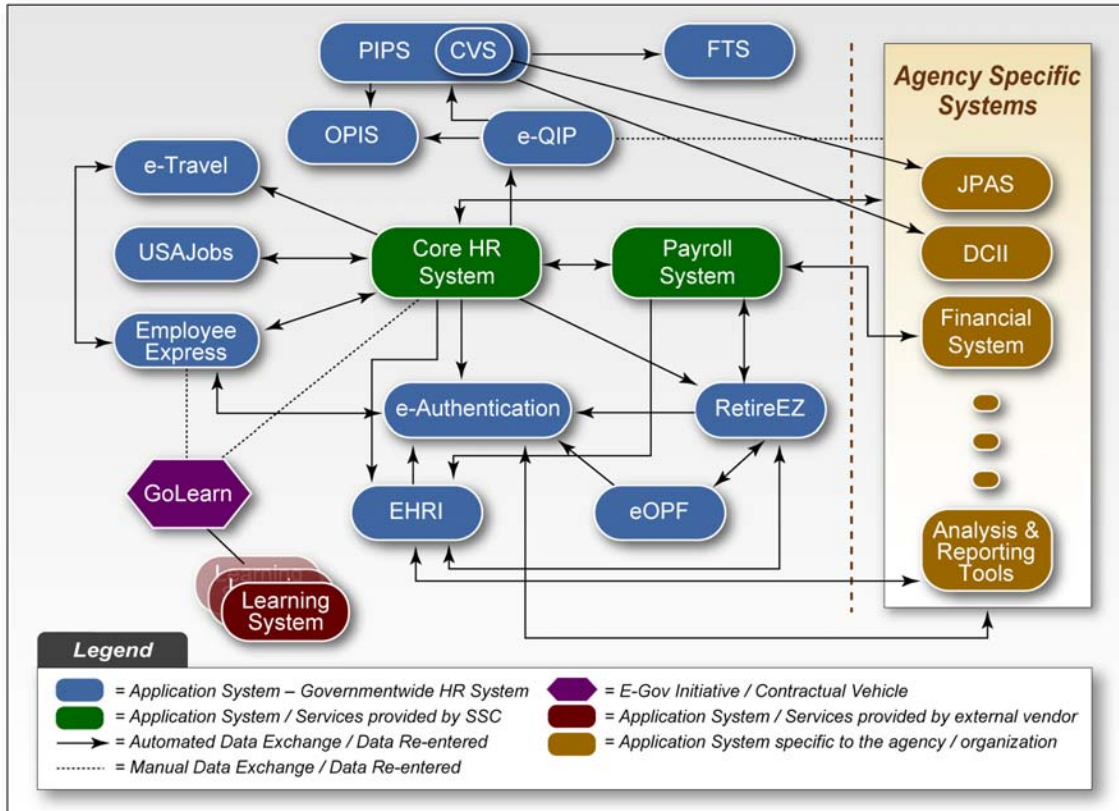
Figure 3 – End-to-end System Context Diagram of HR Applications

Some preliminary observations can be made about the current state of integration today. These applications were not created with integration in mind; in fact, they have evolved independently over time with diverse requirements and different data models. Some operate in a stand-alone manner with duplicate data and redundant manual data re-entry; others are managed by external vendors under a contract administered by OPM. Although some of these application systems employ standardized data exchange formats, system interactions and information exchanges are not completely automatic.

This end-to-end view also helps in identifying some key architectural artifacts that will be required in order to build the integration solution. The information flow between the systems provides key inputs to the information model. Information flows also represent architecturally significant activities that can be traced back to the business process models, which represent a key portion of the system's requirements. The technical characteristics of the application system within the end-to-end view determine the need for adapters that will facilitate the technology integration.

These technical concepts and recommendations for future integration and interoperability will be further developed in the next phase of the Integration Support Project. The focus of the next phase will include:

- Details of other governmentwide HR systems
- Integration recommendations and guidelines
- Conceptual solution architecture for an integrated environment for the HR LOB

The next section of this report provides technical details for each of these application systems, including a system context diagram and system touch points. This information can serve as a starting point for the detailed analysis required to conceive a coherent approach to end-to-end integration.

# 5 OPM HR Application Details

This section provides details of information collected about each OPM HR application through questionnaires – each application as one sub-section. Each sub-section is organized in the following way:

- **Introduction** provides background and a functional description of the system
- **Contact Information** lists the system owner and the primary points of contact for the system
- **Integration Guidance** contains a summary of all the materials published by the system owners describing system interfaces and providing information for external parties seeking to integrate with the system
- **System Touch Points** detail the system's set of external interfaces
- **Context Diagrams** visually depict the touch points
- **System Data Interfaces** describe at a high level the data elements exchanged through the system's external interfaces

## *5.1 Clearance Verification System (CVS)*

### Introduction

CVS is a sub-system of the Personnel Investigation Processing System (PIPS). It provides the status for both active and inactive clearances. CVS also facilitates clearance and suitability reciprocity by reducing the number of requests for investigations. CVS identifies subjects, collects and stores clearance information on active, revoked, suspended, administratively withdrawn, and denied clearances. In addition, CVS identifies those clearances whose status has become "unknown" as a result of not being revalidated within the required timeframe.

Currently CVS is the central repository for all civilian clearances granted by the Executive Branch agencies. The sub-system provides agencies with on-line screens and file transfer capabilities for establishing and maintaining security clearance information.

CVS was first implemented in October 1998 and includes the basic capabilities for agencies to maintain clearances. For example, users of the PIPS Agency Menu are able to obtain CVS information for a subject when searching the Security and Suitability Investigations Index (SII).[i]

### Contact Information

OPM is the principal organization which owns e-Clearance, an e-Gov initiative. The CVS, a part of the e-Clearance initiative, is currently in production and the contacts for this system are:

Table 2 Clearance Verification System Contact List

| TYPE OF CONTACT | NAME | DIVISION/ BRANCH | PHONE | EMAIL |
|---|---|---|---|---|
| Federal Investigative Services Division – Deputy Associate Director | Joy Fairtile | OPM/FISD | 202-606-1042 | Joy.Fairtile@opm.gov |
| Federal Investigative Services Division – Chief, Systems Application and Development Group | Jim Shope | OPM/FISD | 724-794-5612 | James.Shope@opm.gov |

## Integration Guidance

OPM publishes several documents to provide agencies with the information needed to establish and maintain security clearance information.

The Personnel Investigations Processing System (PIPS) Component Documentation specifies the external linkages/contacts, the component flow, interaction with other components, outputs, programs, on-line processes, and batch jobs.[ii] CVS also makes available the list of architectural components including the hardware, software and operating system.

OPM also publishes the Requirements Traceability Matrix for Phase I and II of CVS. Phase I was implemented September 15, 2008[iii]. Phase II is slated for implementation in FY09[iv]. These documents delineate the requirements for the user interface, responses to detailed clearance report requests from agencies and the files used in the system interfaces.

## System Touch Points

A CVS query conducts a simultaneous check of three (3) repositories:

- Joint Personnel Adjudication System (JPAS): JPAS is the Department of Defense (DoD) system that uses the Web to connect security personnel around the world with a database managed by DoD Agency Central Adjudication Facilities (CAFs).
- Security/Suitability Investigations Index (SII): The SII records personnel investigations conducted by the OPM, and by other agencies that have delegated authority to conduct their own personnel investigations.
- Personal Investigation Processing System (PIPS): PIPS supports the core investigative processes such as the entry of the investigative data and the subsequent scheduling, reporting and closing of each investigation processed by OPM/FISD.

## Context Diagrams

As a part of PIPS, CVS establishes clearance records and maintains their activity history for Federal agencies currently using OPM's SII to record their investigative history.[v] CVS bridges into JPAS.
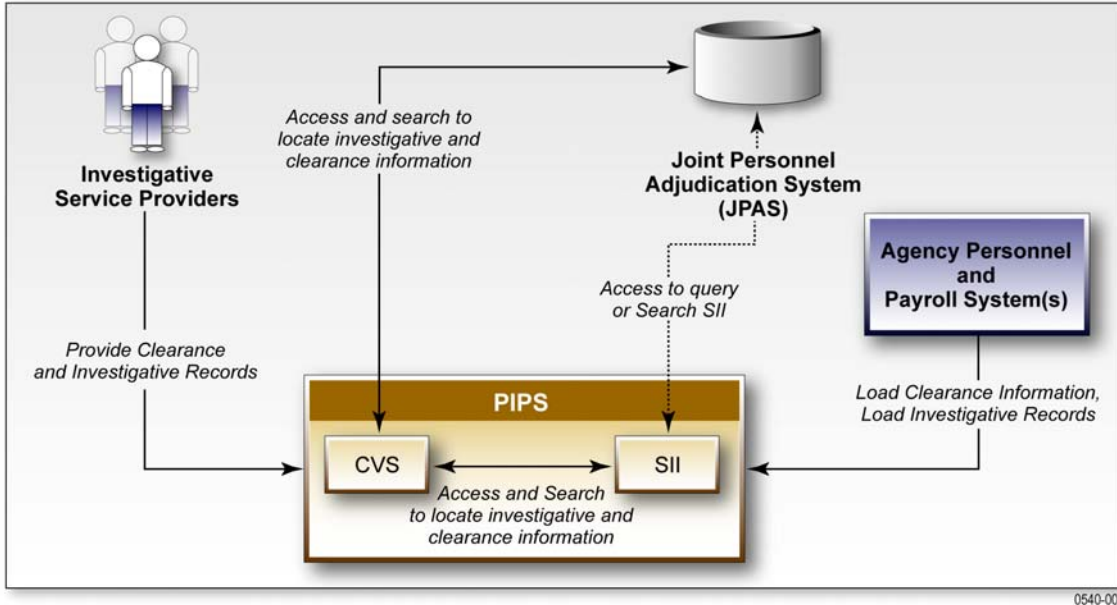


Figure 4 – Clearance Verification System Context Diagram

OPM publishes the PIPS/CVS – JPAS connection diagram showing the network interconnections over the internet as shown in Figure 5.
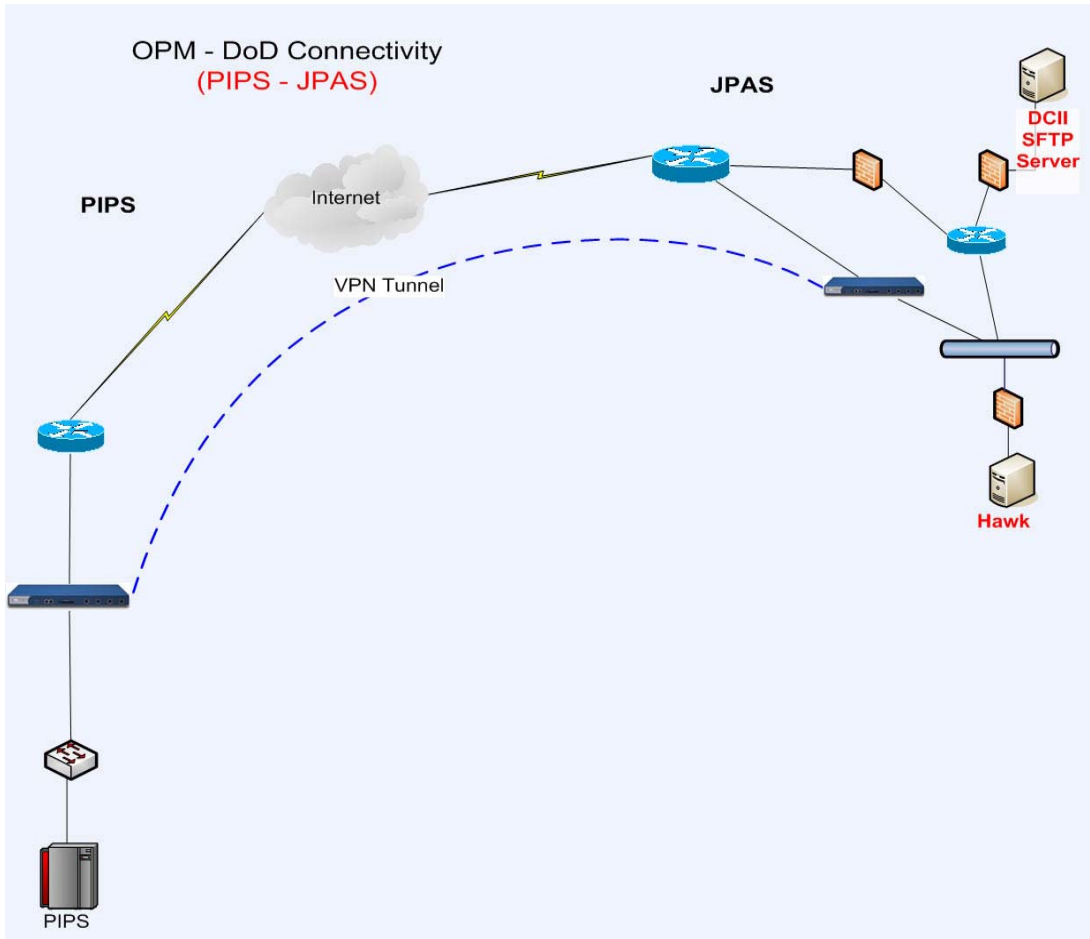
Figure 5 – PIPS/CVS – JPAS Connection Diagram

