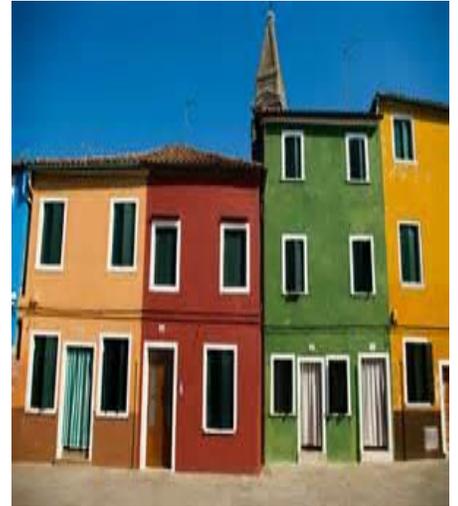




Department of Housing and Urban Development



Information Resource Management (IRM)

Strategic Plan Update – May 2015

FY2014 – FY2018



A MESSAGE FROM THE CHIEF INFORMATION OFFICER

The mission and vision of the OCIO aligns with HUD's mission, goals, and objectives. The CIO provides management advice and assistance to the Secretary of HUD and to other senior staff on information resources, investments, and operations. The CIO promotes a shared corporate vision about the Department's information activities and provides services to effectively manage information and provide value-added enterprise-wide systems and infrastructure.

As information technology (IT) continues to reshape our world, the U.S. Department of Housing and Urban Development (HUD) is focus on exceeding the expectations of the citizens we serve. First, and foremost we work to keep up with IT industry trends. A major element is the knowledge of tools and techniques that are evolving in the industry, which allows us to take advantage of new opportunities for service value. It is paramount that we use technology to the fullest, not for its own sake but to better serve our citizens, giving them the tools and information they need to access HUD services quickly and easily. Finally, we must continue to promote public trust by making that information secure and by guarding citizen privacy in every transaction they make with us.

This Information Resource Management (IRM) Strategic Plan provides a well-defined strategy and priorities to guide the architecture, investment, implementation, and management of IT throughout HUD in support of the Department's mission. It provides a foundation on which IT will be applied to support the Department's business operations. At HUD, we have defined where we are and where we need to go in providing our citizens high quality service in assisting them in reaching their goals. We have committed ourselves to new ways of fundamentally transforming how HUD conducts business and empowers our customer citizens.

Rafael Diaz,
Chief Information Officer
U.S. Department of Housing and Urban Development

EXECUTIVE SUMMARY

The Department of Housing and Urban Development held a series of strategic planning sessions in 2013 to identify key goals for Information Resource Management Strategic Planning at HUD. In 2014, HUD executed activities to meet the strategic goals and objectives of this plan. 2015, HUD reviewed progress, collected lessons learned, and updated the plan to meet the mission.

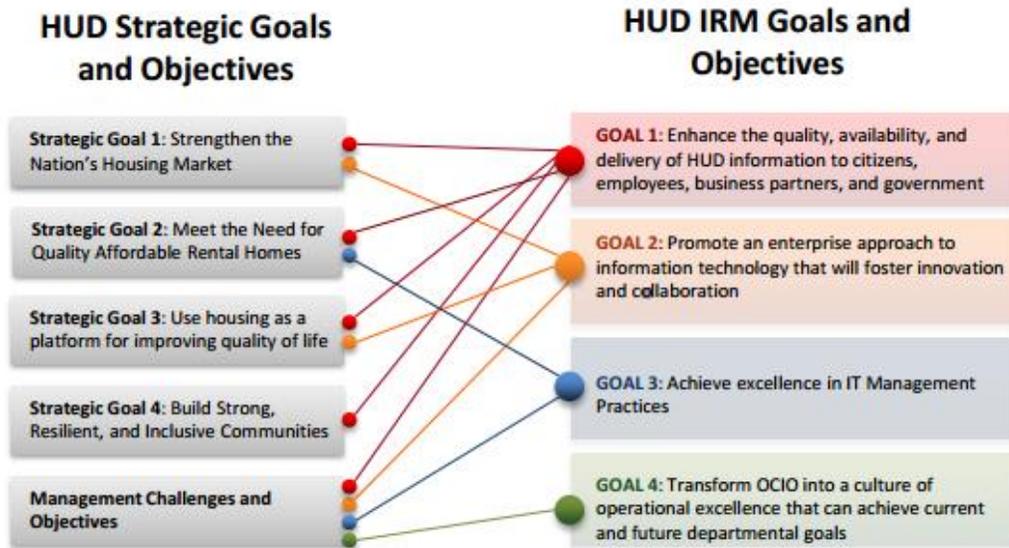


Figure No. 1 – Alignment of HUD Goals with IRM Goals

Goal 1, enhancing the quality, availability, and delivery of HUD information to citizens directly supports the business of implementing HUD’s mission. These goals comprise initiatives that are structured to interact directly with HUD’s stakeholders to increase the effectiveness of service delivery.

Goal 4, transforming OCIO into a culture of operational excellence indirectly supports HUD’s mission, by providing an increased quality and security to the information used by HUD and its stakeholders, directly supports the achievement of HUD’s management challenges and objectives. This alignment is discussed more in appendix A-1.

This IRM strategic plan provides objectives and initiatives for each of the four IRM goals. The majority of the supporting objectives are presented in more detail in the HUD Enterprise Roadmap. Several key considerations that underline this plan and the Enterprise Architecture Roadmap are the following:

- 25-Point Implementation Plan to Reform Federal Information Technology Management – December 9, 2010 – OMB
- Computer Matching and Privacy Protection Act, as amended (P.L.100-503)
- Destruction of Records (18 U.S.C. 2071)
- Disposal of Records (44 U.S.C. Chapter 33).
- Electronic Communications Privacy Act (18 U.S.C. 2701-2707)



- Federal Acquisition Regulations (P.L. 103-3553).
- Federal Cloud Computing Strategy – February 8, 2011 – OMB
- Freedom of Information Act, as amended (5 U.S.C. 552)
- Federal Information Security Management Act (FISMA) of 2002 (44 U.S.C. 3541)
- Government Performance and Results Act (31 U.S.C. 1101)
- High-Performance Computing Act (15 U.S.C. 5501)
- Office of Management and Budget (OMB) Circular A-130
- Privacy Act, as amended (5 U.S.C. 552a)
- Records Management by Federal Agencies (44 U.S.C. Chapter 31).
- The Government Performance Results Act of 1993
- The Federal Enterprise Architecture
- The Open Government Initiative
- The Government Paperwork Elimination Act (GPEA) of 1988 – Amended (44 U.S.C. Chapter 35)
- The E-Government Act of 2002
- The Clinger-Cohen Act of 1996 (Division E of P.L. 104-106)
- Executive Order – March 19, 2015 – Planning for Federal Sustainability in the Next Decade
- Executive Order – February 13, 2015 -- Promoting Private Sector Cybersecurity in Information Sharing
- Executive Order – October 17, 2014 -- Improving the Security of Consumer Financial Transactions
- Executive Order – May 9, 2013 -- Making Open and Machine Readable the New Default for Government Information
- Executive Order – February 12, 2013 -- Improving Critical Infrastructure Cybersecurity
- Executive Order – 31616 – August 2013 -- Accelerating Broadband Infrastructure Deployment
- Executive Order – May 10, 2012 -- Identifying and Reducing Regulatory Burdens
- Executive Order – March 22, 2012 -- Improving Performance of Federal Permitting and Review of Infrastructure Projects
- Executive Order – 13576 – June 13, 2011 -- Delivering an Efficient, Effective and Accountable
- Executive Order – 13571 – April 27, 2011 – Streamlining Service Delivery and Customer Service
- Executive Order -- 12656, Assignment of Emergency Preparedness Responsibilities, as amended by Executive Order -- 13074, Amendment to Executive Order 12656.
- Executive Order -- 12845, Requiring Agencies to Purchase Energy Efficient Computer Equipment.
- Executive Order -- 13011, Federal Information Technology.
- Section 508 of the Rehabilitation Act (29 U.S.C. 794d)
- OMB Circular A-11, Preparation and Submission of Budget Estimates, as amended.
- OMB Circular A-16, Coordination of Surveying, Mapping, and Related Spatial Data Activities.
- OMB Circular A-76, Performance of Commercial Activities, as amended.
- OMB Circular A-123, Management Accountability and Control, as amended.
- OMB Circular A-127, Financial Management Systems, as amended.
- OMB Circular A-130, Management of Federal Information Resources.
- OMB Circular A-131, Value Engineering.
- OMB – May 23, 2013 -- "Digital Strategy: Delivering Better Results for the Public"
- OMB-M-13-09 – March 27, 2013 -- Fiscal Year 2013 PortfolioStat Guidance: Strengthening Federal IT Portfolio Management



- OMB – March 19, 2012 – Implementation Guidance for the Federal Data Center Consolidation Initiative (FDDCI)
- OMB – December 8, 2011 – Security Authorization of Information Systems in Cloud Computing
- OMB-M-11-29 – August 8, 2011 – Chief Information Officer Authorities
- 5 CFR Part 1320, Control of Paperwork Burdens on the Public.
- 36 CFR 1220-1238, Records Management.

This plan does not yet cover requirements of the Federal Information Technology Acquisition Reform Act (FITARA), which was signed in December 2014. FITARA gives agency CIOs enhanced decision-making authority over programming and over the budgeting of IT acquisitions, including approval of the IT portions of annual Congressional budget submissions. It also gives CIOs approval authority for IT contracts and for any reprogramming of IT funds. HUD is awaiting publication of OMB implementation guidance, expected in April 2016, and is evaluating how best to implement FITARA's major requirements.



Contents

A MESSAGE FROM THE CHIEF INFORMATION OFFICER	2
EXECUTIVE SUMMARY	3
ABOUT HUD OFFICE OF THE CHIEF INFORMATION OFFICER.....	7
OCIO Mission	7
HUD Vision for Information Services and Technology.....	7
OCIO's Guiding Principles.....	7
HUD'S INFORMATION TECHNOLOGY GOALS.....	10
GOAL 1: ENHANCE THE QUALITY, AVAILABILITY, AND DELIVERY OF HUD INFORMATION TO CITIZENS, EMPLOYEES, BUSINESS PARTNERS, AND GOVERNMENT	10
HUD'S INFORMATION TECHNOLOGY GOALS.....	16
GOAL 2: PROMOTE AN ENTERPRISE APPROACH TO INFORMATION TECHNOLOGY THAT WILL FOSTER INNOVATION AND COLLABORATION	16
HUD'S INFORMATION TECHNOLOGY GOALS.....	20
GOAL 3: ACHIEVE EXCELLENCE IN IT MANAGEMENT PRACTICES.....	20
HUD'S INFORMATION TECHNOLOGY GOALS.....	25
GOAL 4: TRANSFORM OCIO TO A CULTURE OF OPERATIONAL EXCELLENCE THAT CAN ACHIEVE CURRENT AND FUTURE DEPARTMENTAL GOALS	25
APPENDICES	30
A-1 Alignment to HUD Strategic Goals	30
A-2 Alignment to HUD Strategic Goals	37
A-3 Governance and Management Processes.....	39
A-4 CIO Authorities.....	41
A-5 Cybersecurity Management.....	44
A-6 Workforce	50
A-7 Managing Information as an Asset	51
A-8 Commodity IT and Shared Services.....	56
A-9 Accessibility.....	60



ABOUT HUD OFFICE OF THE CHIEF INFORMATION OFFICER

The Office of the Chief Information Officer (OCIO) provides information technology (IT) support to facilitate HUD's goal of promoting fair and affordable housing and community development. We do this by making critical information available to HUD business partners and customers, and producing innovative IT services. OCIO helps the Department establish sound IT investments and implement effective IT management. We leverage technology to facilitate improvements and efficiencies in business processes, and to strengthen HUD's knowledge, skills, and ability to use and manage information resources effectively.