## System Data Interfaces

CVS provides data to and exchanges data with systems outside of PIPS. It does have external contacts outside of the Federal Investigative Services Division (FISD).

| Type of Link | System | System Owner |
|---|---|---|
| Download/Upload To/From authorized Security Officers from all from all Executive Branch Federal Government Agencies | FISD Secure Portal | Chris DeMatteis (Operated under contract with OPM by Extranet Secure Portals (ESP))[vi] |

The CVS Component Documentation publishes the interactions of CVS with other PIPS components:

| PIPS COMPONENT | DESCRIPTION OF INTERACTION |
| --- | --- |
| Add/Modify | There are several screens that update CVS records. These are functions that delete/copy subjects and merge SSNs. |
| ADHOCs | There are several ad hoc programs that display CVS data as part of their reports. |
| ADO (ADB Internal) | Menu option 3 – Delete CVS Events |
| AGY (Agency) | Menu option 2 is where all of the CVS functionality resides on the PIPS Agency Menu.  Option 2 provides both display and update capability.  This option displays investigative, clearance, polygraph, suitability, and HSPD-12 data.  Option 2 enables agencies to add new and update existing clearance, polygraph, and HSPD-12 data.  Currently, only polygraph data can be deleted by an agency. |
| Data Entry | Several screens modify/display CVS information |
| Display | There are menu functions to Display CVS data.  The Basic Investigations screens provide indicators whether Clearance data is available for the Subject |
| FID Investigators | FID Basic Subject screen provides indicators that Clearance data exists |
| FID Managers | FID Basic Subject screen provides indicators that Clearance data exists |
| FID Record Specialists | FID Basic Subject screen provides indicators that Clearance data exists |
| IAB (ISSB Internal) | Function 7 allows users to Delete CVS Events |
| ISM (FISD Headquarters) | ISM Basic Subject screen provides indicators that Clearance data exists |
| On-line Linkage-DSS | SII Search screen returns Clearance data |
| On-line Linkage-JPAS | SII Search screen returns Clearance data |
| PIPS Mail | Read when a request for a PIPS id is made |
| Purge | CVS data is purged when a Subject is purged. |
| SCAT | CVS file is used to store PIPS Access information |
| Secure Portal | Secure Portal is used by agencies to send in their clearance data.  Secure Portal is used by OPM to return the report showing the results of the update process. |
| Telephone Liaison | Telephone Liaison menu supports the displaying/adding/modifying of clearance, polygraph, and HSPD-12 data. |

CVS generates the outputs listed below. All reports are written to a data set that is downloaded or emailed to the recipient.

| Program ID | Title of Output | Type | Source |
|---|---|---|---|
| PIP9410S | Split CVS Transaction File (Produced only if multiple SOIs are submitted in a single agency file.) | Report | ADABUCxx |
| PIP94100 | Agency Input Validation | Report | ADABUCxx |
| PIP94101 | Clearance Update Report - Summary | Report | ADABUCxx |
| | Clearance Update Report – Errors | Report | ADABUCxx |
| | Clearance Update Report – Canceled | Report | ADABUCxx |
| PIP94102 | Revalidated Clearances Report | Report | Submitted by PIP3-123 |
| PIP9410D | Revalidated Clearances Report | Display | Submitted by PIP3-123 |
| PIP94111 | Clearance Information for SOI | Report | Submitted by PIP3-123 |
| PIP9411D | Clearance Information for SOI | Display | Submitted by PIP3-123 |
| PIP94119 | Clearance Totals by Authority Report | Report | ADAWP119 |
| PIP94125 | Clearance Warning/Expiration Report | Report | ADAMU025 |
| PIP94126 | Clearances Nearing Expiration | Report | ADAMU025 |
| PIP94127 | Clearances Expired | Report | ADAMU025[vii] |

## *5.2 Electronic Questionnaires for Investigations Processing (e-QIP)*

### Introduction

The Office of Personnel Management's Federal Investigative Service Division (OPM-FISD) processed an excess of 2.2 million background investigations and special agreement checks in fiscal year 2008.  Most of these investigations require that detailed personal information be provided to OPM on standardized forms such as the Standard Form 86 (SF-86).   OPM recognized an opportunity to both improve the efficiency of its operations and assist its customers in providing the information required for a background investigation.   To realize this opportunity, OPM sought assistance from the Department of Energy's Work for Other Government Agencies program.  DOE tasked the Y-12 National Security Complex to provide its information technology expertise to develop an automated system to collect and store the information required by OPM for background investigations.  Y-12 personnel worked closely with OPM and several of OPM's key customers to define the Electronic Questionnaire for Sensitive Positions (e-QSP) system.  During the fall of 2001, the system and project name were changed from e-QSP to e-QIP.

By the end of FY2008, e-QIP was used to process over 95 percent of all clearance background investigations conducted by OPM, and over 937,000 investigation requests governmentwide.

### Contact Information

OPM is the principal organization which owns e-Clearance, an e-Gov initiative.

E-QIP, a part of the e-Clearance initiative, is currently in production and the contacts for this system are:

Table 3  e-QIP Contact List

| TYPE OF CONTACT | NAME | DIVISION/ BRANCH | PHONE | EMAIL |
| --- | --- | --- | --- | --- |
| Federal Investigative Services Division – Deputy Associate Director | Joy Fairtile | OPM/FISD | 202-606-1042 | Joy.Fairtile@opm.gov |
| Federal Investigative Services Division – Chief, Systems Application and Development Group | Jim Shope | OPM/FISD | 724-794-5612 | James.Shope@opm.gov |

## Integration Guidance

OPM publishes several documents to provide agencies with the information needed to establish and maintain security clearance information.

The e-QIP Software Design Description (SDD) documents the design of the Electronic Questionnaires for Investigations Processing (e-QIP) – Agency Portal, Version 2.0. The SDD provides a high-level view of the software components that comprise the e-QIP Agency Portal portion of the e-QIP system. The Agency Portal is a semi-independent subsystem of e-QIP that allows Agency/ISP users to process investigation requests and allows e-QIP and Agency/ISP administrators to administer organizational hierarchies, run reports, collect statistics and track day-to-day operations.[viii]

The e-QIP Remote Agency Services Client Integration Guide provides system developers with information on how to configure and establish connectivity from customer data collection systems or clients that can interact with the e-QIP Remote Agency Services using web services. A client reference guide in addition to an interface control document is available to developers to use as a starting point for their own implementation.[ix]

OPM publishes an Agency User Manual and a Quick Reference Guide for users, and DOD/Navy publishes a handbook for security managers.

## System Touch Points

E-QIP interfaces with both users and external systems. It provides users with a secure website designed to process and store personnel investigative forms. It electronically allows applicants to enter, update and release their personal investigative data over a secure Internet connection to their sponsoring agency for review, approval and submission to investigation provider.[x]

E-QIP interfaces with a number of systems supporting the overall investigation process. These include:

- Joint Personnel Adjudication System (JPAS): JPAS is the Department of Defense (DoD) system that uses the Web to connect security personnel around the world with a database managed by DoD Agency Central Adjudication Facilities (CAFs).
- Personal Investigation Processing System (PIPS): PIPS supports the core investigative processes such as the entry of the investigative data and the subsequent scheduling, reporting and closing of each investigation processed by OPM/FISD.
- Other Background Investigation Systems: e-QIP supports the delivery of over 40,000 investigation requests annually to other agencies that have the authority to conduct background investigations. Department of State, Federal Bureau of Investigation, Department of Homeland Security-Customs and Border Protection (DHS-CBP), Central Intelligence Agency, and U. S. Postal Inspection Service all have processing systems receiving investigative form data from OPM's e-QIP system.

## Context Diagrams

The following diagram, Figure 6, presents the interfaces of JPAS, demonstrating e-QIP's relationship with users, JPAS, and PIPS.
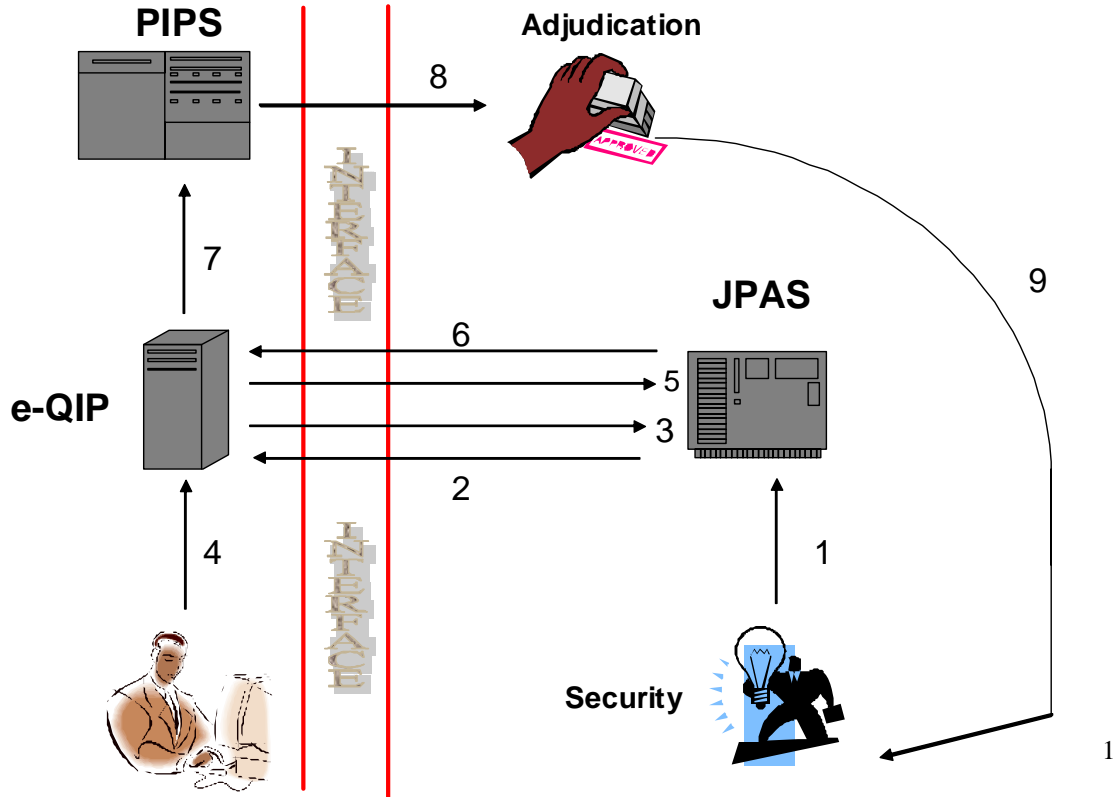


Figure 6 – "How JPAS and e-QIP are Connected"[xi]

Figure 7 – General e-QIP Process illustrates OPM's concept of operations for the electronic processing of forms such as the SF-86, SF-85, SF-85P and SF-85P-S. OPM can also process SF714 for agencies that have authority to use this form.
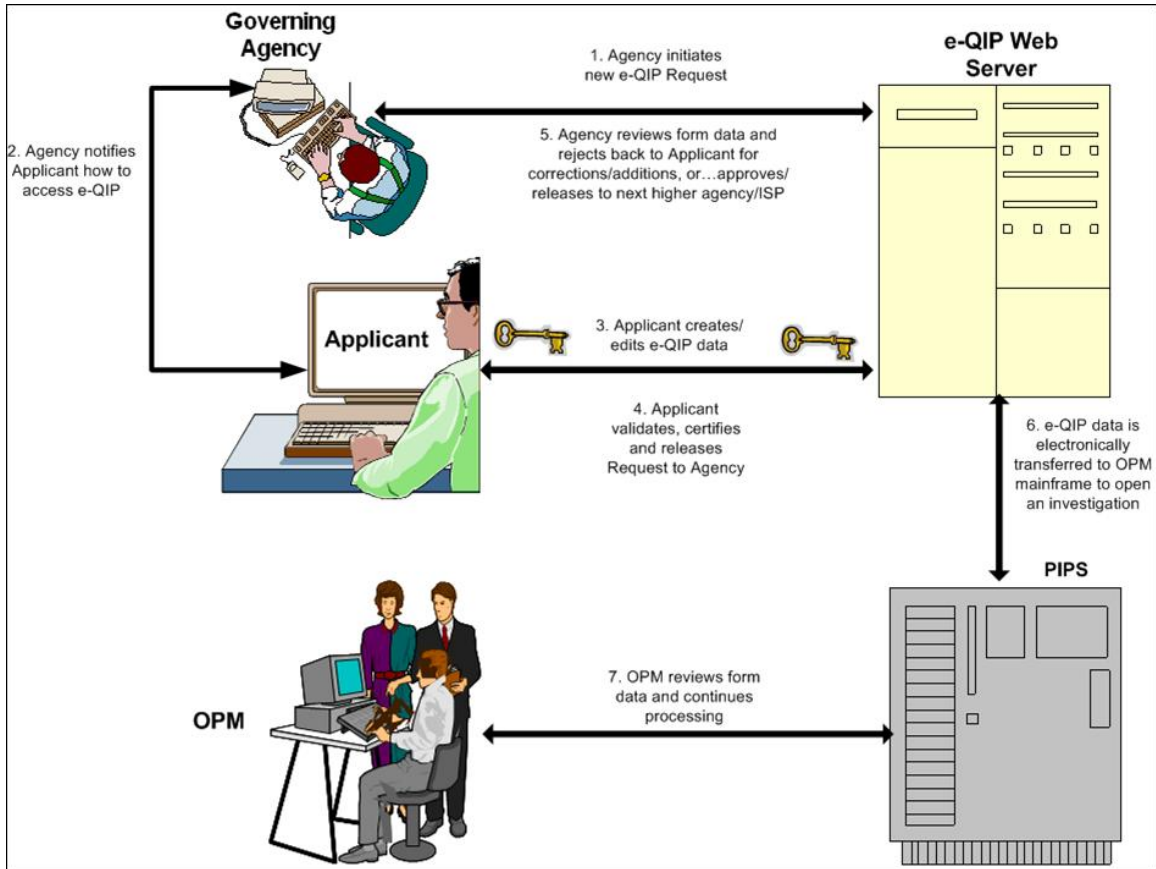
Figure 7 – General e-QIP Process

## System Data Interfaces

E-QIP published two documents, in addition to the presentations and documents referenced above, to further detail the Remote Agency Services provided by e-QIP:

- E-QIP Remote Agency Services API Specification, covering the technical details of e-QIP's Remote Agency Services such as services, data types, properties, exceptions, etc.[xii]
- E-QIP Remote Agency Services Client Reference Implementation, providing a starting point for client implementation to facilitate the process that client system developers must follow to successfully connect client systems to the e-QIP services[xiii]

## 5.3 Employee Express

### Introduction

The Employee Express (EEX) system is an innovative, automated system that puts Federal employees and Foreign Service annuitants in control of their own discretionary personal and (employee-derived) payroll data without using paper forms.

The initial system was implemented in May 1995, with 20 agencies consisting of 147,000 users.  It has since grown to 80 Federal organizations servicing more than 722,000 users with a 95 percent user satisfaction rate. The system has gone from providing only six features to providing more than 30.[xiv]

### Contact Information

Employee Express is owned by the EEX consortium, which is managed by an EEX user board of 12 Federal agencies.  The Technical Services Group (TSG) within the Center for Talent Services (CTS) maintains the system as a vendor.

Employee Express is currently in production and the contacts for this system are:

Table 4 Employee Express Contact List

| TYPE OF CONTACT | NAME | DIVISION/ BRANCH | PHONE | EMAIL |
|---|---|---|---|---|
| Manager of Technical Services Group in Center for Talent Services | Larry Miller | OPM/CTS/TSG | 478-744-2051 | Larry.Miller@opm.gov |
| Point of Contact for Technical Services Group in Center for Talent Services | Rhonda Wood | OPM/CTS/TSG | 478-744-2057 | Rhonda.Wood@opm.gov |

### Integration Guidance

The Technical Services Group within OPM publishes both an EEX Program Overview and Employee Express File Layouts & Requirements.

The Program Overview provides background information and an overview of the product. The document specifically addresses:

- An *overall description* of the program, associated stakeholder groups, users and the user environment
- A *product overview* summarizing its capabilities/features including payroll transactions and document access; technical architecture; system interfaces and interconnections; the data update process; participating payroll centers and agencies; security category; and compatible web browsers
- Attachments including the *Agency Interconnections* and *EEX Data Flow Diagram*[xv]

Essentially the EEX File Layouts & Requirements is an Interface Control Document (ICD). It describes the data requirements and file layouts for the records of various transactions (e.g. Home Address, Direct Deposit, Savings Bond).[xvi]

## System Touch Points

### System Interfaces

The purpose of the Employee Express system is to provide Federal Government employees access to their payroll and benefits information.  Using the system, Federal employees can change their information bypassing the use of paper forms.  The Employee Express system serves as the middle layer that facilitates processing of payroll/benefit information between agency employees and agency payroll/benefit systems.

1. The payroll systems transfer information to Employee Express on a routine basis. The data submitted to EEX is the master copy of the employee's payroll/benefit information.
2. Employee Express takes the payroll system data received and reformats it and loads it into the EEX database.  The data is displayed to the employee as their current information.
3. Employees make changes to the current information shown to them via EEX.  The changes are collected and transferred to the appropriate payroll system on a routine basis.

After the agency processes the change and transfers it to EEX, the employee verifies the action has been processed by the agency.

According to the Employee Express System Overview, the Demilitarized Zone (DMZ) contains the Web systems that comprise EEX and is segmented from the Internet by a firewall. Communication allowed from the Internet through the firewall into the DMZ is limited to only specific ports between known servers.  Connections to other agencies are made through the firewall and DMZ and are listed in **Table 5**.

Table 5 - Agency Interconnections[xvii]

| SYSTEM NAME | OWNER | TYPE OF CONNECTION | CONNECTION TOOL |
|---|---|---|---|
| Denver Data Center | Department of Interior (DOI) | TCP/IP (Direct Line) | Connect Direct |
| National Finance Center | NFC | TCP/IP (VPN) | Connect Direct |
| Combined American Payroll Processing System (CAPPS) | Department of State (DoS) | TCP/IP | Connect Direct |

| Foreign Service Retirement and Disability System (FARADS) | Department of State (DoS) | TCP/IP | Connect Direct |
|---|---|---|---|
| Comprehensive Human Resources Integrated System (CHRIS) | General Services Administration (GSA) | TCP/IP | GSA – FTP (PGP) OPM-Personnel actions (FTP/PGP) Web Service |
| Payroll Accounting and Reporting (PAR) System | General Services Administration (GSA) | TCP/IP | PGP, HTTPS |
| Personnel and Accounting Integrated Data System (PAID) | Department of Veterans Affairs (DVA) | TCP/IP | SFTP |
| National Capital Area Donor Website – Search and Pledge | OPM/CFC/ Global Impact | TCP/IP | Web Service |
| The Work Number | TALX Corporation | TCP/IP | Web Service |
| E-Authentication Website | General Services Administration (GSA) | TCP/IP | HTTPS |
| Worker's Compensation Website | DOL | TCP/IP | Web Service |
| Voluntary Leave Transfer Program (VLTP) | General Services Administration (GSA) | TCP/IP | Web Service |
| Integrated Enterprise Management (IEM) | National Aeronautics and Space Administration (NASA) | TCP/IP | SFTP |

## User Interfaces

Employee Express is a web-based and phone system for active Federal employees and Foreign Service Annuitants to make personnel or payroll changes, and view other miscellaneous personnel or payroll-related information.

The user must enter valid log-on credentials before gaining access to the system. Log-on credentials for new employees are automatically generated and mailed once employee master information is provided by the payroll provider.

End users of the system include Federal employees and help desk customer service representatives.  The Federal employees use the system to make periodic personnel or

benefits changes as needed. The help desk customer service representatives assist calling customers to use the system correctly and report errors to technical staff for resolution.

## Context Diagrams

The Employee Express system is designed to be used in conjunction with existing agency systems, Shared Service Center systems, and certain governmentwide systems. It does not perform all basic personnel and payroll functions. Instead, it allows employees to interface with the existing personnel and payroll systems. The following diagram, Figure 8, shows the system context and interactions of the Employee Express system.
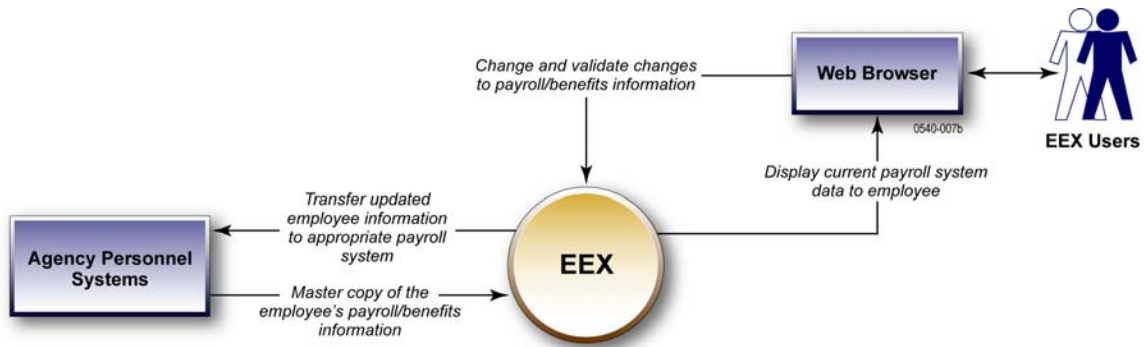
Figure 8 – Employee Express System Context Diagram

## System Data Interfaces

Figure 9 – EEX Data Flow Diagram provides a detailed data flow between the components of EEX.
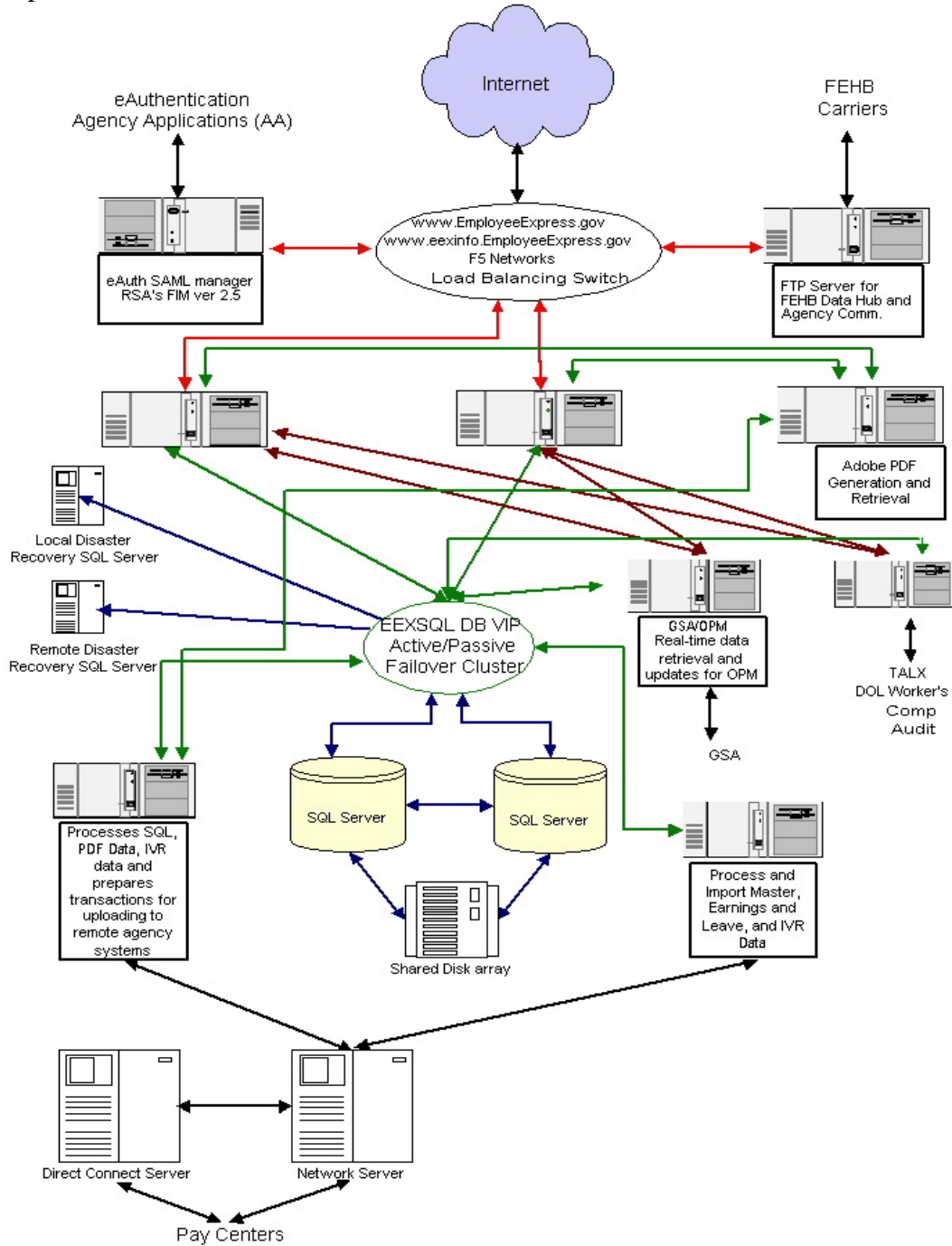