Our organization is customer-oriented and results-driven. We are committed to providing user-friendly IT solutions, and work to ensure that our systems and networks remain virus-free and highly secure, protecting our data, our users, and the beneficiaries of HUD's programs. Through our Enterprise Architecture initiative, we are streamlining the technology infrastructure that powers HUD, making it more responsive and cohesive, and increasing its value.

OCIO Mission

- To enable delivery of HUD programs, services, and management processes by providing high-quality information, technology solutions, and services.

HUD Vision for Information Services and Technology

- All HUD customers will have modern information services and technology that are secure, accessible, and cost effective; meet their needs; and exceed their expectations.

OCIO's Guiding Principles

- **Customer Focused** - Develop a service culture and organizational norm where OCIO staff relentlessly serves the HUD mission.
- **Limited, but Known Assets** - Leverage the Federal Service First strategy to deploy the use of modern services rather than owning assets.
- **Enabled Workforce** - Create a clearer mode of operations within OCIO so staff knows their roles and can be empowered.
- **Managed with Precision** - Create an understanding of the true costs to deliver IT services and quantify the satisfaction of OCIO's customers.

In 2014, the Office of the Chief Information Officer (OCIO) met with key Departmental stakeholders to get feedback on their assessment of the HUD IT Program. As a result, HUD OCIO has announced several strategic initiatives under a common framework known as HUD Organizational Assessment, Strategies, and Performance (ASaP). The following describes the key ASaP initiatives:

HUD Enterprise and Architectural Transformation (HEAT) - HEAT is a strategic initiative to transition HUD's legacy IT infrastructure to a new state that is manageable, cost-effective, leveraging strategic technology sources, and better meets the needs of HUD programs and missions. HEAT will provide an agile, responsive, transparent, effective, and efficient IT infrastructure for the Department. The desired outcome is to create a modernized technical solution that is responsive, agile, transparent, and cost effective to deliver service to our customers. The primary vision and objective of the HEAT program is to develop an improved IT infrastructure services framework, using ITSM principles, that meets the current and anticipated mission needs for all of HUD's programs and stakeholders while attaining maximum flexibility and agility.



Mobility and Wireless Technology - The Mobility and Wireless Technology Strategy is designed to identify the mission needs for mobile and wireless technology throughout the agency. Information collected by this team will be used to develop the OCIO technology vision to support a mobile workforce that needs to have HUD access “anywhere, anytime, on any device”. Through this initiative, HUD will develop applications and capabilities allowing Field staff to access data and information in real time. Objectives for this initiative include: 1) HUD access “anywhere, anytime, on any device” 2) Wireless connectivity and mobile devices available for Region VII 3) Up-to-date mobile devices for the workforce; 4) Better wireless capability at HQ.

Regional Office Support and Collaboration - The Field and Regional Office Strategy is designed to identify opportunities to adopt HUD enterprise-wide initiatives and improve the delivery and consumption of IT services. Assess IT service delivery strategies, security, costs, and interfaces that ensure the adoption of enterprise-wide technologies and processes to achieve the strategic direction set by the President, the Secretary and the HUD Chief Information Officer. IT focus areas include but are not limited to the following: 1) HEAT Field Office impact and adoption strategies; 2) HQ/Field Office com./coordination strategies; 3) Field Office federated services adoption strategies; 4) Field Office budget planning and execution strategies; 5) Field Office awareness and consumption of HQ services.

Digital Strategies - To provide world-class digital services, HUD must address both the User Portal and Partner Relationship Management challenges by providing simplified, intuitive access to services and improving business partner management capabilities. Through its Digital Services Strategy, the Department will accelerate development of an enterprise portal architecture based on a benefit centric view of services. In addition, effective partner relationship management requires enterprise insight and control of partner/user accounts. Objectives include: 1) Accelerated Enterprise Portal Architecture development; 2) Simplified system access for users through improved identity, credential and access management; 3) Customer relationship management, business process standardization, and system consolidation; 4) Increased data sharing.

Digital Branding - The Digital Branding Strategy is designed to identify the best channels and mechanisms to communicate IT strategic efforts. This initiative ensures good communication with OCIO staff, customers, and stakeholders and is part of IT project plans and strategies. In addition, the Digital Branding initiative works with the Office of Public Affairs to ensure that OCIO communication strategies are coordinated with agency-wide communication efforts. Digital Branding will enable OCIO to be viewed as a customer driven organization.

IT Workforce Alignment - The IT Workforce Improvement Strategy is designed to position the OCIO workforce to deliver on the strategies, goals, and promises of the organization. The team will be looking at issues such as staff training and recognition, hiring strategies, workforce communication, and ultimately what the OCIO organization and staff need to look like in order to support its vision and goals. The target state of this initiative will provide HUD the ability to structure, recruit, and retain a skilled and engaged workforce who enable the missions and are empowered to make things happen. Target objectives include: 1) Create a hiring and training plan to address workforce gaps/needs; 2) Determine the IT workforce technology needs; e) Set clear expectations rewarding innovation without punishing mistakes; 4) Establish a recognition program and nonmonetary incentive plan; 5) Create an improved awareness of HUD IT and the OCIO; 6) Improve engagement by providing increased awareness of the HUD mission.

Service Management - In support of the maturation of the IT management practice within HUD, the IT Service Management initiative will develop products and process improvements for IT project



HUD Information Resource Management Strategic Plan

management and customer coordination including Service Catalog, Integrated Governance, Standard Operating Procedures, Service Level Agreements, Service Communications Plan, and Service Utilization Coaching Program. HUD plans to implement industry best practices on Information Technology Service Management (ITSM) or IT services for its IT Infrastructure Modernization effort. HUD plans to leverage the Information Technology Infrastructure Library (ITIL) as the set of best practices for ITSM that will focus on aligning IT services with the needs of business. ITIL provides standard procedures, tasks, and checklists that can be used by HUD and its vendors to establish a minimum level of competency and establish a baseline from which it can plan, implement, and measure IT infrastructure improvements.



HUD'S INFORMATION TECHNOLOGY GOALS

GOAL 1: ENHANCE THE QUALITY, AVAILABILITY, AND DELIVERY OF HUD INFORMATION TO CITIZENS, EMPLOYEES, BUSINESS PARTNERS, AND GOVERNMENT

OBJECTIVES

Provide an intuitive one-stop solution to quickly and reliably deliver information for public access.

Leverage web services to conduct business reliably and securely with customers and stakeholders.

Provide technologies enabling HUD employees to work collaboratively and share knowledge.

INITIATIVES

Access-to-Credit

While the mortgage market has slowly recovered from the housing market collapse, the turnaround has been very uneven. While borrowers with perfect credit and high incomes are able to easily access the mortgage market, millions of borrowers who have impaired credit, and minorities and low-income borrowers have been effectively shut out of the market. There are a number of drivers for the uneven recovery, but the biggest driver is what the industry labels "credit overlays". Credit overlays occur when lenders use more strict requirements than those that are in FHA's guidelines.

Responsible access to credit is critical for growing and strengthening the middle class. HUD is taking steps to ensure qualified borrowers, especially first-time buyers, have an opportunity to purchase a home. This is being accomplished by encouraging Housing Counseling, establishing clear quality assurance and risk policies so lenders can provide access to mortgage credit without fear of unanticipated consequences, and avoiding unsound lending practices by building reforms to support safe, responsible lending.

With help from the White House, HUD has been working with external partners and stakeholders to develop the appropriate solutions that will help clarify guidelines, making it more attractive to lend to Americans who are currently being left out of the market. The solutions include: Loan Quality Assessment, Supplemental Performance Metric, FHA Handbook, and Housing Counseling. These initiatives are being closely monitored and tracked by the President, OMB, NEC, Treasury and SOHUD. Using a phased approach, the following are projects considered for implementation:

- **Housing Policy Handbook improvements** (Phase 1 and 2) including consolidation of over 900 policy documents, clarification of rules, elimination of conflicting guidance, and introduction. Establishment of a single authoritative



rule-set which currently spans multiple IT systems. Ultimately, this will allow lenders to more easily quantify the risk of extending credit to borrowers. Enhancement to existing systems to implement a reconciled set of guidelines for all aspects of FHA's single-family programs. It will establish a single authoritative rule-set which currently spans multiple IT systems.

- **Supplemental Performance Metrics/Blueprint for Access** - Lender Performance Management improvements including the introduction of new performance metrics for the Neighborhood Watch to better align lender incentives to serve FHA borrowers.

Core Financial Services

HUD's New Core Financial Services initiative aims to implement a consistent, common enterprise-wide, OMB Circular A-127 compliant financial system using shared services provided by the Bureau of Public Debt (BPD). This initiative was formerly called the HUD Integrated Financial Management Improvement Project (HIFMIP), whose goal was to deploy a new Integrated Core Financial System (ICSF) Commercial-off-the Shelf (COTS) solution. The goal of HUD's New Core Initiative is to transform HUD's core financial management processes and systems to improve the financial information accuracy to and better support HUD's decision making. The New Core Initiative will provide HUD with a modern, compliant, integrated core financial system that will summarize financial data, control funds, prepare annual financial statements, and meet all internal and external reporting requirements.

In addition, the New Core initiative aims to modernize the Department's financial systems that will allow HUD to: 1) Leverage production-proven shared service with 30 Federal customers; 2) Be the first cabinet-level agency to use the Software as a Service (SaaS) model; 3) Leverage existing functionality Federal Financial Services Platform solution; 4) Shift focus of the OCFO staff activities to analyzing financial assets across HUD; 5) Implement system improvements in response to audit findings; and 6) Resolve management challenges and program deficiencies identified by GAO. This initiative will move the financial segment toward HUD Strategic Goal 5 by transforming the way HUD performs financial functions.