Figure 9 – EEX Data Flow Diagram[xviii]

**System Functionality**

The Employee Express System interfaces with payroll systems and allows employees to make changes electronically via computer or touchtone telephone, thus avoiding the need for paper forms and involvement of human resources personnel.  It has the capability to track an employee's electronic transactions indefinitely.  When an employee separates from an agency, the Employee Express System produces a transcript of FEHB and TSP transactions, and automatically sends it to the address specified for each agency.  The agency needs to file the transcript one time only.  Therefore, the human resources offices that use the Employee Express System do not need to use resources to print and mail documents.

The system is accessible through a web site or an interactive phone system by using a unique user-id and password, which facilitates actions related to:

- Federal/State tax withholdings
- Home, check, and TSP mailing address
- Federal Employee Health Benefits
- Thrift Savings Plan
- Earnings and leave statement and online W-2
- Combined Federal Campaign (with automated pledge reports)
- Password changes and validation
- Direct Deposit
- Savings Bonds
- Financial and discretionary allotments
- Disability update
- Ethnicity and race indicator
- Emergency contact information
- Federal benefits statement

## 5.4 Enterprise Human Resources Integration (EHRI)

### Introduction

EHRI is a collaborative e-Gov initiative designed to transform the way Federal human resource information is accessed and the way Federal employees access their personnel file information.

Conducting workforce planning and analysis on a large scale is particularly challenging today because personnel data is stored on paper within the Official Personnel Folders (OPF), and a subset of that data is stored in multiple legacy systems of varied levels of functionality and integration. When fully implemented, EHRI will replace the current Official Personnel Folder (OPF) with an electronic employee record for all Executive Branch employees, resulting in a comprehensive electronic personnel data repository covering the entire life-cycle of Federal employment.

The major goals of EHRI are to:
- Provide the capability for comprehensive knowledge management and workforce analysis, forecasting, and reporting (to further strategic management of human capital) across the Executive Branch
- Enable expanded electronic exchange of standardized human resources data within and across agencies and systems and the attainment of associated benefits and cost savings
- Provide unification and consistency of HR data across the Executive Branch.

EHRI's e-Gov solution is comprised of three major components supporting these goals:
1. A **central repository** for all Executive Branch employee data
2. An **electronic employee record or electronic Official Personnel Folder (eOPF)** securely accessible to individual Federal employees via EHRI's Portal
3. A set of **analytic tools** to support HR and Federal managers in forecasting human capital requirements, identifying trends, aggregating HR data across agencies, and managing HR knowledge

**Central Repository:** The OPM EHRI Program's Data Warehouse is the government's premier source for integrated Federal workforce information, providing the central repository for all Executive Branch employee data. The system currently collects, integrates and publishes data for 1.8 million Executive Branch employees on a bi-weekly basis, supporting agency and governmentwide analytics.

Benefits of the OPM Data Warehouse include:
- Standardized collection of Federal employee data, reducing the number of data calls made to agencies and providers for common employee data
- Centralized focus on data quality and integration to one system, reducing costs for replicating this work in multiple sources

- Consistent, timely and secure source for other initiatives requiring integrated Federal employee data, such as e-Training
- Integrated reporting across the Federal workforce in addition to capabilities for advanced analysis by agencies and operating units[xix]

As detailed on OPM EHRI Data Warehouse Overview website[xx], components of the OPM Data Warehouse include:

- Standard data interfaces for the collection of human resources (HR), payroll, training and military service deposit data
- Processes that integrate data from these various sources to provide a comprehensive view of the Federal employee's career
- Data-quality reporting framework, including reports available to agencies and providers to identify data errors and inconsistencies with Federal regulations
- Flexible and extensible architecture that allows additional data elements and interfaces to be added to the warehouse to support new business processes
- Core set of standard reports with custom report development capabilities through an industry best-practices reporting and analysis tool
- Workforce planning and analysis and forecasting tools that meet the Federal workforce planning requirements
- Individual employee lookup tool with history across the employee's Federal career
- Secure systems environment that meets Federal data standards and certifications

**Electronic Employee Record or electronic Official Personnel Folder (eOPF):** The Official Personnel Folder (OPF) is a file containing records that cover a civilian Federal employee's employment history. OPM and the agency HR offices use these documents to make decisions about employees' rights, benefits, and entitlements throughout their careers.

The eOPF is an electronic version of the paper OPF, providing Web-enabled access for Federal employees and HR staff to view eOPF documents. Agencies also may provide eOPF access to special investigators, helping to speed the investigation process and save agency resources.

National Archives and Records Administration's (NARA) National Personnel Records Center (NPRC) maintains personnel documents that date back to the mid-nineteenth century including OPFs for Federal civilian employees. OPM is working with NARA's Modern Records Program group to discuss the impact of implementing eOPFs governmentwide and to establish guidance on areas such as disposal, transfer and migration. Recently, the Department of Justice issued a Memorandum for OPM General Counsel declaring OPM's plan to adopt an electronic record-keeping system should not appreciably increase the risk that a personnel record will be deemed inadmissible in a particular court case.[xxi]

The vision of EHRI involves streamlining and automating the exchange of standardized HR data through the implementation of eOPFs across the Federal Government. This facilitates the achievement of a large return on investment for multiple Federal stakeholders. To support expanded electronic government, a fully implemented EHRI solution will:

- Provide Federal Executive Branch employees with direct access to their employment folders online
- Develop a system for the strategic management of human capital through a repository for Federal HR data, standardization of that data, and a suite of analytical tools
- Use an agency partnership model in the development of the EHRI systems; realize efficiencies and eliminate stovepipe systems by creating a centralized record and hosting environment, eliminating paper folders, and reducing the time for record transfer from weeks and months to near real-time
- Save the Federal Government almost $740 million over a 10-year period[xxii]

**Analytic Tools:** In addition to streamlining personnel management actions through its EHRI eOPF, EHRI provides powerful workforce analytic and planning capabilities to improve human capital management across the Federal employee base. These easy-to-use, strategic tools can be accessed by HR specialists, report writers and executives to assess current needs, forecast future requirements, and report on other HR-related issues. They include:

- Business Intelligence (BI)
- Civilian Forecasting System (CIVFORS)
- Workforce Analysis Support System (WASS)

Together, these tools enable a level of strategic human capital planning that has previously been quite difficult to achieve. EHRI users can query workforce data from a variety of perspectives to determine statistical counts, averages, correlation, etc., and conduct workforce planning under a variety of scenarios. Trends can be determined for retirements, promotions, reassignments and other significant personnel actions. It provides access to a civilian personnel data warehouse containing 35 years of historical Federal employee data.

More information regarding all three EHRI components is detailed on the OPM e-Gov EHRI Website.[xxiii]

## Contact Information

OPM is the principal organization which owns Enterprise Human Resources Integration (EHRI), an e-Gov initiative.

EHRI currently is in production and the contacts for this system, as documented in the Guide to Human Resources Reporting Appendix D, are:

Table 7 EHRI and eOPF Contact List

| TYPE OF CONTACT | NAME | DIVISION/ BRANCH | PHONE | EMAIL |
|---|---|---|---|---|
| EHRI Program Director | Matthew Perry | OPM/EHRI | 202-606-1416 | matthew.perry@opm.gov |
| eOPF Project Manager | Elizabeth Anne Martin | OPM/EHRI | 202-606-1553 | elizabeth.martin@opm.gov |
| Analytic Tools Contact | David Williams | OPM/EHRI | 202-606-4892 | david.williams2@opm.gov |

Table 8 Operational Contact List

| TYPE OF CONTACT | NAME | DIVISION/ BRANCH | PHONE | EMAIL |
|---|---|---|---|---|
| OPM Connect: Direct | Mary Heck | OPM/MCFO | 202-606-1436 | mary.heck@opm.gov |

## Integration Guidance

The EHRI Project Management Office (PMO) is experienced not only in eOPF operations and execution, but also with cross-over requirements and integration with other e-Gov initiatives such as e-Payroll.

EHRI assigns a project lead to guide each agency through the electronic conversion process. All aspects of the conversion are jointly managed through the EHRI PMO and the agency. Comprehensive customer support includes:

- National Business Center hosting
- Help Desk service
- Web-based training for HR specialists, eOPF administrators, and employees
- Comprehensive materials to ensure successful deployment
- IT and HR user communities to assist with production support

The EHRI governance structure ensures that its goals and objectives are accomplished with the participation and input from key stakeholders through:

- eOPF Users Group that provides feedback, allows agencies to share experiences and advice, and enables the EHRI PMO to gather and catalog lessons learned
- eOPF Workflow Workgroup that strives to automate HR procedures to improve productivity and eliminate errors

- Change Management Workgroup that identifies ways to enable users to more effectively find and use eOPF implementation resources
- eOPF Requirements Workgroup that identifies and prioritizes changes to the eOPF solution
- Workforce Analysis Users Group that provides feedback, allows agencies to share experiences/lessons learned, and provides advice to develop new and improved analytic techniques to utilize in the human capital planning process[xxiv]

In addition to the direct EHRI PMO support, OPM also publishes several documents including the Guide to Human Resources Reporting (GHRR) and the OPM e-Gov EHRI website. Federal agencies rely on the GHRR document to prepare HR, payroll and training data files. Agencies are responsible for regularly submitting the data files to OPM, and OPM loads the data into its EHRI data repository. Other documents include the eOPF Lessons Learned, eOPF Operational Guidance, eOPF Tips and Tricks, and the eOPF User Guide.

The lessons learned are derived from the experiences accumulated by the EHRI Project Management Office (PMO) and the agencies that have participated in an assessment, conversion or deployment effort of the eOPF application. These lessons learned are meant to provide agencies that are considering, or are in the midst of, an eOPF deployment effort with the information needed to anticipate and prepare for situations that may arise while deploying eOPF. The eOPF lessons learned document is updated on a regular basis as new lessons learned are identified.[xxv]

Chapters 2 thru 7, and appendices A thru D of the GHRR document, provide quick-read information on the file structure for the data files and clear instructions for transferring those files to OPM. Essentially, this guide is an Interface Control Document (ICD), specifying the HR, payroll, training, and military service data requirements and documenting how to correct data exceptions (i.e., errors).[xxvi]

The OPM e-Gov EHRI website contains Frequently Asked Questions from HR specialists and the IT community, EHRI contacts, a master forms list, and other information relevant to the EHRI program.[xxvii]

## System Touch Points

### System Interfaces

As seen in the EHRI system context diagram (Figure 10 – EHRI System Context Diagram) the EHRI interacts with the following systems:

- Agency personnel and payroll systems
- OPM operational systems

The eOPF is a component of EHRI, providing access to the electronic version of the OPF to Federal employees and HR Staff.