Federal Housing Administration Transformation (FHA) Modernization

FHA is responsible for making homeownership more accessible to the lower-income American public by insuring lenders against higher-risk loans (such as to new homeowners). The FHA Transformation Initiative's goal is to leverage a modern information technology platform to better manage and mitigate risk across all of FHA's Insurance Programs. Specifically, FHA Transformation will enable risk detection and fraud prevention by capturing critical data points at the front-end of the loan life cycle and leveraging the industry standard risk and fraud tools and services, rules-based technology, and transactional controls to minimize exposure to FHA's Insurance Funds. This will protect consumers and



support the housing market by ensuring that underwriting standards are adhered to.

This FHA Modernization effort will enable HUD to achieve the following goals: 1) Detect and prevent fraud, waste and abuse by lenders and borrowers; 2) Modernize 40-year old FHA systems and processes; 3) Manage credit risk prudently at both the portfolio and loan level; 4) Respond to rapidly changing market conditions; 5) Strengthen the solvency of the insurance fund; and 6) Reduce the risk of foreclosure by identifying fraud and abuse in the FHA Portfolio.

HEARTH Act Implementation (eGrants Management)

The management of HUD grants is an essential component to carrying out the HUD mission. Annually, the Office of Community Planning and Development (CPD) administer \$5-6 billion in formula, competitive, and block grants for homeless assistance, disaster recovery, affordable housing, and development projects in neighborhoods and communities across the nation. The HEARTH/eGrants Initiative continues to improve systems that automate and standardize all HUD grant processes; thus reducing time-to-award and enabling data-driven decisions. The system will support future Homeless Emergency and Rapid Transition to Housing Act competitions; reduce data entry costs; eliminate the manual review of paper applications/contracts; reduce the paperwork burden on the public; reduce the time to award; and enable data-driven decisions.

Housing Counseling SMART Platform

Implementation of an integrated Housing Counseling SMART Platform serving multiple functions including grant management, business intelligence reporting, and public awareness. Retirement of the legacy Housing Counseling System. This includes the Housing Mobile application that has been launched and updates to this platform and application.

HUD Place-Based Performance Management System (HUDStat)

HUDStat is the IT System that supports the Performance Management Review process. It has been a major catalyst for data quality improvement across the department over the past three years. HUDStat has been increasing executive and managerial engagement by providing performance data on a regular basis to inform decision making. This effort involves continued maturity to ensure transparent reporting of HUD's expenditures and results by geography area, enabling improved alignment of budgeting and resource allocation. This system is resulting in more timely performance information and increased accuracy and consistency of program data leading to greatly improved data quality, and increased confidence about timely, reliable, and useful information for oversight and decision-making.

Next Generation Management System (NGMS)



The NGMS Initiative spans multiple Program Areas to modernize aging systems and provide functionality where it did not previously exist. Initially, in 2010, the Department invested in the IT infrastructure of one of HUD's largest programs – Housing Choice Vouchers (HCV). Later, in 2012, the scope of NGMS was expanded to include the Public Housing program. In the future, NGMS will expand further to other programmatic areas, including Multifamily Housing and the Office of Native American Programs. Through the development of IT solutions for process automation, HUD personnel will be able to more efficiently ensure program compliance; create and utilize budgets and financial data more appropriately and with less manual processes; more effectively assess risk of our partner institutions; reduce the frequency of improper payment errors by identifying operating costs, reserves, and subsidy payment anomalies; and improve budget forecasting and disbursement of funds for Housing Choice Vouchers in Phase I. Once implemented, NGMS will provide staff with a new set of monitoring, oversight, and analysis tools to ensure that allocated federal funds are used efficiently to assist affordable housing participants.

NGMS will build project modules across four business functions:

1. **HUD Operations** - Creating a single point of access to data and key information to reduce HUD's administrative burden
2. **Financial Management** - Providing more automation to ensure better control of the budget formulation process to reduce errors in budget forecasting
3. **Partner Operations** - Providing HUD partners with a single point of access to data that will allow them to better serve their customers and operate more efficiently **BXXA**
4. **Business Support** - Expanding the access and use of the NGMS to the HUD enterprise level

MEASURES¹

Access to Credit

- Increased Federal Housing Administration share of originations
 - FY13 14.2%, FY14 target 10 – 15%, FY15 target 10 – 15%
- Percent of loans endorsed with credit score of greater than 680
 - FY13 45.5%, FY14 target 60%, FY14 target 70%
- Percent of loans endorsed with a credit score less than 680 first 5 years successful homeownership
 - No data (need baseline data)
- Percent of housing counseling clients gain access to resources to improve housing situation
 - FY13 \$1.6M, FY14 target \$1.5M, FY15 target \$2M

Core Financial Services

- Increased percent of invoices paid on time

¹ The designation of "No Data" refers to information gained from the HUD FY13 Annual Performance Report (APR), the FY15 Annual Performance Plan (APP) and FY 2014-2018 HUD Strategic Plan



- No data (need baseline data)
- Lowered average number of days to resolve audit findings
 - No data (need baseline data)
- Increased percent of collections recorded on time
 - No data (need baseline data)

Federal Housing Administration Transformation (FHA) Modernization

- Net recovery rate FHA realizes on sale of assets as percentage of claim payment
 - FY13 43%, FY14 target 45%, FY15 target increase by 5%
- Percentage of borrowers 90 days + delinquent within six months of modification
 - FY13 8.4%, FY14 target 6.4%, FY15 target increase by 2%
- Number of FHA borrowers that receive pre-purchase or post-purchase counseling
 - No data (need baseline data)
- Economic net worth to dollar balance of active, insured loans, at a point in time
 - FY13 -0.11%, FY14 target 1.2%, FY15 target 2%
- Reduced percent of delinquent or defaulted loans
 - FY13 34%, FY14 target no data, FY15 target no data
- Increased percentage of electronic business submissions
 - No data
- Increased percentage of electronic new lender submissions
 - No data

HEARTH Act Implementation (eGrants Management)

Grants Management (GM) program stakeholders and subject matter experts across the Department discussed and prioritized recommendations for improvement via the *Grants Management Business Modernization Plan*. While many business needs were identified, the team agreed upon the following top three (3) priorities for near-term business improvement:

1. Notice of Funds Availability (NOFA) Improvement Initiative
 2. Analysis of Automation of Manual Processes
 3. Business Data Definition and Standardization
- Reduced days homeless grant submission deadlines to award announcements
 - No data
 - Increased percentage of grants managed in electronic form
 - No data
 - Increased number of electronic homeless grant applications
 - No data

Housing Counseling

- Number of HUD's Housing Counseling Program clients served
 - FY13 \$1.6M, FY14 target \$1.5M, FY15 target \$2M



- Number of clients who gain access to resources to improve housing situation
 - No data

HUD Place-Based Performance Management System (HUDStat)

- Increased percent of HUDStat measures tracked in the business intelligence tool
 - No data
- Increased reliance on data for strategic decision-making
 - No data

Next Generation Management System (NGMS)

- Reduced amount of funds dispersed to Public Housing Assistance that are unspent
 - No data
- Reduce late subsidy payments
 - No data
- Reduced number of voucher spending reviews required because of questionable data
 - No data



HUD'S INFORMATION TECHNOLOGY GOALS

GOAL 2: PROMOTE AN ENTERPRISE APPROACH TO INFORMATION TECHNOLOGY THAT WILL FOSTER INNOVATION AND COLLABORATION

OBJECTIVES

Establish a basis for consolidated infrastructure to achieve interoperability and communication among operating divisions.

Enable the unification and simplification of similar IT business processes and services within and across operating divisions.

Maximize the value of technology investments through enterprise-wide procurement and licensing.

Centralize IT services and operations.

INITIATIVES

Enterprise Project Management Office (ePMO)

The Office of Chief Information Officer (OCIO) as part of the ASAP Initiatives supported the standup of the Enterprise Project Management Office, abbreviated to ePMO, is a function within the Enterprise Program Management Division (EPMD) that defines and maintains standards for IT project management within the organization. The ePMO strives to standardize and introduce economies of repetition in the execution of projects. It manages the implementation and adoption of Project Management Planning (PPM) V2.0 Lifecycle and supports the IT Management Framework.

The ePMO: 1) Leverages best practices from OMB and industry standards; 2) Provides Training, coaching, mentoring for IT Project Management and Programs; 3) Has standard PM tools, templates and best practice guidance to ensure a high standard of adoption of PM disciplines and practices across HUD; 4) Collects lessons learned and shares lessons learned to improve business objectives; 5) Conducts ongoing business process improvement activities; and 6) Conducts bi-weekly project health assessments, monitors status, and reports status to Enterprise Program Management Director.

New Core Financial Services

Integrated end-to-end acquisition management solution to increase the quality and timeliness of HUD's procurements and reduce duplication in the procurement process. This will expedite service to the public by ensuring that procurement packages are processed more effectively and efficiently. The increased procurement tracking functionality will enhance requisitioning, contract solicitation; contract writing, appropriation accounting, contract modification, and contract administration through contract close out.



HUD Enterprise Architecture Transformation (HEAT)

HEAT replaces HUDNet. HEAT has a strategic contracting approach intended to provide enterprise-wide IT services for HUD on a cloud-based model and has also been identified as a Departmental priority for “Transforming the Way HUD Does Business.” HEAT will bring the infrastructure up-to-date while providing better visibility into infrastructure services and enabling HUD compliance with Federal direction (shared services, commodity IT, Cloud First, and so on). HEAT is a strategic initiative to transition HUD’s legacy IT infrastructure to a new state that is manageable, cost-effective, leverages strategic technology sources, and better meets the needs of HUD programs and missions. HEAT will provide an agile, responsive, transparent, effective, and efficient IT infrastructure for the Department.

Grants Business Modernization Plan Project

HUD’s Grants Management (GM) ongoing improvement involves enhancements to existing IT systems, lowering the costs for system operations, and reducing the administrative burden caused by inefficient processes performed by the staff, business partners, and the grantees. To guide HUD’s GM business improvement, senior leadership has initiated the development of a GM Business Modernization Plan (BMP), requesting support from the HUD Enterprise HUD Enterprise Architecture (EA) staff to achieve their objectives.

The project involves close collaboration with key stakeholders and subject matter experts across the Department, and executive sponsorship by the General Assistant Secretary of Community Planning and Development (CPD) and the Deputy CIO. The modernization blueprint addresses current GM business needs and priorities, definition of a GM Target Model that depicts HUD’s desired future state, and a departmental transition strategy on how to get there. Three priority areas were identified for business improvement: 1) Notice of Funds Availability (NOFA) Improvement Initiative; 2) Analysis of Automation of Manual Processes; and 3) Business Data Definition and Standardization.

HUD uses GMP to monitor and report on 1,207 grantees and 3,727 grants for formula programs; monitor and report on 3,238 grants and 12,363 grantees for competitive program; and oversee billions of dollars in grants per year. GMP automates key grants management functions for Community Development Block Grants (CDBG), Disaster Recovery grants, HOME Investment Partnerships (HOME) grants, Housing Opportunities for Persons with AIDS (HOPWA) grants, Neighborhood Stabilization Programs (NSP), Emergency Solutions Grants (ESG), and HEARTH competitive grants for homeless assistance. This DME activity is part of an overall effort to modernize and decommission the GMP legacy system (GMPL) which is operating on an obsolete (PowerBuilder) platform.



Develop and Implement a Data Governance Structure

Establish a data governance framework by which to manage all data with the Office of Policy Development & Research (PD&R). The framework will emphasize: promoting the strategic management of HUD's data as an enterprise asset, reducing cost and time to develop, implementing and maintaining information systems by increasing the sharing and reuse of data, and improving accessibility, reliability, accuracy, Security, understanding and quality of HUD's data

Establish Enterprise Data Governance to identify each office' roles in data management with PD&R. The governance will:

- Provide enterprise understanding of HUD business info needs/data assets
- Enable development of cadre of highly qualified data managers across HUD
- Establish Metadata Management policy with PD&R for creating, controlling, enhancing, attributing, defining and managing a metadata schema and the associated supporting processes (often to enable the management of content)
- Establish Data Definition Standards with PD&R define a common data vocabulary to increase HUD's ability to exchange data within and outside the Department
- Establish Data Technology and Tools Standards

HUD is working on increasing the effectiveness of data governance within the Department. The Data Stewards Advisory Group (DSAG) provides HUD with data governance activities in a limited capacity. This effort is focused on establishing a more formal governance process for data management and data standards at HUD with DSAG voting members from all key business areas at HUD setting data standards and policies.

MEASURES²

Enterprise Project Management Office (ePMO)

- Percentage of standard operating procedures completed and implemented
 - 33 SOPs needed
 - 18 Draft SOPs in progress
 - 6 SOPs completed
- Percentage of service catalogues completed and implemented
 - 5 service catalogues needed
 - 1 draft service catalogue prepared (Customer Relationship Coordinators)

New Core Financial Services (No data – need baseline data)

- Percentage of requisitions released by the target requisition release date
- Percentage of awards meeting target award date

² The designation of "No Data" refers to information gained from the HUD FY13 Annual Performance Report (APR), the FY15 Annual Performance Plan (APP) and FY 2014-2018 HUD Strategic Plan.



- Total number of days to contract award, by acquisition strategy
- Increased transparent/timely procurement tracking through the acquisition process
- Increased acquisition customer management
- Increased timeliness/accuracy of Federal Procurement Data reporting

Establish a Consolidated IT Infrastructure (HEAT)

- Identify the total number of HUD IT systems
- Identify the total cost of operating and maintaining HUD IT systems
- Conduct annual survey of HUD staff on satisfaction with IT Services provided
- Reduce cost of HUD's data center tracking baseline Q3 and future targets
- Reduce and/or consolidate hardware, software, licenses, systems, and tools by tracking baseline Q3 and future targets
 - Standardize Business Intelligence (BI) tools, migrate off of Unisys and/or IBM
- Measure number and cost savings of decommissioned systems
 - Programmatic decisions around mission need of system capability
- Increased percent of platforms standardized by tracking a Q3 and future targets
 - Migration from cold fusion to java

Grants Business Modernization Plan Project

- Monitor completion of specific milestones set forth in the Department's Annual Performance Plan.

Develop and Implement a Data Governance Structure

- Total number of HUD IT systems.
 - FY13 216, FY14 target 205, FY15 target 195
- Cost of IT systems (in millions)
 - FY13 \$108M, FY14 target \$102M, FY15 target 5% reduction from FY14
- Total cost of operating and maintaining HUD IT systems
 - No data
- IT customer service satisfaction scores
 - No data
- Conduct an annual survey of HUD staff on satisfaction with IT services provided
 - No data



HUD'S INFORMATION TECHNOLOGY GOALS

GOAL 3: ACHIEVE EXCELLENCE IN IT MANAGEMENT PRACTICES

OBJECTIVES

Strengthen HUD enterprise-wide processes for collaborative IT strategic planning, enterprise architecture, capital planning, and investment control.

Apply strong project management and performance measurements processes to critical IT projects to achieve project success.

Establish and maintain IT policies and Standards of Procedures to ensure consistency, compliance, and accountability with evolving Federal legislation and OMB regulations.

INITIATIVES

Enterprise Project Management Office (ePMO)

The Office of Chief Information Officer (OCIO) as part of the ASAP Initiatives supported the standup of the Enterprise Project Management Office, abbreviated to ePMO, is a function within the Enterprise Program Management Division (EPMD) that defines and maintains standards for IT project management within the organization. The ePMO strives to standardize and introduce economies of repetition in the execution of projects. It manages the implementation and adoption of Project Management Planning (PPM) V2.0 Lifecycle and supports the IT Management Framework.

The ePMO: 1) Leverages best practices from OMB and industry standards; 2) Provides Training, coaching, mentoring for IT Project Management and Programs; 3) Has standard PM tools, templates and best practice guidance to ensure a high standard of adoption of PM disciplines and practices across HUD; 4) Collects lessons learned and shares lessons learned to improve business objectives; 5) Conducts ongoing business process improvement activities; and 6) Conducts bi-weekly project health assessments, monitors status, and reports status to Enterprise Program Management Director.

Project Health Assessment

A project health assessment is a learning opportunity, a quick glance at the status of a project to see which areas need a little improvement and which are going according to plan. The main purpose of a health assessment is to determine how well the project is performing in terms of the objectives in accordance with proper procedure and organizational standards. It is a face-to-face, evidence-based accountability review of a project bi-weekly or monthly basis. The team reviews performance, quality and risk on projects real-time. The review results in concrete actions to address weaknesses. The PHA keeps projects on track by helping them to course correct earlier than later. In-process reviews of project progress are utilized to gather metrics set to standard key performance indicators to assess project health. The team utilizes the



information collected to report out to the IT Investment Management Division (IMD) on projects for reporting purposes to the IT Federal Dashboard, the Technical Review Committee (TRC) at control gate reviews, the Chief Information Officer (CIO) on status, and other key stakeholders as needed.

Project Planning and Management 2.0 (PPM 2.0) Enhancements

HUD's Project Planning and Management (PPM) Lifecycle V2.0³ is the rigorous application of sound investment and project management principles and best practices that define a standard approach to successful project delivery through a consistent and repeatable integration of practices and policies. While any project can use this framework to structure, track, and manage activities and deliverables, it provides the context for the HUD IT governance process and describes the interdependencies between its project management, investment management, and capital management components. The PPM replaced HUD's Systems Development Methodology (SDM) to have a more flexible and agile IT system implementation.

HUD's PPM policy, updated in April 2011, applies to all HUD IT projects, including all information systems acquired, developed, enhanced, or maintained by HUD. These projects include Commercial Off-the-Shelf (COTS) software, Government Off-the-Shelf (GOTS) software, and e-Gov systems utilized directly within the HUD network. The policy also applies to applications and general support systems – whether internal or contractual, infrastructure, or programmatic – and administrative systems and projects. The policy established the PPM Lifecycle, which integrates tenets of the Project Management Institute, and those of the System Development Life Cycle (SDLC), for all of HUD's IT projects. This recognizes a standard method and procedures in all phases of SDLC from a need/concept phase to its decommissioning phase. This Policy requires:

- All HUD projects that involve planning for and acquisition, management, and use of IT capital assets to be managed in accordance with the HUD PPM Life Cycle.
- All HUD IT stakeholders, including executive sponsors, managers, and project team members, to participate in HUD IT projects in accordance with the requirements of the PPM Life Cycle.
- All IT projects to have an assigned Program Sponsor/Owner, Business Project Manager(s), and IT Project Manager(s) who possess the required competencies, experience, and certifications for the project(s) being managed.
- Each IT project to produce a detailed project schedule that defines tasks at a level of detail that provides schedules, milestones, and resources necessary to ensure successful project execution.

³ http://portal.hud.gov/hudportal/HUD?src=/program_offices/cio/ppm



HUD's new PPM framework enables the business areas to successfully achieve their IT goals through relevant guidance and expertise provided by IT Project Managers and Governance Bodies.

Completion of Update of the HUD ITM Policies

Complete the update of the HUD ITM policies, including the policies for Enterprise Architecture, Performance Management, and Risk Management. Policies are being updated to reflect the collaborative nature of services in support of HUD's integrated IT investment management approach. In addition, OCIO is working on defining the integrated roles and responsibilities associated with the policies to ensure that all staff involved in managing tasks governed by those policies will understand how their work ties together in a collaborative fashion.

Performance and Risk Management

HUD's consolidated FY2015 Annual Performance Plan (APP) & FY2013 Annual Performance Report (APR) provides detailed performance information that allows the President, Congress, and the American public to assess both the Department's performance outcomes and HUD's planned activities for the following fiscal year. The APP-APR document is organized by strategic objective, with each one emphasizing a key unit of performance analysis, as prescribed by the GPRA Modernization Act.

HUD's Office of Strategic Planning and Management (OSPM) is responsible for monitoring and reporting HUD's performance outcomes, preparing the APP, and posting it to the performance.gov Web site to promote transparency and accountability in the Federal government. HUD abides by the OMB performance reporting requirements aligned with the Federal PRM framework. HUD's Performance Architecture Framework aligns with the OMB Federal Enterprise Architecture (FEA) Performance Reference Model (PRM) but adds a Key Performance Indicator layer for quantitatively measuring intended outcomes. The FEA's PRM is composed of three layers: Goals, Measurement Areas, and Measurement Category. OMB's FEA Framework (FEAF) version 2.0 describes the new PRM taxonomy in greater detail to provide Federal agencies' consistent guidelines for implementation and usage.

The IT Department's business drivers create a compelling case for improving HUD's business performance; drivers include: Establish an effective Performance and Risk Management Program within the IT community that a) provides meaningful data that drives decision making and performance improvement and b) identifies potential problems before they occur so that risk-handling activities may be planned and invoked as needed across the life of the product or project to mitigate adverse impacts on achieving objectives. The Performance and Risk Management Branch (PRMB) within OCIO is in the process of implementing the Performance and Risk Management Framework.

Business Modernization through EA Segment Portfolio Management



Continue to evolve its program-focused segment architecture approach to IT investment planning and execution. The collaborative strategic portfolio review process, which integrates EA, capital planning, and IRM strategy with a program-led review of each architectural segment, will provide the basis for the identification of business modernization efforts within each segment and within the architecture as a whole. Existing executive directions such as Cloud First and Shared First will be incorporated into the segment portfolio review process.