### Interfaces with Agency Personnel and Payroll System(s)

The agency personnel/payroll system is responsible for supporting agency HR functions, such as maintaining historical data of current employees, creating and managing personnel actions, and disbursing pay.  The interfaces between the EHRI and agency personnel/payroll systems support the following interactions:

- Provide Personnel and Payroll Data Updates to the EHRI — The agency personnel/payroll system provides updates of personnel and payroll data to the EHRI in recurring data extracts, so that the EHRI accurately reflects employee data, current as of the last pay cycle.
- Provide Data for Transfer and EHRI Data to Gaining Agency — The EHRI provides the necessary Data for Transfer and EHRI data to the gaining agency personnel and payroll system(s), in support of employee transfers between and within agencies. "Data for Transfer" are personnel and payroll data elements required to start processing of a transfer at the gaining agency. This concept is discussed in detail in Deliverable 1.3.1, Catalog of Data Required in the Human Resources Data Network (HRDN).
- Provide Post-Separation Actions From Previous to Current Agency — The EHRI provides post-transfer updates, made by the previous agency to personnel data (e.g., awards) and payroll data (e.g., leave balance adjustments), to the current agency.

### Interfaces with OPM Operational Systems

The RetireEZ initiative is comprised of a collection of systems that support the provisioning of retirement benefits to Federal employees. In addition, several end-user groups (e.g., OPM, OMB, the general public) use specialized reporting systems (e.g., Central Personnel Data File (CPDF), FedScope) to satisfy their analytical reporting needs.  As shown in the EHRI system context diagram (Figure 10 – EHRI System Context Diagram), interfaces between the EHRI and the OPM operational systems support the following interaction:

- Provide Personnel/Payroll Data Updates—The EHRI sends updates of personnel and payroll data to OPM operational systems in recurring data extracts based on payroll cycles, so that these systems accurately reflect employee data current as of the last pay cycle. This information is available to authorized OPM users with access to RSM or appropriate specialized reporting systems.

### User Interfaces

As shown in the EHRI system context diagram (Figure 10 – EHRI System Context Diagram), end users interact with the EHRI via web-enabled applications that enable the viewing of EHRI employee data and provide analytical reporting capabilities.

Following are the web-enabled interactions between employees, agency staff, agency third parties, non-agency third parties and internal EHRI users and the EHRI:

- Provide View of Agency Employee Data Maintained at the EHRI—The EHRI provides personnel specialists with the ability to view, through a web-enabled application, personnel data maintained at the EHRI for their employees. Personnel specialists are able to monitor the quality of the personnel data maintained at the EHRI. If errors are found, corrections are made in the agency's systems, which will, in turn, propagate the corrections to the EHRI through the recurring data extracts.
- Provide View of Agency Employee EHRI Data—The EHRI provides agency managers with the ability to view, through a web-enabled application, appropriate (i.e., consistent with governmentwide security and privacy standards) EHRI data elements for agency employees for which they are responsible.
- Provide View of Employee's Own EHRI Record—The EHRI provides agency employees with the ability to view, through a web-enabled application, their own EHRI record. Agency employees are able to monitor the quality of their own EHRI data.
- Provide Aggregate Data and Analytical Reporting Capabilities—The EHRI provides users of aggregate data and analytics with the ability to access, through a web-enabled application, analytical reporting functionality and data appropriate to the corresponding user group.

## EHRI Functions

As shown in the EHRI system context diagram (Figure 10 – EHRI System Context Diagram), the EHRI supports the following major functions (system scope):

- Receive and Process Personnel/Payroll Extract -- The system has the ability to receive and process personnel/payroll data extracts sent by the agencies at the end of every payroll processing cycle. Processing data extracts entails reconciling, validating, and standardizing the extracts, and applying the corresponding updates to the EHRI repository.
- Maintain EHRI Record for Separated Employees -- The system has the ability to maintain the EHRI record for separated employees. This entails storing an employee's final data, providing authorized users (including former employees) access to it, facilitating appropriate data updates and retroactive additions/corrections to the record, and enabling authorized users to "reclaim" the record if the ex-employee is hired again by a Federal agency.
- Provide Data for Transfer and EHRI Data to Agencies -- The system provides authorized agency users and systems Data for Transfer and EHRI data in the event of a transfer. In conjunction with this process, the EHRI will have the ability to transfer custodianship of employee records from a losing agency to a gaining agency based upon pre-defined business rules.
- Provide Data to OPM Systems -- The system has the ability to compile employee-level data extracts and provide them to OPM systems on a recurring basis.

- Support Reporting and Analytics -- The system  provides governmentwide web-based tools to allow authorized users to view and print standard reports; create, view and print ad-hoc reports; perform analytical processing; and export data from standard and ad-hoc reports into external analytical environments. Agency, OPM, and third-party users will access these data and capabilities in a manner consistent with their user access rights.
- Support Viewing of EHRI Employee Data -- The system provides governmentwide web-based tools to allow authorized users to view employee-level data elements maintained in the EHRI in a manner consistent with their user access rights.
- System Administration -- The system provides the ability for authorized users to perform activities necessary for system administration.
- Data Administration -- The system provides the ability for data administrators to perform activities necessary for data administration. Integration/Conversion Toolkits -- The EHRI provides tools (e.g., standard interface components) to facilitate the integration of agency personnel and payroll systems (e.g., Oracle, PeopleSoft) with the EHRI.[xxviii]

## eOPF Functions

The eOPFs are stored electronically in a secure central repository, with role-based security for access to the records. The eOPF incorporates a comprehensive audit trail for all user activity.  Agencies' HR and payroll systems provide an automated interface with eOPF, and agencies can use the automated business processes to support HR review and approval efforts without paper.  Since the eOPF includes the ability to simultaneously view documents from different sites, it enables the employee and HR specialist to access the records at the same time. The eOPF frees HR resources from filing and pulling paper files to focus on more strategic value added services.

Documents are stored in the PDF format and can be saved and printed. The eOPF is not a vehicle through which documents can be modified. (Information found on SF-50/52s, benefits documents, etc. can be modified/corrected through agency HR systems, Employee Benefits Information Systems, etc.)[xxix]

All eOPFs are organized and stored in accordance with the Guide to Personnel Recordkeeping (GPR). The Guide is available for viewing at www.opm.gov/feddata/persdoc.asp. The eOPF provides a standard electronic solution to replace the paper storage of the OPF, eliminating the need for agencies to file, copy, fax, and mail personnel file documents.  Documents filed in the eOPF include:

- Resume or application for Federal Employment
- Personnel Action Forms (SF-50)
- Military Service Certification (DD-214)
- Health Benefits Form (SF-2809)
- Retirement Beneficiary Form (SF-3102)

- Life Insurance Forms
- Thrift Savings Plan (TSP) Forms[xxx]

The eOPF electronic records are regularly backed-up, and the eOPF provides disaster recovery in any type of continuation of operation situation.


## Context Diagrams

This section presents and describes several EHRI diagrams:

- System Context Diagram – represents the interactions of EHRI with external systems and users
- General Vision – places EHRI at the intersection of Shared Service Centers, e-Gov Systems, and OPM Applications and describes the data exchanges
- E-Gov and HR Lifecycle – sets EHRI in the context of the HR Life cycle and describes data exchanges with other e-Gov initiatives

**System Context Diagram:**  The following diagram (Figure 10) is the EHRI System Context Diagram detailing all the interactions between EHRI and external systems and users.  This diagram describes the system's scope by documenting the interactions between EHRI and external parties (e.g., external systems, end users).
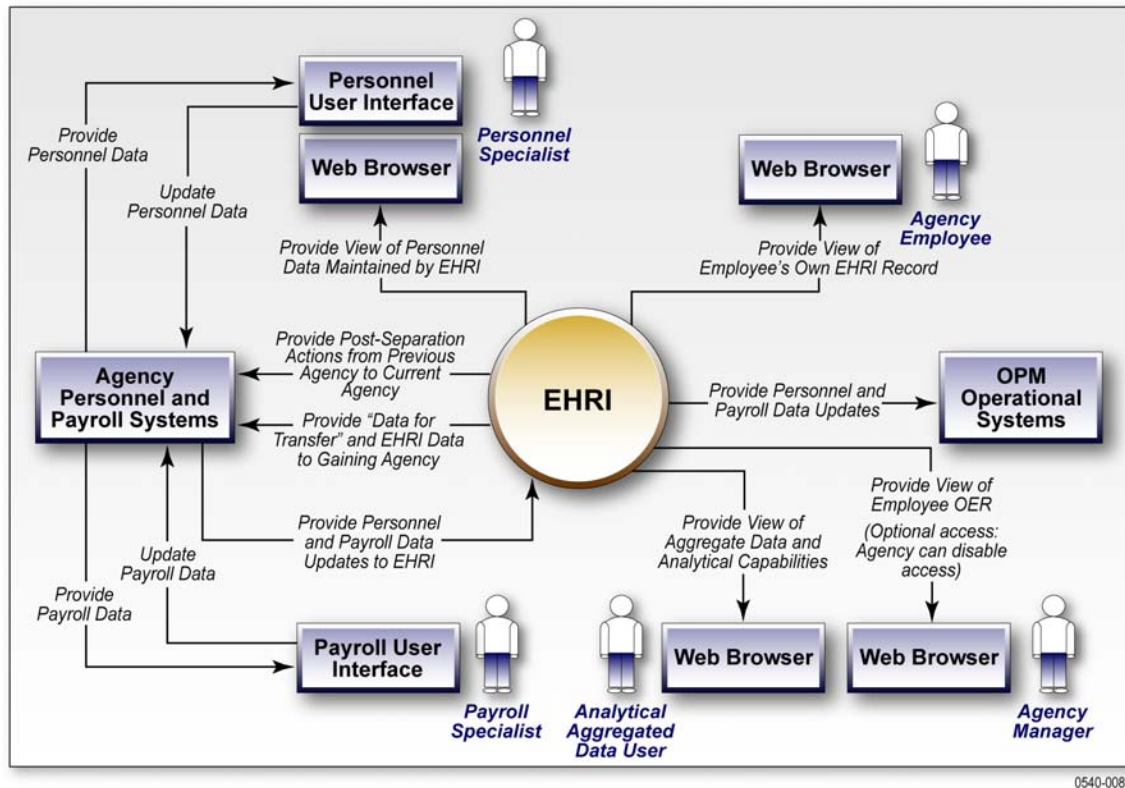


Figure 10 – EHRI System Context Diagram[xxxi]

**General Vision:**  The following figure (Figure 11 – EHRI General Vision) provides an overview of the EHRI Vision showing the general data flows between EHRI and the Shared Service Centers, other e-Gov systems, and OPM applications.
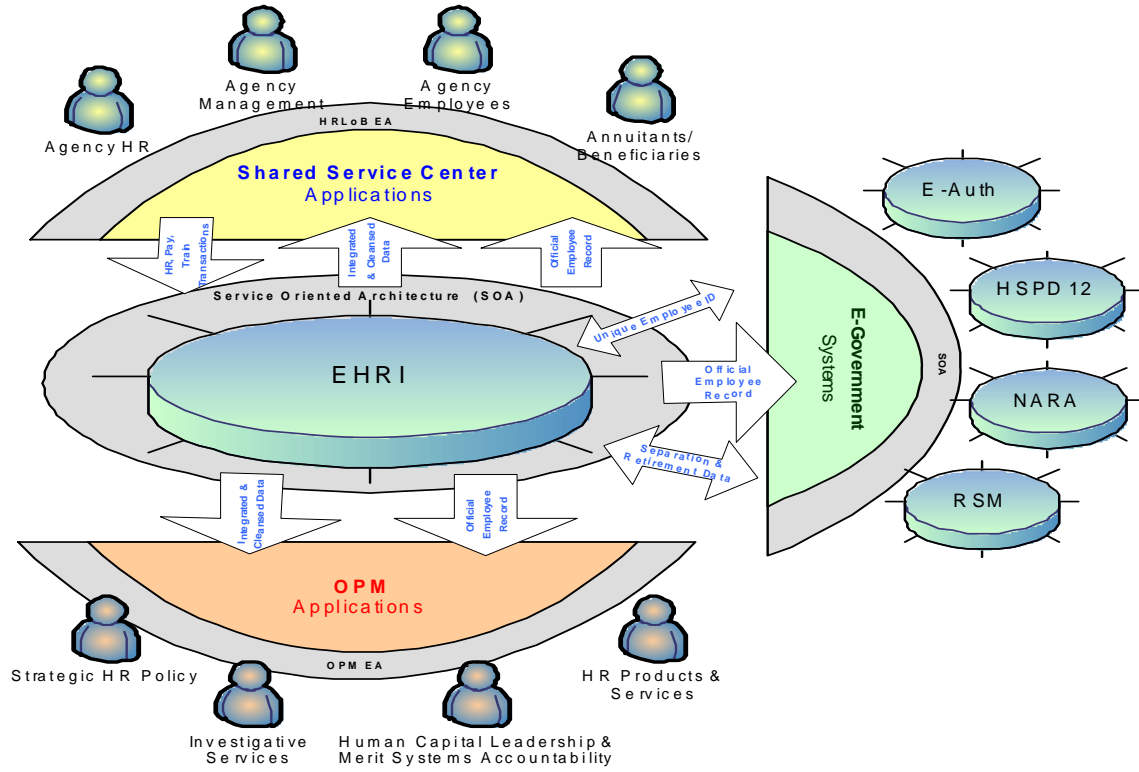


Figure 11 – EHRI General Vision

**EHRI and the HR Lifecycle:**  The following diagram (Figure 12) shows the relationship between EHRI and other e-Gov initiatives in the context of the HR lifecycle.
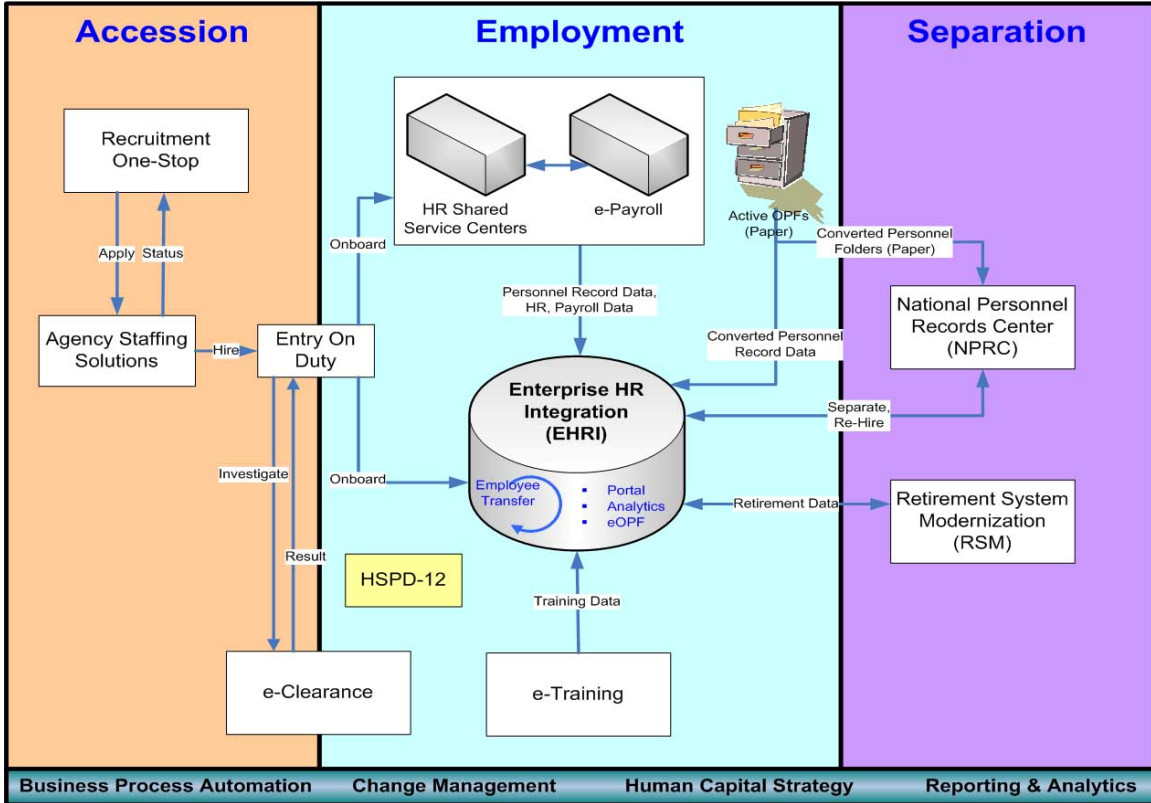


Figure 12 – EHRI and the HR Lifecycle

## System Data Interfaces

The EHRI Application Architecture Overview provides detailed interactions between
EHRI and other external systems and users are shown in Figure 13.
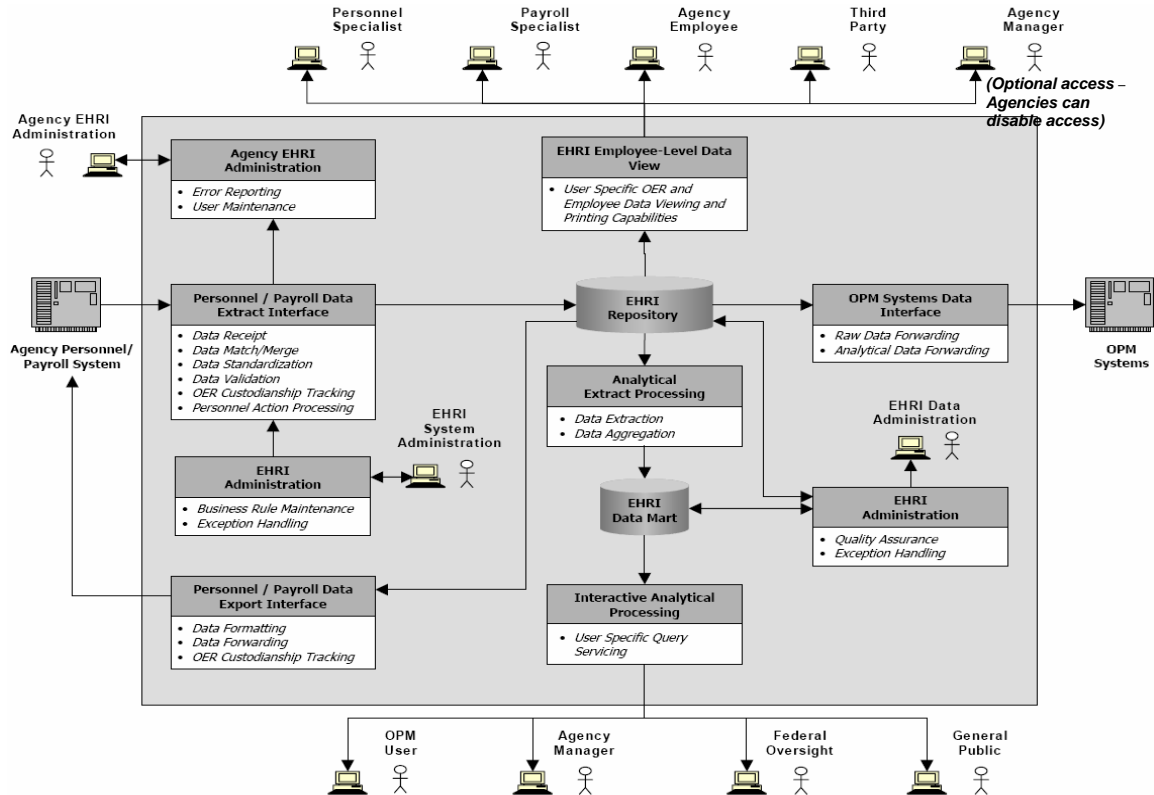


Figure 13 – EHRI Application Architecture View

| DATA INTERFACE | DESCRIPTION |
|---|---|
| Personnel/Payroll Data Extract Interface | Supports the receipt of the agency personnel/payroll extract; the application validates incoming data, standardizes the data, and loads it into the EHRI Data Repository |
| Personnel/Payroll Data Export Interface | Provides agencies with the ability to export data from the EHRI into an agency system, in support of transfers and re-hires |
| EHRI Employee-Level Data View | Provides authorized users with the ability to view the EHRI record of a particular employee, in a manner consistent with user access rights |
| Analytical Extract Processing | Updates the analytical data-mart(s) periodically with aggregate data to support multidimensional processing |
| Interactive Analytical Processing | Supports online analytical processing to support multidimensional data analysis |
| OPM Systems Data | Supplies OPM systems with the data they require to carry out |

| Interface | their functions |
|---|---|
| Agency EHRI Administration | Supports the EHRI system administration and maintenance tasks from the perspective of the agencies, including user maintenance and exception handling |
| EHRI Administration | Supports the EHRI system administration and maintenance tasks from the perspective of EHRI operators, including user maintenance and exception handling |
| Data Administration | Support EHRI data administration and maintenance tasks such as data quality management[xxxii] |

EHRI also publishes a set of interface control files and data warehouse specifications detailing. The interface control files are published in the Guide to Human Resources Reporting FINAL v4.0 which contains the data specifications for the Guide to Human Resources Reporting. In addition to the complete, official GHRR document that contains additional details about data submission requirements, a spreadsheet is published highlighting the data elements that are being requested for each of the file types. Each chapter and/or interface is broken out on a separate tab of this spreadsheet.[xxxiii] The data warehouse specifications detail the data elements and their relationships for training, personnel actions, payroll and employee history data.[xxxiv]

## *5.5 GoLearn*

### Introduction

GoLearn is responsible for deploying eLearning and Training Administration infrastructure across the Federal Government. The core system GoLearn deploys, Learning Management Systems (LMS), allow agencies to manage, track, deliver and report training events and compliance for their staff.

GoLearn has expanded its offerings to provide other human capital systems that integrate with the LMS. Some examples are the LMS integration with Competency Management Systems, Performance Management Systems, content databases, financial systems and HR systems. This has become a critical component in the enterprise, allowing agencies to better manage their human capital.

GoLearn's Mission is to be a catalyst for transforming the way government manages human capital. By effectively and efficiently implementing solutions that align workforce development with organizational goals, GoLearn customers achieve improved mission attainment.

The GoLearn program is housed under the Human Resource Product and Services (HRPS) organization at OPM and reports to the Associate Director. GoLearn is a Federal Program that acts as a liaison between government agencies and the 50-plus vendors under contract. GoLearn coordinates and executes the planning, purchasing, implementation and maintenance of solutions that aid in the development of government's human capital.

The GoLearn program will continue to provide a method for government agencies to obtain e-learning and LMS services in a standardized manner that will support the overall EHRI and human capital objectives of OPM.  It provides comprehensive human capital solutions to assist agencies with each phase of the Human Resource Development Lifecycle.  The program focuses on helping agencies plan strategically for systematic and continuous workforce development. These solutions include:

- **Planning and Strategy Development Services**:
    - GoLearn assists government agencies with developing detailed requirements, constructing implementation strategies, milestones, and other related planning documents.
    - GoLearn coordinates the development and communication of an organization's human capital business case, estimates of cost, analysis and impacts on strategic alignment, as well as change management consulting services.
- **IT Security Services**:
    - The GoLearn Program employs IT Security staff to ensure clients are compliant with NIST, FISMA and other mandated requirements.

- **Project Management Professional Services:**
  - GoLearn provides experienced project-management services to ensure oversight and application of best-practices, lessons-learned and compliance validation for all implementations
  - Over the past eight years, GoLearn Project Managers have implemented some of the largest HCM systems in the Federal Government
- **Acquisition Support Services:**
  - GoLearn provides Contracting Officer, Contracting Officer Representative (COR), and acquisition support
  - Conducts task order competitions and executes contract awards
  - GoLearn financial specialists manage all pre- and post-award processes

**Government Partnerships**

GoLearn bridges the gap between traditional human resource (HR) and information technology (IT) functions to provide cost-effective, standardized, and interoperable solutions. With core functionality, GoLearn assists customers to strategically manage the complexities of human capital.

GoLearn's partnerships extend across all levels of Federal, state and local Governments. Small agencies, as well as enterprise departments, benefit by leveraging GoLearn's experience and cost-effective solutions.  By providing tailored products and services to serve the unique needs of every customer, GoLearn supports the individual needs of organizations, while serving cross governmental goals.[xxxv]

GoLearn's expertise is embedded in its partnerships with:

- 14 of the 15 Cabinet-level departments
- 23 of the 26 OMB Scorecard agencies
- 18 of the 21 large independent agencies

**GoLearn Offerings & Vendor Partners**

GoLearn's expansive Indefinite Delivery Indefinite Quantity (IDIQ) contract provides customers access to 50 of the learning and technology industries' leaders. GoLearn's expertise allows customers to save time and resources. Leveraging GoLearn's services makes it easy for clients to focus on mission critical issues.

## Contact Information
OPM is the principal organization which owns e-Training, an e-Gov initiative.

GoLearn, a part of the e-Training initiative, is currently in production and the contacts for this system are:

Table 9 GoLearn Contact List

| TYPE OF CONTACT | NAME | DIVISION/ BRANCH | PHONE | EMAIL |
|---|---|---|---|---|
| Program Director, GoLearn | Will Peratino | OPM | 202-418-3033 | william.peratino@opm.gov |
| Deputy Director, GoLearn | Fred Frederick | OPM | 202-606-2433 | fred.frederick@opm.gov |
| IT Security Compliance Officer, GoLearn | Shawnetta Davis | OPM | 202-606-8227 | GoLearnSecurity@opm.gov |

## Integration Guidance

OPM publishes a document around System Interconnection/Information Sharing for GoLearn that describes how third-party applications can interact with the LMS. The document lists the different types of interconnection and for each, describes the purpose, security controls, and interconnection details. These details include a Data Flow describing the high-level tasks conducted around the interface between agency and vendor.