MEASURES⁴

Enterprise Project Management Office (ePMO)

- Number of training, coaching, mentoring to address skill gaps
 - 46 Training Courses Identified
 - Less than 5 percent (2015)
 - Coaching and Mentoring Program Initiated
 - Less than 5 percent (2015)
- Percentage of lessons learned collected and shared
 - Less than 5 percent (2015)
- Percentage of tools, templates, best practice implemented
 - 100% tools, templates, best practices implemented (PPM)

Project Planning and Management 2.0

- 80-90%+ of all IT projects spending DME funds from the IT Portfolio are using PPM V2.0 and proceeding through PPM control gates
 - Less than 5 percent (2015)
- 80-90%+ of all DME funding within the IT Portfolio is under monitoring and control of the PPM V2.0 life cycle process
 - Less than 5 percent (2015)
- Percentage of IT project milestones completed on-time and within budget
 - Less than 5 percent (2015)

Project Health Assessment

- Launch of Project Health Assessment on IT DME projects by Q3 2015
 - Project Health Assessments Launched in Q3 of 2015
- 10 – 20% increase in IT DME Project Health Assessments per quarter
 - No data
- Percentage of IT projects referred to TechStat if required
 - No data

Completion of the update of HUD IT Policies

- 100% of targeted IT policies approved by end of FY 2015
 - 80% of targeted IT Policies approved

Performance and Risk Management (No data – need baseline data)

- Performance management framework implemented by end of FY 2015

⁴ The designation of “No Data” refers to information gained from the HUD FY13 Annual Performance Report (APR), the FY15 Annual Performance Plan (APP) and FY 2014-2018 HUD Strategic Plan



- Performance management framework developed and accepted at division level
- Performance dashboard v1.0 completed by FY 2015
- Risk management framework implemented by end of FY 2015
 - Risk management framework developed and accepted at the division level
- 100% of OCIO PMs trained in risk management procedures by end of FY 2015
 - Initial brief overview of risk training provided to OCIO PMs and Business Leads

Business modernization through EA Portfolio Segment Management

(No data – need baseline data)

- Internal annual IT budget review conducted by segment under Segment Sponsor lead
- Business modernization efforts identified through segment-focused portfolio review process by FY 2015



HUD'S INFORMATION TECHNOLOGY GOALS

GOAL 4: TRANSFORM OCIO TO A CULTURE OF OPERATIONAL EXCELLENCE THAT CAN ACHIEVE CURRENT AND FUTURE DEPARTMENTAL GOALS

OBJECTIVES

Explore, build, and prepare for the transformation of the HUD IT employee of 2020 through training, mentoring, and professional development.

Develop an IT human capital plan to guide the recruitment, retention, and skill development of staff.

Institute Customer Relationship Management for OCIO to Increase Service Management Focus

Provide HUD mission and business owners with coordinated customer focused support from OCIO.

INITIATIVES

Customer Relationship Management (CRM)

Creation of an Enterprise Customer Relationship framework across HUD to improve customer experience, focus program outreach efforts, provide better coordination / Iterative Development Management (CRM) and cooperation across all HUD business areas and improve analytics/reporting. CRM will provide us with a "One HUD approach" to customer interaction, regardless of channels or benefit type (e.g., extranet, contact center, HUD offices, grant, mortgage, or insurance). It will also establish a relationship between partner account and partner employee identities/credentials for secure system access management via ICAM. The target state includes an Enterprise Customer Relationship framework across HUD to improve customer experience, focus program outreach efforts, provide better coordination and cooperation across all HUD business areas, and improve analytics/reporting. Objectives include: 1) Create an improved HUD customer experience; 2) View all information related to accounts

("One customer one account"), including contacts, interactions, HUD program affiliation, benefit transactions, history, and other attributes. Customer information is transformed into corporate knowledge; 3) Use the "One HUD approach" to customer interaction, regardless of channels or benefit type (e.g., extranet, contact center, HUD offices, grant, mortgage, or insurance); and 4) Establish a relationship between partner account and partner employee identities/credentials for secure system access management via Identity, Credential and Access Management (ICAM).



Customer Relationship Coordinators (CRC)

As well as other new roles within OCIO, Customer Relationship Coordinators (CRCs) will provide OCIO's customers with specific points of contact for acquiring OCIO's strategic services. The Office of Customer Relationship and Performance Management (OCRPM) within OCIO integrates IT Program Management, Enterprise Architecture, and Investment Management in a collaborative planning method so that IT solutions to HUD mission needs can be identified and implemented effectively and efficiently with a focus on mission value. The CRCs play a vital role within HUD as primary points of contact between OCIO's customers and its resources. CRCs provide day-to-day support for Segment Sponsors, engage with segment customers to understand and identify business needs, and interface with other OCIO resources in order to respond to the customers' needs.

CRCs also act as team leads, leading and managing the IT project managers (IT PMs) that work with them on segment activities. They monitor and facilitate ongoing customer satisfaction, internal and external to HUD. They help provide auditable and quantifiable performance reporting. CRCs help their customers bring ideas for new initiatives to the OCIO for review. In supporting segment customers, CRCs engage themselves in their customer's business to learn as much as possible about their information needs. Once these needs have been identified, the CRCs then work with their OCIO colleagues to leverage IT in support of the program's mission. This engagement is a serious commitment to understanding the mission customer's daily business. It is the foundation upon which real customer relationship management is built.

Develop and implement an IT Human Capital Plan

The "OCIO Strategic Human Capital Plan (SHCP) for FY2012 – 2017" will guide the OCIO leadership and the Office of the Chief Human Capital Officer (OCHCO) in achieving its workforce development goals. The plan is based on a current-and target state analysis, alignment to HUD's strategic goals, and its human capital goals and objectives. Building goals into OCIO leadership's performance plans and using measurement and evaluation ensures accountability. Achieving these goals will enable HUD to have a diverse, highly skilled IT workforce that is able to support its mission and service to the public.

This effort will continue to support the transformation of HUD's IT program into a Service Provider Model by developing a five-year human capital management plan for IT. The transformed organization will be designed to focus on the key capabilities of vendor management, IT service management and support, and maintaining key IT operations capabilities in-house. From a human capital perspective, this will mean realigning skills, staffing, organizational structures, and processes. The Plan will outline both internal and external human capital challenges as well as tools and strategies that can be used to address those challenges. The Plan will also outline the goals and objectives related to each element of the Office of Personnel Management (OPM) Human Capital Assessment and Accountability Framework (HCAAF).



IT Services Management (ITSM)

Implement industry best practices on Information Technology Service Management (ITSM) to support HUD's IT Infrastructure Modernization effort. ITSM is a discipline for managing IT systems, philosophically centered on the customer's perspective of how IT contributes to the business. It is a process-based practice intended to align the delivery of IT services with needs of the enterprise, emphasizing benefits to customers. HUD plans to leverage the Information Technology Infrastructure Library (ITIL)⁵ as the set of best practices for ITSM that will focus on aligning IT services with the needs of business.

In support of the maturation of the IT management practice within HUD, the IT Service Management initiative will develop products and process improvements for IT project management and customer coordination including Service Catalog, Integrated Governance, Standard Operating Procedures, Service Level Agreements, Service Communications Plan, and Service Utilization Coaching Program. HUD plans to implement industry best practices on Information Technology Service Management (ITSM) or IT services for its IT Infrastructure Modernization effort. HUD plans to leverage the Information Technology Infrastructure Library (ITIL) as the set of best practices for ITSM that will focus on aligning IT services with the needs of business. ITIL provides standard procedures, tasks, and checklists that can be used by HUD and its vendors to establish a minimum level of competency and establish a baseline from which it can plan, implement, and measure IT infrastructure improvements.

HUD Learning Environment Expansion

Expand the HUD learning environment from a limited, courseware-focused environment to a full-featured, learning management environment. The current HUD Virtual University (HVU) offers HUD employees access to almost 3,000 online courses from the SkillSoft courseware library as well as custom courses developed by HUD program organizations. HVU also serves as the Department's pathway to compliance for federally mandated training such as IT Security Awareness, No FEAR Act, and Sexual Harassment. In addition, training on Whistle Blower Protection is now offered in connection with annual training. However, HVU is more of a Course Management Systems (CMS) than a learning management system. The learning environment expansion will evolve a framework that handles all aspects of the learning process, not only providing content but also identifying and assessing individual and organizational learning or training goals, tracking individual progress toward those goals, and collecting and presenting data for supervising the learning process.

⁵ ITIL is a registered trademark of APM Group, Ltd, UK. Refer to <http://www.ital-officialsite.com/for> further information.



Federal Identity, Credential, and Access Management (FICAM)

Since its creation in fall 2008, the Identity, Credential, and Access Management (ICAM) program has been addressing challenges, issues, and design requirements for digital identity, credential, and access management, and defining and promoting the FICAM Roadmap & Implementation Guidance (FICAM12 Roadmap). The FICAM Roadmap offers a common ICAM implementation framework and supporting implementation guidance for federal agencies. FICAM is a comprehensive and holistic Identity, Credential, and Access Management (ICAM) solution consistent with Federal guidelines and standards. The CIO Council Subcommittee (ICAMSC) which developed the FICAM segment architecture and implementation guidance for use by federal agencies as they invest and implement ICAM programs. This initiative enabled the implementation of the DIAMS (Digital Access Management Solution) which allowed for the retirement of the existing CHAMP (Centralized HUD Account Management Process) tool.

In August 2012, the OCIO assessed HUD’s native ICAM environment against the FICAM recommendations. The assessment served as the first stage in the effort to bring HUD’s systems into compliance with several Federal mandates, including OMB M-11-1113, which requires the use of PIV cards for accessing electronic resources, such as Web based applications. In January 2013, a draft of HUD’s FICAM Assessment and Roadmap¹⁴ (January 2013) was completed, yielding significant findings and recommendations regarding security gaps. However, since the findings contain sensitive security information, they cannot be detailed in this document.

MEASURES⁶

Institute Customer Relationship Management for OCIO to Increase Service Management Focus (No data – need baseline data)

- Increased segment/mission customer satisfaction (Customer satisfaction survey)
- Shortened cycle time for OCIO responses to OMB and GAO requests/need
- Increased understanding by CRCs of different investments within HUD portfolio (Customer satisfaction survey)
- Decrease in response time in responding to program questions and requests (tracking system)

⁶ The designation of “No Data” refers to information gained from the HUD FY13 Annual Performance Report (APR), the FY15 Annual Performance Plan (APP) and FY 2014-2018 HUD Strategic Plan.



Development of Human Capital Management Plan for IT

- Talent Management: HUD's score on the Employee Viewpoint Survey Engagement Index – Track progress on the EVS Engagement Index - FY15 Target 62
- Determined appropriate balance for needed skills between government FTE and contractors by conducting an assessment of government and contractor skills mix to established baseline in 2014 to target state
- Talent Management: Percentage of successor candidates ready to assume high impact positions – Track number of successor candidates ready to assume high impact positions and roles of strategic significance to the Department – FY15 Target TBD based on FY14 Target baseline
- Utilize skill gap assessment conducted in 2011 to meet identified gaps and initiate training to meet established targets
- Implement/Integrate and track annual customer satisfaction surveys by Jun 2016

ITSM IT Services Management

- Number of personnel trained in ITSM process (70)

Federal Identity, Credential, and Access Management (FICAM)

(No data – need baseline data)

- Finalize implementation of Single Sign On (SSO) activities for existing HUD applications by FY15Q4.
- Establish process for all new HUD applications to implement SSO when the application is developed (FY15Q3).
- Establishment of DIAMS workflow for Personnel On/Off-Boarding and Application Provisioning by FY15Q4.
- Implementation of DIAMS solution by FY16Q4.