## System Touch Points

Third-party applications can interact with the LMS in one of four ways. Each third-party component will fall into one of these four categories:



**1: Hosted – Integrated**
Applications are installed on vendor resources; the third party application and LMS communicate and transfer data via protocols found in Layers 5, 6, 7 of the OSI model

**3: NOT Hosted – Integrated**
Applications are NOT installed on vendor resources; the applications communicate via the Internet using automated TCP/IP protocols to communicate (e.g. FTP, SFTP, and SMTP); protocols found in Layers 1, 2, 3, 4 of the OSI model will be used in this implementation

**2: Hosted – NOT Integrated**
Applications are installed on vendor resources; the third party application and LMS communicate via TCP/IP communications (e.g. FTP, SFTP, and SMTP); protocols found in Layers 1, 2, 3, 4 of the OSI model will be used in this implementation

**4: NOT Hosted- NOT Integrated.**
Applications are not hosted on vendor resources and do not share data with the LMS; there is no data exchange between the two applications
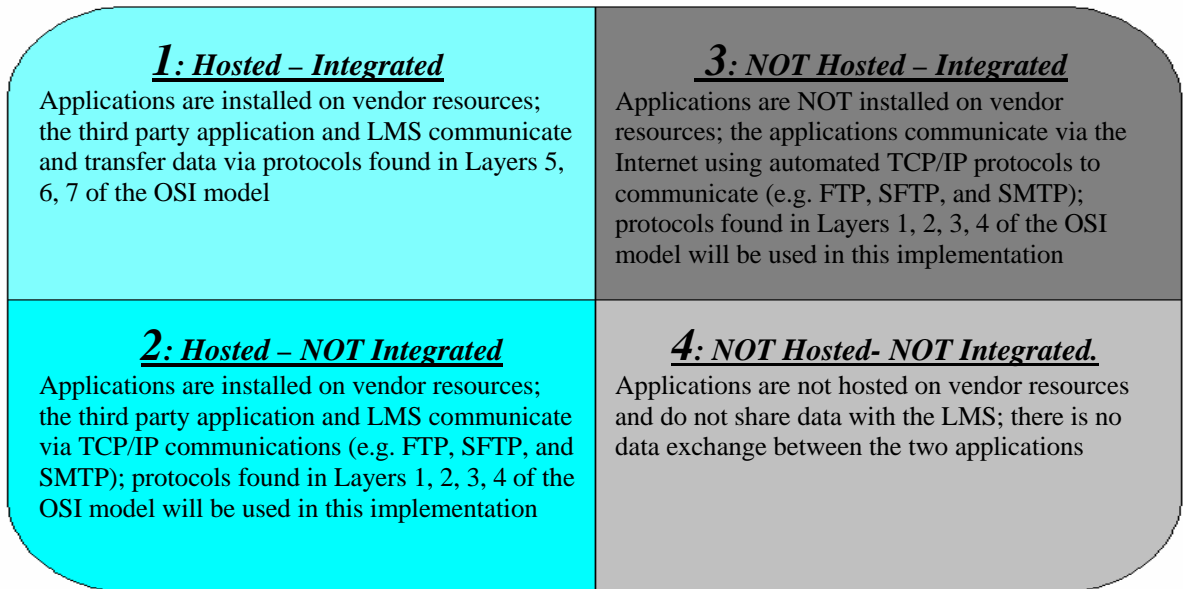
Figure 14 – GoLearn Interconnections

## Connection 1: Agency Data Import to LMS Database

The LMS uses an import process to obtain Federal HR data. This data is used as input to the LMS database.

**Connection 2: EHRI Export**

The Enterprise Human Resources Integration (EHRI) interconnection exports training data to OPM for forwarding to the Office of Management and Budget (OMB) as mandated by the e-Training Initiative. [xxxvi]

## Context Diagrams

The following diagram presents the connections of GoLearn to EHRI and the agency systems.
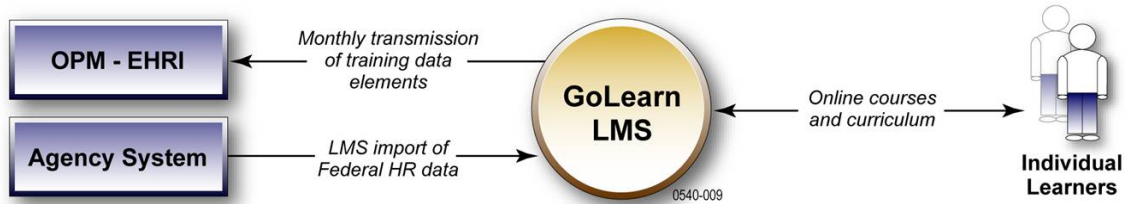


Figure 15 – GoLearn System Context Diagram

## System Data Interfaces

The systems involved in the GoLearn program both produce and consume information about the individual learners using the system.

GoLearn collects data elements from the individual learners or users of the system. These elements include: unique student identifier, social security number, date of birth, salary, gender, race, last update of student record and last update of user ID. Federal client data also is collected by GoLearn via agency systems.

This collected information will be used with GoLearn for a number of applications such as individual learning plans, training and development. Employee training data will be transmitted monthly to OPM's EHRI system for reporting to OMB. Information collected through the GoLearn program also is being used to support e-Learning solutions designed to enhance the capacity of the Federal workforce. Individual learners use information in the system to better align their competencies with the jobs they are assigned to perform or the career paths they choose to pursue. Administrators use information in the system to assure the right individuals receive the training they need to achieve the highest levels of performance. [xxxvii]

## 5.6 USAJOBS®

### Introduction

USAJOBS® is the United States Government's official system and program for Federal jobs and employment information. The USAJOBS® system delivers the service by which Federal agencies meet their legal obligation (5 USC 3327 and 5 USC 3330) to provide public notice of Federal employment opportunities to Federal employees and American citizens. The technology and program operations offer Federal agencies and job seekers a modern platform to support online recruitment and job application.

The USAJOBS® application is a state of the art job-search and online application tool that provides the following services to job seekers:

- Resume Building and Storage of  Job Searches
- Email Search Agent Notification
- On-Line Application
- Application Status Tracking

The application also provides the following service to Federal Agencies:

- Job Posting and Editing
- Applicant Screening tools
- Applicant Management
- Resume Mining
- Integration with Agency Assessment/Management Tools
- Agency Search Integration[xxxviii]

The goals of Recruitment One-Stop are to:

- Provide state-of-the-art on-line recruitment services to job seekers
- Serve as a single application point to streamline the Federal employment application process
- Enhance the government's position as a competitor for top talent
- Improve the effectiveness of the Federal Government's recruiters

To accomplish these goals, the Recruitment One-Stop system will act as a portal for posting job announcements and collecting job applications.[xxxix]

### Contact Information

OPM is the managing partner for the USAJOBS® program. The system implements the goals of the Recruitment One Stop e-Gov initiative.

USAJOBS® is currently in production and the contacts for this system are:

Table 10 - USAJOBS® Contact List

| NAME | POSITION | PHONE | EMAIL |
|---|---|---|---|
| Kimberlyn  Bauhs | Program Director | 202-606-1386 | kim.bauhs@opm.gov |
| Charles C. Conyers | Integration Lead for USAJOBS® | 202-606-0125 | charles.conyers@opm.gov |

## Integration Guidance

USAJOBS® has set goals for integration with the Executive Branch competitive-service agencies.  The goals are to meet the following integration requirements:

- Use USAJOBS® Job Announcement template (100 percent of agencies have met this standard)
- Standard Job Search with USAJOBS® as the source (Agency Specific pages are built – 100 percent agencies met this standard)
- Resume Mining – Feature available 100 percent agencies have access to this feature (selected access controlled by the Program Office)
- Use the USAJOBS® Resume and Resume Builder and the Online Application Process (limited success dependant on assessment system)
- Application History – Provide online status of applications through USAJOBS® - (Less than 50 percent of agencies use this feature)

Standards for integration were agreed upon by the agencies and are tracked and reported via the Performance & Accountability Reports (PAR) and in OPM strategic goals. Other agencies (not under Title 5) elect which services they will avail themselves based on agency needs.

Additional and more detailed information is accessible at:
schemas.monster.com/Current/Extensions/RecruitmentOneStop/

USAJOBS® provides the following services to supported agencies.

- Integration specifications, which detail the approach used to integrate the new USAJOBS® system with existing agency staffing automation systems
- Test environment
- Current release calendar
- Technical assistance
- Active ListServe for questions, discussions, notifications
- Baseline connectivity standards: OPM is the managing partner for USAJOBS®, the system that implements goals of the Recruitment One Stop e-Gov initiative.[xl]

The Recruitment One-Stop Agency Integration Specification provides detailed information necessary for agencies to integrate with Recruitment One-Stop, including: touch points, software architecture, overall pre-integration steps, etc[xli]

## System Touch Points

### External Systems

The Recruitment One-Stop system integrates with agency staffing automation systems.

The general approach taken when determining how to integrate each agency into the Recruitment One-Stop system first requires that the agency's staffing process is categorized. There are two main classifications: the first is an agency that uses an automated system (i.e. USA Staffing® ,Hiring Management, Stars, Taleo, Resumix, Avue, etc.); the second is an agency that uses a manual process.

Agencies that have no automated system will be trained on how to use the USAJOBS® Employer Services application (Web-Based). Agencies using the Web portal require no additional resources and are immediately integrated.

Agencies that have automated systems will use the information contained in this document to integrate with Recruitment One-Stop.

### User Interfaces

End users will interact with USAJOBS® via web-enabled applications to support online posting, recruitment and job application.

Following are the web-enabled interactions between employees, agency staff, agency third parties and non-agency third parties, and USAJOBS®:

- Create user accounts and resumes that can be used to apply for Federal employment

- Provide access for Federal employees (agency HR specialists) and selected contractors to allow them to access the system via a portal that requires password protected access to post and manage job vacancies, create supplemental questionnaires and source candidates for employment consideration on the system

- Provide access for Government program office staff and contractor system administrators and customer support staff to the system to maintain the system and provide services related to user support, automation, data retrieval, system design and enhancements[xlii]

## Context Diagrams

OPM publishes a diagram shown in Figure 25, detailing the information flow over the USAJOBS® Business Gateway (BGW) between USAJOBS® and the Agency Assessment Systems.

# USAJOBS®
# Gateway Boundary

**USAJOBS®**

- Account creation and management
- Job Posting, Editing
- Resume Creation /Storage
- Job Seeker document Storage
- Application Status Updates
- Usage tutorials
- Federal Employment Information

**Information Flow**

**Agency Assessment Systems**

USA Staffing  AVUE  SWIFT  STARS  Resumix

Hiring Management  CHART  E-Recruit  Employment Staffing Solution  Neo-Gov

**Figure 16 – USAJOBS® Gateway Boundary**

## System Data Interfaces

The Recruitment One-Stop system integrates with agency staffing automation systems around standard workflows.

The following diagram depicts the Closed-loop Application Process. In order for an applicant to apply for a job through USAJOBS®, that applicant must create a member account in USAJOBS®. After the member account is created, the applicant will be able to check the status of their application on-line 24 hours a day through the USAJOBS® website.
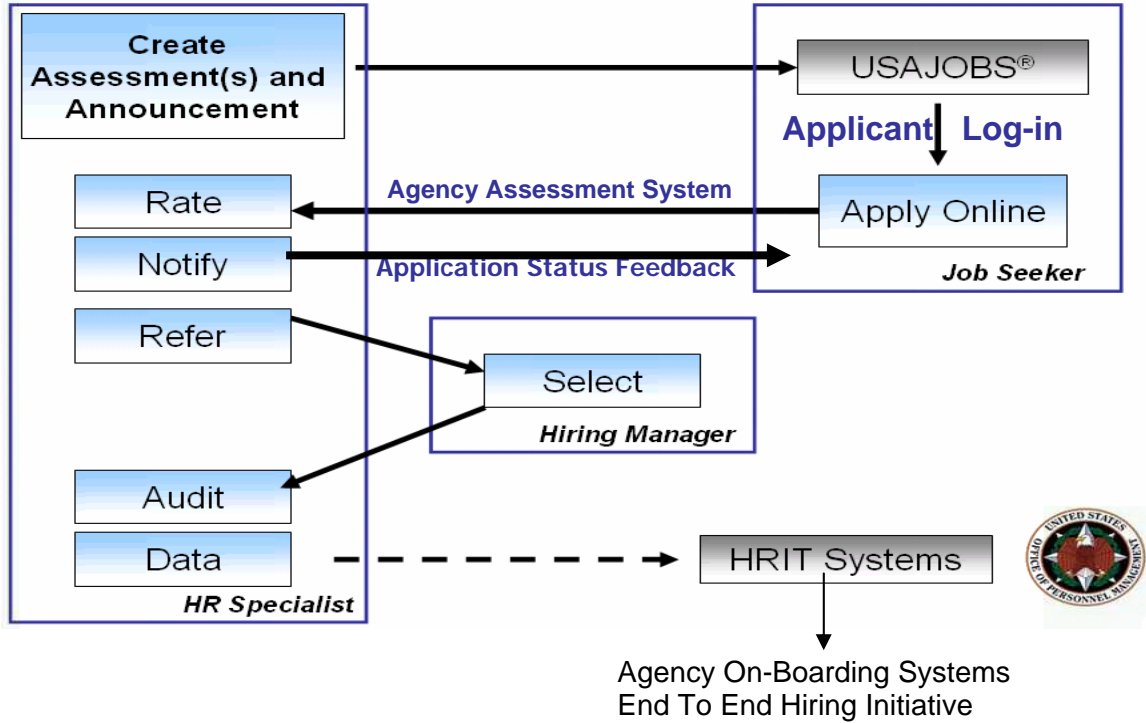
**Figure 17 – Closed-loop Application Process**

OPM has established standardized text for the agency integration options:

A. **USAJOBS® Search Engine** - Customized search within branded agency site leveraging USAJOBS®. ROS can provide an agency-specific look and feel, and some variations in functionality. We encourage agencies to shut down any resume builders they currently have. ROS also can provide custom resume presentation formats for an agency.

B. **Job Posting Integration**

   B1. **Job Upload** - Load a job to USAJOBS® from agency system using the JobAnnouncement XML format.

   B2. **Job Download** - Load a job into agency system from USAJOBS®

C. **Initial Application Integration** - Apply Online integration to agency system.

   C1. **Resume Integration** – Accepting USAJOBS® resume as part of the online application process.

      C2. **Document Integration** – Accepting USAJOBS® resume and applicant document attachments as part of the online application process.

    D. **Applicant Status Update** - Update jobseeker's application status from agency system to USAJOBS®

    E. **USAJOBS® Master Reference Data** - Agency leverages master tables for Occupation codes, CPDF Codes, Location Codes, and any other standardized tables eliminating their need to maintain these tables

    F. (Optional) Migrating existing resume data from agency staffing automation systems to Recruitment One-Stop.[xliii]

Information is collected as required to allow applicants to create user accounts and resumes that can be used to apply for Federal employment. Information includes names, address, social security number, telephone number, email address, citizenship, Federal employment status, veterans preference, education, work experience, salary history, personal and professional references, and additional job related training.

Information also is required of Federal employees (agency HR specialists) and selected contractors to allow them access to the system via a portal that requires password protected access to post and manage job vacancies, create supplemental questionnaires and source candidates for employment consideration on the system. Information required of HR specialists is used to validate their need for access and identity. Information includes name, agency name, email address, telephone number, supervisor name and email address, and supervisor's telephone number.

Other categories of information include Government program office staff and contractor system administrators and customer support staff that require access to the system to maintain the system and provide services related to user support, automation, data retrieval, system design and enhancements. Detailed information and background checks are required.[xliv]

# 6 Conclusion

The Human Resources Line of Business (HR LOB) program has established an HR service delivery strategy that involves consolidation of information technology systems and services and some optional administratively intense business processes at designated HR Shared Service Centers. Core HRIT functionality is being consolidated at these SSCs to standardize and improve service delivery, refocus HR personnel to mission-oriented tasks and activities, and optimize cost savings and efficiencies. SSCs will employ a common, reusable "plug and play" architecture to achieve this result. Additionally, OPM's e-Gov initiatives are consolidating key applications that provide support to various aspects of the HR process life cycle. Consolidation of administrative services at the

agency or SSC level, as well as consolidation of key HR applications and technology, is a positive move toward standardization, economies of scale and responsible government spending.

The HR LOB Enterprise Architecture is frequently cited as one of the best in government today. However, it has not been used as an architectural basis for these systems. Indeed, the integration problems that HR application systems face today stem from the fact that until recently there was no expectation that application systems should be architecturally based or meet basic requirements of interoperability.

Any application consolidation effort without proper integration may improve the application performance but will not provide optimal results and full business benefits. The fundamental purpose of the end-to-end integration, the central focus of this initiative, is to create a heterogeneous environment that behaves as one system. This report is the first step toward that end.

End-to-end integration utilizes a set of reusable practices, tools and services that can be employed in different ways to address specific integration requirements. In today's business environment, end-to-end integration should be addressed as a complex business problem, not just a technology and infrastructure problem. A comprehensive end-to-end integration solution should address all dimensions of integration in a holistic way. It should accommodate:

- Core integration requirements, such as data transformation and routing, business process management, and service component reusability
- An integrated development environment
- Critical supporting platform services such as deployment and management tools
- Adapters and connectors
- Support for important emerging technologies such as XML Web services

A thorough analysis of the current OPM HR applications and data interfaces should continue to be performed to determine end-to-end integration requirements for the HR LOB. The way towards comprehensive end-to-end integration includes the following steps:

**1. Compile Integration Requirements**. The Integration Support Project has moved us through part of the first phase – the Discovery Phase – of the integration methodology. The next main activity of the Discovery Phase is to determine integration requirements that specify how to:

- Leverage current investments and approach around end-to-end integration
- Minimize (eliminate) development of any new "point to point" interfaces
- Streamline and minimize number of interfaces

- – Critical interfaces for key business functionality or consistent with HR LOB strategic initiatives utilizing Industry standards where possible (for example: XML standards)
  - Leverage common generic extracts where possible to capitalize on common data requirements across multiple target/interfacing systems

This activity includes analysis of current HR LOB requirements documents, identifying end-to-end integration requirements, and defining them in terms of their scope, complexity and quality.

**2. Document Guidelines and Standards**. This ISP report provides the current landscape of end-to-end integration in the HR LOB environments. At present, there are no established guidelines and standards for integration and interoperability. Without established guidelines and standards, any solution designed for integration and interoperability will tend to become another "island" of automation.

A GAO publication that reports on OPM's e-Gov initiatives and their implementation challenges states, "Developing a common set of standards that are agreed to and used by all project partners is a key factor for integrating disparate, non-interoperable systems and services. Ensuring that processes are in place by which partners can select and agree upon standards and that all partners are adopting them are key factors in successfully establishing standards." [2]

An integration and interoperability guidelines document will serve as a "building construction code manual" for developing end-to-end integrated solution. This document will consist of integration and interoperability framework, principles, constraints, and assumptions, standards, and best practices for designing end-to-end integration solution.

**3. Define a Conceptual Solution Architecture**. In addition to developing integration requirements, it is essential that conceptual solution architecture for the HR LOB end-to-end integration be developed prior to designing and developing the integration solution. The conceptual solution architecture will identify key constructs for integration (including significant architectural elements such as components and relationships among them) and architectural mechanisms that are designed to address cross-cutting concerns. By focusing on key constructs and abstractions rather than a proliferation of technical details, the conceptual solution architecture provides a useful vehicle for communicating the architecture to the HR LOB executive management, stakeholders, and other users. It will also serve as the starting point for a logical architecture that elaborates the component specifications and architectural mechanisms of the conceptual solution architecture to make the architecture precise and actionable.

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[2] ELECTRONIC GOVERNMENT: Progress and Challenges in Implementing the Office of Personnel Management's Initiatives, Government Accountability Office, September 23, 2003

## Appendix A – Abbreviations and Acronyms

| | |
|---|---|
| ANSI | American National Standards Institute |
| API | Application Program Interface |
| ASCII | American Standard Code for Information Interchange |
| ASP | Active Server Pages |
| BPEL | Business Process Execution Language |
| BRM | Business Reference Model |
| CGI | Common Gateway Interface |
| CGM | Computer Graphics Metafile |
| CONOPS | Concept of Operations |
| COTS | Commercial off the shelf |
| CVS | Clearance Verification System |
| DFAS | Defense Finance and Accounting Service |
| DNS | Domain Name System |
| DoD | Department of Defense |
| DOM | Document Object Model |
| DRM | Data Reference Model |
| DTD | Document Type Definition |
| eOPF | Electronic Offical Personnel Folder |
| E-QIP | Electronic Questionnaires for Investigations Processing |
| EA | Enterprise Architecture |
| EDI | Electronic Data Interchange |
| EJB | Enterprise Java Beans |
| EHRI | Enterprise Human Resources Integration |
| EOD | Entry on Duty |
| ESB | Enterprise Service Bus |
| FBI | Federal Bureau of Investigation |
| FEA | Federal Enterprise Architecture |
| FEAF | Federal Enterprise Architecture Framework |
| FEHB | Federal Employees Health Benefits |
| FIPS | Federal Information Processing Standards |
| FISD | Federal Investigative Services Division |
| FISMA | Federal Information Security Management Act of 2002 |
| FTP | File Transfer Protocol |
| FTS | Fingerprint Transaction System |
| GIF | Graphical Interface Format |
| GSA | General Services Administration |
| GUI | Graphical User Interface |
| HCM | Human Capital Management |
| HFC | Heartland Finance Center |
| HHS | Department of Health and Human Services |
| HR LOB | HR Line of Business |
| HSPD-12 | Homeland Security Presidential Directive |
| HTML | Hypertext Markup Language |

| | |
|---|---|
| HTTP | Hypertext Transfer Protocol |
| IM | Instant Messaging |
| IP | Internet Protocol |
| ISO | International Organization for Standardization |
| ISP | Integration Support Project |
| IT | Information Technology |
| J2EE | Java 2 Platform Enterprise Edition |
| JBI | Java Business Integration |
| JDBC | Java™ Database Connectivity |
| JPAS | Joint Personnel Adjudication System |
| LAN | Local Area Network |
| LDAP | Lightweight Directory Access Protocol |
| LMS | Learning Management System |
| MAESC | Multi-Agency Executive Strategy Committee |
| NBC | National Business Center |
| NFC | National Finance Center |
| NIST | National Institute of Standards and Technology |
| ODA | Open Document Architecture |
| ODBC | Open Database Connectivity |
| OLAP | Online Analytical Processing |
| OLB | Object Language Binding |
| OMG | Object Management Group |
| OMT | Object Modeling Techniques |
| OPF | Official Personnel Folder |
| OPIS | OPM PIPS Imaging System |
| OPM | Office of Personnel Management |
| OSE | Open Systems Environment |
| OSF | Open Software Foundation |
| OSI | Open Systems Interconnection |
| PAR | Performance & Accountability Reports |
| PDF | Portable Document Format |
| PIN | Personal Identification Number |
| PIPS | Personnel Investigations Processing System |
| PKI | Public Key Infrastructure |
| PRM | Performance Reference Model |
| PSTN | Public Switched Telephone Network |
| RDF | Resource Description Framework |
| RPC | Remote Procedure Call |
| RTF | Rich Text Format |
| SCM | Service Component Model |
| SII | Security/Suitability Investigations Index |
| SOA | Service Oriented Architecture |
| SOAP | Simple Object Access Protocol |
| SP | Standards Profile |
| SQL | Structured Query Language |

| | |
|---|---|
| SRM | Service Reference Model |
| SSC | Shared Service Center |
| SSL | Secure Sockets Layer |
| TCP | Transmission Control Protocol |
| TM | Technical Model |
| TRM | Technology Reference Model |
| TSP | Thrift Savings Plan |
| UDDI | Universal Description, Discovery, and Integration |
| UML | Unified Modeling Language |
| URL | Uniform Resource Locator |
| VPN | Virtual Private Network |
| WAN | Wide Area Network |
| W3C | World Wide Web Consortium |
| WSDL | Web Services Definition Language |
| WWW | World Wide Web |
| XHTML | Extensible Hypertext Markup Language |
| XMI | XML Metadata Interchange |
| XML | Extensible Markup Language |
| XMLA | XML for Analysis |

# Appendix B – References

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