APPENDICES

The appendices contain additional information concerning aspects of information technology management required by the Office of Management and Budget (OMB) PortfolioStat guidance that specifies its contents, headings are cross-referenced to Appendix A of OMB Memorandum m-13-09, “Fiscal Year 2013 PortfolioStat Guide Strengthening Federal IT Portfolio Management.” Additional information may be found in the HUD Enterprise Roadmap, as indicated below.

A-1 Alignment to HUD Strategic Goals

AXXA	Agency Strategic Goals and Objectives:	Identify agency strategic goals and objectives supported by the IRM strategic plan
AXXB	Agency Strategic Goals and Objectives:	Describe how activities of the IRM Strategic Plan and Enterprise Roadmap advance these goals and objectives

Agency Strategic Goals and Objectives (AXXA) (AXXB)

The Department of Housing and Urban Development’s IRM Strategic Plan goals support the Department’s strategic goals both directly and indirectly. HUD’s senior management published five goals in the HUD FY 2014-2018 Strategic Plan.

HUD’S FY 2014–2018 STRATEGIC FRAMEWORK Mission: Create strong, sustainable, inclusive communities and quality, affordable homes for all.

Strategic Goal 1 Strengthen the Nation’s Housing Market To Bolster the Economy and Protect Consumers	Strategic Goal 2 Meet the Need for Quality, Affordable Rental Homes	Strategic Goal 3 Use Housing As a Platform To Improve Quality of Life	Strategic Goal 4 Build Inclusive and Sustainable Communities Free From Discrimination
STRATEGIC OBJECTIVES			
Strategic Objective 1A Establish a sustainable housing finance system that provides support during market disruptions, with a properly defined role for the U.S. government.	Strategic Objective 2A Ensure sustainable investments in affordable rental housing.	Strategic Objective 3A End homelessness for veterans, people experiencing chronic homelessness, families, youth, and children.	Strategic Objective 4A Reduce housing discrimination, affirmatively further fair housing through HUD programs, and promotes diverse, inclusive communities.
Strategic Objective 1B Ensure equal access to sustainable housing financing and achieve a more balanced housing	Strategic Objective 2B Preserve quality, affordable rental housing where it is needed most by simplifying and aligning	Strategic Objective 3B Promote advancements in economic prosperity for residents of HUD-assisted	Strategic Objective 4B Increase the health and safety of homes and embed comprehensive energy efficiency and



market, particularly in underserved communities.	the delivery of rental housing programs.	housing.	healthy housing criteria across HUD programs.
Strategic Objective 1C Restore the Federal Housing Administration's financial health, while supporting the housing market recovery and access to mortgage financing.	Strategic Objective 3C Promote the health and housing stability of vulnerable populations.	Strategic Objective 4C Support the recovery of communities from disasters by promoting community resilience, developing state and local capacity, and ensuring a coordinated federal response that reduces risk and produces a more resilient built environment.	
Strategic Objective 4D Strengthen communities' economic health, and resilience, and access to opportunity.			

Table No. 1 HUD Strategic Goals

MANAGEMENT OBJECTIVES

1. Improve HUD's acquisitions performance through early collaborative planning and enhanced utilization of acquisition tools.
2. Reduce the time and complexity of the clearance process by establishing and enforcing clear protocols for drafting and reviewing documents placed in departmental clearance.
3. Promote a diverse and inclusive work environment that is free of discrimination and harassment by educating the workforce on the overall Equal Employment Opportunity (EEO) process and their EEO responsibilities as managers and employees of HUD.
4. Increase accuracy, speed, transparency, and accountability in financial management and budgeting for the agency.
5. Make the grants management process more efficient and effective by automating and streamlining processes, improving timeliness, and tracking performance.
6. Employ, develop, and foster a collaborative, high-performing workforce that is capable of continuing to deliver HUD's mission in a changing and uncertain future.
7. Make high-quality data available to those who need it, when they need it, where they need it, to support decision-making in furtherance of HUD's mission.
8. Reduce the cost of leased space, utilities, travel, and other related costs by adapting our business processes.

PERFORMANCE OBJECTIVES

1A: HOUSING MARKET Overall market share of private capital, GSEs, and FHA. This measure will track the share of the mortgage market for private lenders, GSEs (Fannie Mae and Freddie Mac), and FHA in order to observe FHA's role in the housing market and the balance of the housing market.

1B: CREDIT ACCESS FHA share of originations This measure will show the percentage of mortgage originations in the housing market that were made by FHA. Percentage of loans endorsed with credit score < 680. This measure will track the percentage of FHA loans endorsed that have borrowers with a credit score under 680. Percentage of loans endorsed with credit score < 680 that evidence successful homeownership over the first 5 years. HUD's Housing Counseling Program clients served This measure will track the number of clients counseled through the HUD Housing Counseling Program. Percentage of housing counseling clients who gain access to resources to improve their housing situation This measure will track the percentage of housing counseling clients who gain



access to resources to help them improve their housing situation (for example, down payment assistance, rental assistance) as a direct result of receiving housing counseling services.

1C: FHA'S FINANCIAL HEALTH Asset disposition recovery rate This is the net recovery rate that FHA realizes on the sale of assets as a percentage of claim payment. Percentage of modifications resulting in re-defaults within 6 months of closing This measure will track the percentage of borrowers that become 90 days or more delinquent on their loans within 6 months of receiving a loan modification/FHA Home Affordable Modification Program (HAMP) modification. Loss mitigation uptake This is the percentage of loss mitigation actions taken as a percentage of serious delinquencies. Number of FHA-insured mortgages benefiting from housing counseling This is the number of FHA borrowers that receive pre-purchase or post-purchase counseling. Capital Reserve Ratio The capital reserve ratio compares the "economic net worth" of the MMI Fund to the dollar balance of active, insured loans, at a point in time. Economic net worth is defined as a net asset position, where the present value of expected future revenues and net claim expenses is added to current balance sheet positions. The capital reserve ratio computation is part of an annual valuation of the outstanding portfolio of insured loans at the end of each fiscal year.

2A: RENTAL INVESTMENT Number of households experiencing "worst case housing needs," prepared using American Housing Survey (AHS) data and defined by a long-term series of reports designed to measure the scale of critical housing problems facing very low-income, unassisted renters. (Key measure). Proportion of very low-income renters facing severe rent burdens, prepared using ACS data. (Contextual indicator). Percentage of rental units built in the preceding 4 years that had rents below \$800, which are affordable for the median renter, prepared using AHS data. (Contextual indicator).

2B: RENTAL ALIGNMENT Fiscal Year 2014–2015 Agency Priority Goal: Between October 1, 2013, and September 30, 2015, HUD aims to preserve and expand affordable rental housing through its rental housing programs. Number of families served through HUD rental assistance (key indicator). Number of units converted using RAD (supporting indicator). Housing choice voucher utilization rate (supporting indicator). Number of units managed under the uniform asset management mode. Number of inspections saved through inspection sharing. Public Housing occupancy rate. Project Based Rental Assistance (PBRA) occupancy rate

3A: END HOMELESSNESS Fiscal Year 2014–2015 Agency Priority Goal: In partnership, the U.S. Department of Housing and Urban Development and the Department of Veterans Affairs aim to reduce the number of veterans living on the streets, experiencing homelessness to zero (as measured by the 2016 Point-in-Time count). Total homeless veterans temporarily living in shelters or transitional housing (key measure) This metric will be measured by the annual Point-in-Time count, a count of homeless persons on a single night in January each year. Total veterans living on the streets, experiencing homelessness (key measure) This metric will be measured by the annual Point-in-Time count, a count of homeless persons on a single night in January each year. Veterans placed in permanent housing (supporting measure shared by VA and HUD) This includes moves into the HUD-Veterans Affairs Supportive Housing (HUD-VASH) Program, rapid rehousing placements through the Supportive Services for Veteran Families (SSVF) program, and moves from VA residential treatment programs into permanent housing. Homeless veterans served with transitional housing through Continuum of Care resources (supporting measure; HUD only). Homeless veterans served with permanent supportive housing through Continuum of Care resources (supporting measure; HUD only) Other Measures: Individuals experiencing chronic homelessness. Number and percentage of permanent supportive housing units targeted to individuals experiencing chronic homelessness.



Families experiencing homelessness. Admissions of new homeless families into HUD-assisted housing. Percentage of Emergency Solutions Grant dollars dedicated to rapid rehousing for homeless families.

3B: ECONOMIC PROSPERITY Percentage of participants enrolled in the FSS program that has increased wages. The Section 3 program requires that recipients of certain HUD financial assistance, to the greatest extent possible, provide job training, employment, and contract opportunities for low- or very-low income residents in connection with projects and activities in their neighborhoods. The following metrics are related to Section 3. Percentage of Section 3 residents hired, of total hiring that occurs as a result of Section 3-covered HUD funding

Percentage of total dollar amount of (construction and non-construction) contracts awarded to Section 3 businesses by covered HUD funding. Percentage of Section 3-covered funding recipients who timely meet reporting, hiring, and contracting requirements. Number of self-certified Section.

3C: HEALTH AND HOUSING STABILITY Number of successful transitions from institutions through Section 811 Project Rental Assistance Program. Percentage of HUD-assisted residents with public or private health coverage (source: National Health Interview Survey). Number of PHAs with smoke-free housing policies.

4A: FAIR HOUSING Number of people receiving remedies through Fair Housing Act enforcement work and number of people per case. Monetary relief per case received through Fair Housing Act enforcement work (for cases with relief less than \$100,000).

4B: GREEN AND HEALTHY HOMES. Fiscal Year 2014–2015 Agency Priority Goal: Number of HUD-assisted or HUD-associated units completing energy-efficient and healthy retrofits or new construction To assess our progress toward increasing the energy efficiency and health of the nation's housing stock, HUD tracks the number of new or retrofitted housing units that are healthy, are energy efficient, or meet green building standards. This measure tracks the number of retrofits and units of new construction meeting energy efficiency and/or healthy home standards.

4C: DISASTER RESILIENCE Percentage of Hurricane Sandy Rebuilding Task Force recommendations related to disaster recovery and resilience that have been implemented.

4D: COMMUNITY DEVELOPMENT HUD is developing metrics and milestones to track progress on this objective, and will publish these metrics and milestones in its annual amendment to this Strategic Plan.

MANAGEMENT CHALLENGES AND OBJECTIVES

Acquisition - Standardized monthly reports and data from HUD's Integrated Acquisition Management System (HIAMS) will support calculation of performance metrics to determine progress. Percentage of requisitions released by the target requisition release date (by Program Office). Improve customers' timely submission of acquisition requirements by the agreed-upon planned target requisition release date. Percentage of awards meeting target award date (by OCPO). This indicator will track the percentage of awards that are made by the agreed-upon target award date, for actions released by the target requisition release date. Total number of days to contract award, by acquisition strategy. This indicator will track the total number of days to award a contract, categorized by each of the main acquisition strategies used to make the award.

Departmental Clearance - **Percentage of documents that complete the clearance process by the**



deadline HUD will monitor percentage of documents that complete the clearance process on time (that is, no non-concurrences are submitted or remain unresolved).

Equal Employment Opportunity - **Number of pre-complaint resolutions occurring through the Alternative Dispute Resolution process** HUD will seek to increase the number of pre-complaint resolutions occurring through the Alternative Dispute Resolution process. **Number of complaint filings per fiscal year** HUD will seek to reduce the number of complaint filings per fiscal year on the basis of reprisal resulting in a hostile working environment.

Financial Management - To track our progress toward this objective, HUD will monitor completion of specific milestones set forth in the Department's Annual Performance Plan.

Grants Management - To track our progress toward this objective, HUD will monitor completion of specific milestones set forth in the Department's Annual Performance Plan.

Human Capital - **Talent management: HUD's score on the Employee Viewpoint Survey (EVS) Engagement Index** In order to measure the impact of activities to improve employee engagement and capability; HUD will track progress on the EVS Engagement Index. **Talent management: percentage of succession program positions filled from a pool of well-qualified candidates** In order to improve leadership effectiveness, HUD will implement a robust succession plan. To ensure the quality of that plan and the associated development initiatives, HUD will track the number of succession plan vacancies filled from a pool of well-qualified candidates. **Human capital customer satisfaction scores** In order to measure and improve our own performance in serving HUD's program offices, OCHCO will track internal customer satisfaction.

Information Management - **Number of IT systems** Total number of HUD IT systems. **Cost of IT systems (in millions)** Total cost of operating and maintaining HUD IT systems. **IT customer service satisfaction scores** Conduct an annual survey of HUD staff on satisfaction with IT services provided.

Organizational Structure - **Amount of money spent on space and travel (in millions)** Total dollars spent on leased space, building maintenance, utilities, travel, and other related costs. **Space utilization (in square feet)** Average square footage of usable workspace per employee and contractor.

HUD's Annual Performance Report each year, and shared on <http://performance.gov>.

In developing the IRM goals and objectives, the Office of the Chief Information Officer facilitated working sessions with senior management to develop HUD's IT response to these strategic goals. The planning efforts produced the four IRM goals described in the IRM Strategy, along with objectives and supporting initiatives for each goal. 2015, HUD reviewed progress, collected lessons learned, and updated the plan to meet the mission.



IRM Goal 1:	IRM Goal 2:	IRM Goal 3:	IRM Goal 4:
<ul style="list-style-type: none">• Enhance the quality, availability, and delivery of HUD information to citizens, employees, business partners, and government.	<ul style="list-style-type: none">• Promote an enterprise approach to information technology through innovation and collaboration.	<ul style="list-style-type: none">• Achieve excellence in IT management practices.	<ul style="list-style-type: none">• Transform OCIO to a culture of operational excellence that can achieve current and future Departmental goals.

Table No. 2 – IRM Strategic Goals

Some goals – for instance, Goal 1, enhancing the quality, availability, and delivery of HUD information to citizens – directly support the business of implementing HUD’s mission. These goals comprise initiatives that are structured to interact directly with HUD stakeholders increasing the effectiveness of service delivery.

Other goals – for instance, Goal 4, Transform OCIO to a culture of operational excellence that can achieve current and future Departmental goals, indirectly supports HUD’s mission, by providing increased quality and security to the information used by HUD and its stakeholders, and directly supports the achievements of HUD’s management challenges and objectives.

Similarly, at a more discrete level of detail, IRM initiatives both directly and indirectly support HUD strategic objectives. The FHA modernization initiative – Access to Credit and Housing Counsel -- for instance, directly supports the FHA and Fair Housing strategic objectives. The HEARTH initiative supports the Homelessness and Grants Management objectives. Three of the initiatives – Manage and develop HU’s IT workforce, Establish a consolidated IT infrastructure, and Develop and Improve a data governance structure – are cited explicitly in the HUD Strategic Plan in support of the Information Technology Management Challenge. This deep alignment between HUD’s Enterprise Goals and the HUD’s IRM goals can be found in both plans.

Figure 2 illustrates this alignment of the IRM goals and objectives with HUD’s enterprise goals.

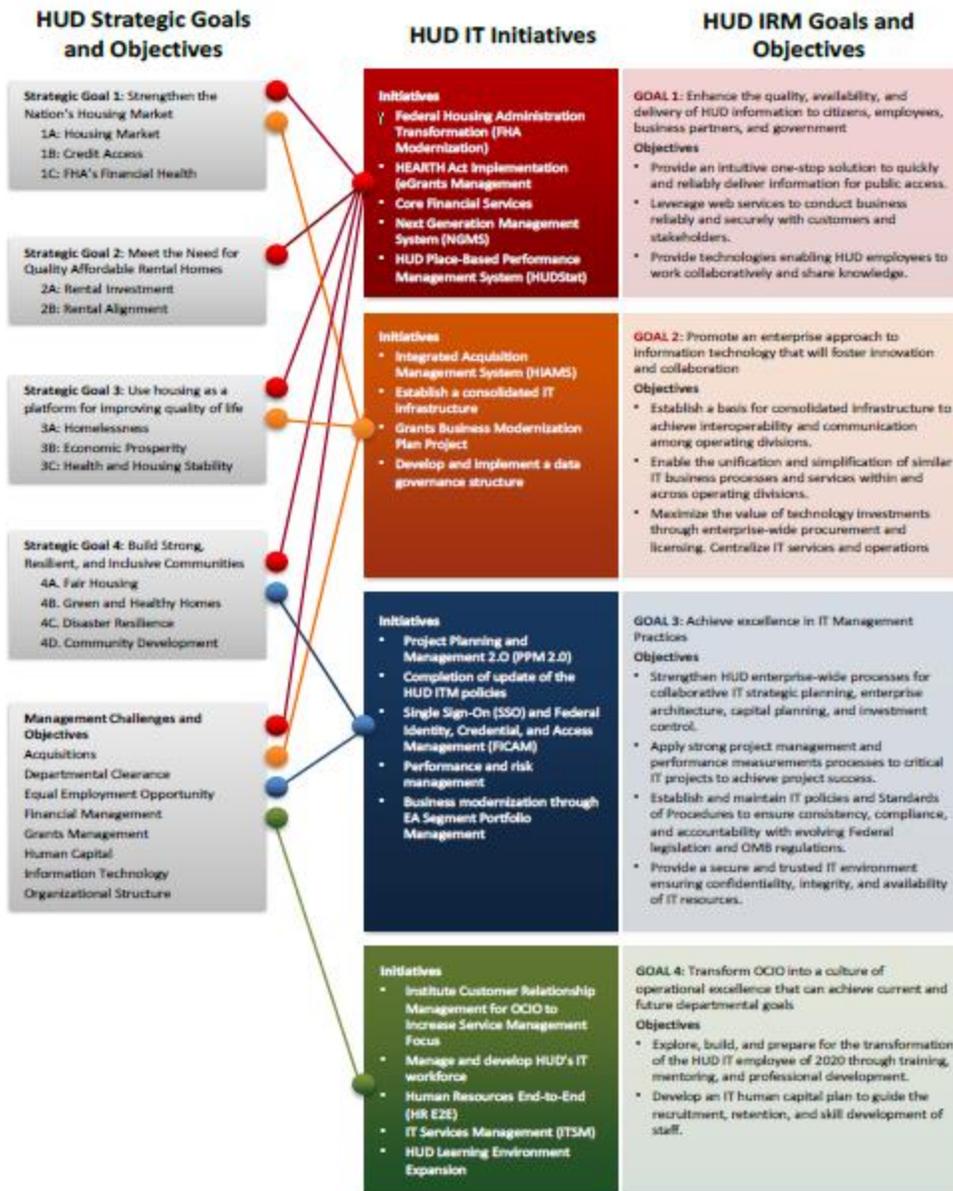


Figure No. 2 – Alignment with HUD’s Strategic Goals and Objectives, HUDs IT Initiatives, and HUD IRM Goals and Objectives



A-2 Alignment to HUD Strategic Goals

BXXA	Improving Services to Customers	Describe how activities of the IRM Strategic Plan
BXXB	Improving Services to Customers	Improve usability, availability, and accessibility of services, including optimization of services for mobile use

Customer Services Requirement (BXXA)

The attached Concept of Operations document describes Milestone #8.2 of HUD’s digital strategy: Implementing Performance and Customer Satisfaction Measuring Tools of the Digital Government Strategy. This document describes HUD’s use of Web trends, the analytical software used by HUD to provide statistical data collection, web analytics, and engagement. The tool provides enterprise-scale data capture, analysis and reporting with software running on HUD servers, behind the HUD firewall. This enables the Department to secure and maintain required customer use and satisfaction information at HUD facilities and in turn remain in compliance with privacy regulations and public expectations.

Digital Strategy

Technology is fundamentally transforming how HUD conducts business and interacts with citizens. The President has charged us with harnessing the power of technology to help create a 21st century digital government – one that is efficient, effective and focused on improving the delivery of services to the American people. The roadmap actions outlined within this Digital Government Strategy form a series of critical next steps to help build a 21st century government that innovates with less. To put HUD on a path to unlock the potential of a digital government, the strategy emphasizes several key objectives.

- First, HUD must enable citizens and an increasingly mobile federal workforce to securely access high-quality digital government information, data and services – “anywhere, anytime, on any device.”
- Secondly, HUD must ensure that the organization adjusts to this new digital world and leverage a modern infrastructure to support HUD’s digital government efforts and leverage the Federal Government’s buying power to reduce costs.
- Lastly, HUD’s strategic platform will fundamentally shift how HUD connects with, and provides services to, the American people. The [Digital Government Strategy Report for the Department of Housing and Urban Development](#) identifies activities carried out under the Digital Strategy.

(See also: HUD Enterprise Roadmap, 2.6.1 Current HUD EA Value Measurement, 2.6.2 Future HUD EA Value Measurement)

Customer Service Requirement (BXXB) (BXXC)

HUD’s Open Government and Customer Service Plan



In 2011, President Obama mandated that all Federal agencies develop a focused Customer Service Plan. The plan was to identify key initiatives to improve each Agency's customer service delivery. HUD's latest IT Customer Service strategy is published within [HUD's Open Government and Customer Service Plan](#). HUD's Open Government and Customer Service Plan address how the department will use technology to improve the end-users experience accessing and using HUD services. The alignment of HUD customer-facing services to support the achievement of HUD's agency goals is a key factor in the development of the Plan. As Secretary Donovan says, in his introduction to HUD's Open Government and Customer Services plan, "Indeed, delivering top quality customer service is critical to our work to transform the way HUD does business and achieve our agency's strategic goals."

HUD regularly monitors customer satisfaction and strives to improve service delivery. Customers demand new ways to access products, services, and support. Innovative organizations anticipate these demands and improve their customer-facing operations accordingly. HUD's approach to customer service planning focuses on four major components: strategy, process, technology, and people. Without any one of the components, the solution cannot be completely successful, and each component has a dependency on a robust open government program.

The Customer Service Plan is constructed to increase the amount of feedback and exchange with HUD customers. It is based on the belief that if HUD customers can voice their concerns and ideas and have them heard by HUD, then customer satisfaction will increase and customer service delivery will improve in response.

(See also: HUD Enterprise Roadmap, 2.6.1 Current HUD EA Value Measurement; 2.6.2 Future HUD EA Value Measurement; 2.6.3 EA Program Maturity Strategies)



A-3 Governance and Management Processes

CXXA	Governance and Management Processes	The scope of the governance process, including Investment Review Board and other Portfolio Governance Boards (as appropriate) along with delegation of authority to bureaus or other organizational units (as appropriate)
CXXB	Governance and Management Processes	Which agency stakeholders are engaged, including "C"-level leadership
CXXC	Governance and Management Processes	The valuation methodology used to comparatively evaluate investments, including what criteria and areas are assessed
CXXD	Governance and Management Processes	How the agency ensures investment decisions are mapped to agency goals and priorities
CXXE	Governance and Management Processes	A high-level description of the process used to assess proposed investments and make decisions, including frequency of meetings and how often the process is updated
CXXF	Governance and Management Processes	How you coordinate between investment decisions, portfolio management, enterprise architecture, procurement, and software development methodologies
CXXG	Governance and Management Processes	Describe the agency's IT strategic sourcing plan, to include processes for addressing enterprise licenses

Governance and Management Response (CXXA – CXXG)

The OCIO has implemented a holistic IT governance process to improve and identify IT asset management, maintain alignment with strategic goals and objectives, identify portfolio performance gaps through architecture analysis, and fund and manage projects that address these gaps and provide a governance structure that oversees the entire portfolio. The governance structure supports HUD communication, decision-making goals, and legislated requirements. It is being established to properly manage the IT portfolio. The structure empowers mission areas to influence OCIO strategic priorities and ensure that all portfolio activities align with mission area needs. This process requires significant mission area participation in the activities of the HUD IT Governance Boards.



Figure No. 3 HUD IT Governance Boards

The Executive Investment Board (EIB) annually reviews and approves as necessary, HUD’s IT Budget, which is driven by HUD’s strategic goals and priorities. The EIB’s activities include approving HUD’s OMB



Exhibit 53 as part of the Department’s budget request, as well as approving business modernization blueprints and transition plans. The IRC, TRC, and CCC play significant roles in developing the business case and funding recommendations that are forwarded to the EIB for review and approval. Charters are available at [IT Governance](#) on the HUD website.

The HUD Information Technology Investment Framework demonstrates when and who makes decisions about HUD’s IT Investments. The following chart shows the decisions made during the year and what group or person is responsible for developing, reviewing, and approving them.

HUD IT Management Framework – Line of Sight

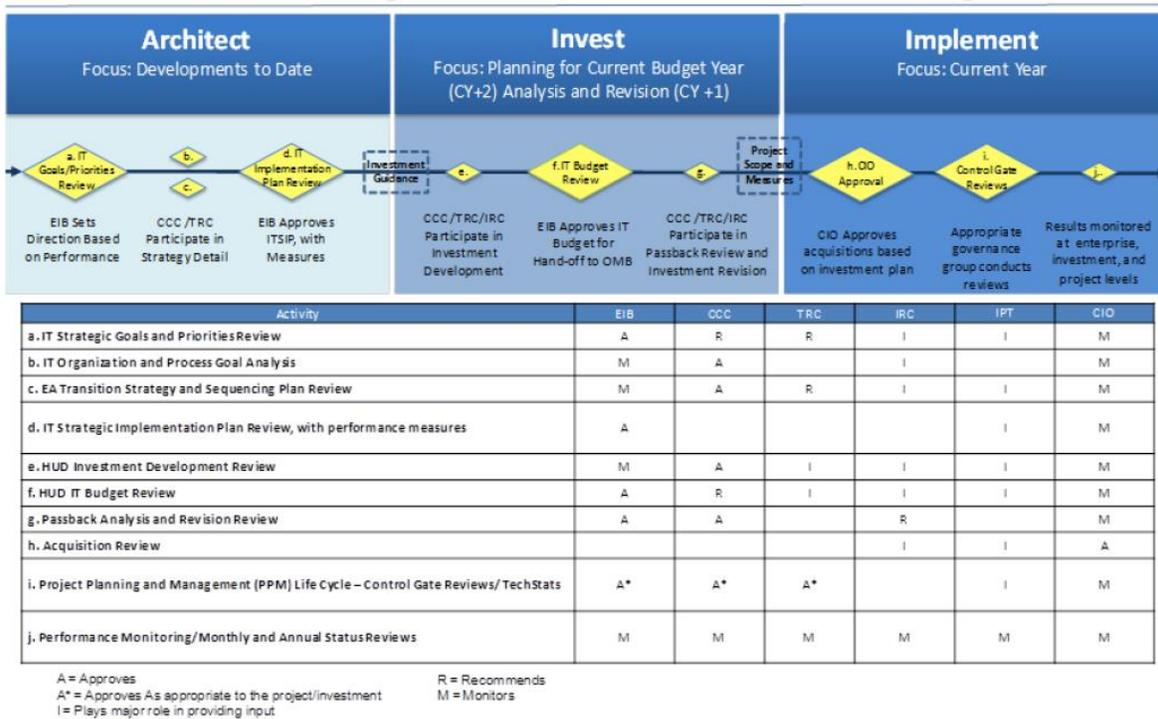


Figure No. 4 - IT Management Framework

At the moment, HUD has a comprehensive managed services contract that covers its entire infrastructure, the HUD Information Technology Services (HITS) contract. Acquisition of all related hardware, software, and services is done through HITS. Therefore, HUD does not have a separate strategic sourcing plan.

However, HUD is also in the process of replacing HITS with HEAT. HUD Enterprise Architecture Transformation (HEAT) will break the infrastructure into a number of parts, which will give HUD more control over the sourcing strategies used.

In addition, HUD OCIO is implementing a vendor management role in the new Office of Customer Relationship and Performance Management. The vendor management role will have responsibility for helping OCPO with the rationalization of existing contracts to improve contracting clarity. Vendor managers will also work with OCPO on the development of the annual acquisition plan, including approaches to strategic sourcing for both goods and services.



(See also: HUD Enterprise Roadmap, 4.5.2 IT Modernization; 5.2.4 Establish Segment Governance; 6.2.1 IT Management Framework; 6.2.2 IT Governance Boards)

A-4 CIO Authorities

DXXA	CIO Authorities	Describe how the agency policies, procedures and authorities implement CIO authorities, consistent with OMB Memorandum 11-29, "Chief Information Officer Authorities"
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Authorities Requirement (DXXA)

November 1, 2011 the HUD Secretary delegated to HUD's CIO all authority and responsibility for the management of the Department's information technology resources⁷. This authority makes explicitly the execution of multiple duties including but not limited to:

- Ensure compliance of all HUD program offices with prompt, efficient, and effective implementation of Information Resources Management responsibilities;
- Promote the effective and efficient design and operation of all major IT processes for HUD, improvements to work processes of the Department;
- Monitor and evaluate the performance of IT programs of HUD based on applicable performance measurements, and advise the Secretary of HUD and IT Governance/Oversight Boards regarding whether to continue, modify, or terminate a program or project; and
- Provide advice and other assistance to the Secretary of HUD and other senior management personnel of HUD to ensure that information technology is acquired and information resources are managed effective and efficiently.

Prior to this delegation, in 2009, the HUD CIO had undertaken two assessments of the HUD IT environment, one from a technical point of view and the other from an organizational point of view. These assessments identified significant gaps in the current IT environment at HUD, including gaps in the implementation of the CIO's authorities.

Based on the recommendations made in these assessments, the HUD CIO embarked on a series of improvement efforts to rebuild HUD's confidence in the CIO's office and to ensure that the HUD CIO could implement the authorities as required by Congress and OMB. These improvement efforts continue today.

⁷ Federal Register Volume 76, No. 211 – Department of Housing and Urban Development – Delegation authority for the Office of the Chief Information Officer <http://www.gpo.gov/fdsys/pkg/FR-2011-11-01/html/2011-28301.htm>



On the organizational front, the CIO authorized a reorganization of the office to reflect a more customer-centric viewpoint and a more integrated IT investment management approach. The organizational changes include a number of key factors:

- Customer Relationship Coordinator (CRC) function - provides OCIO customers with a direct point of contact for all services provided by the CIO's office. The CRC plays a critical role in outreach to the programs, helping programs better understand their information needs, how IT can support those needs, and how the services offered by OCIO lead to increased services for HUD's program customers.
- Integration of enterprise architecture and capital planning. These two essential functions address several of the specific authorities. However, they only achieve the expected benefits from these responsibilities when they work seamlessly together to produce integrated and transparent IT investment decisions and execution.
- The Performance and Risk Management is now in place and will begin to assist the CIO in standardizing the IT measurement process, both from an internal perspective with regard to HUD's OCIO customer satisfaction and from an external perspective in terms of HUD's satisfaction with its IT vendors and contractors.

In addition to the organizational changes, CIO began Business Process Improvement efforts aimed at tightening management and oversight of HUD's IT investment management practices. In 2011, HUD developed the IT Investment Management Framework that integrated the IT investment management practices prescribed by legislation, mandate, good practice, and years of CIO experience in the federal arena. The [HUD Policy for the Information Technology Management Framework](#) was signed in July of 2011. This policy provides the overall framework for the implementation and foundation for an annual program of process improvement and maturation the CIO has undertaken. The policy contains a list of the congressional and executive drivers that create the CIO's authorities that the policy directs HUD to implement. Since the implementation of this foundational policy, HUD has started rewriting all its major policies to align with the tenets of the IT investment management approach. Policies for [IT Capital Planning](#), [IT Governance](#), [Project Planning and Management](#), and [IRM Strategic Planning](#) were updated and approved in 2011. Policies on risk management and performance management are currently being socialized at this time. Policies on enterprise architecture are in development.

To supplement development of policies to reflect the integrated implementation of CIO authorities, the CIO has annually undertaken a number of process improvement initiatives to bring HUD's IT management into line with the authorities. These improvement initiatives decided on at the beginning of the year and included in OCIO's overall roadmap as supporting initiatives under OCIO Goal 4: Transform OCIO into a culture of operational excellence that can achieve current and future Departmental goals.

Ongoing initiatives include:

- Restructure of the IT governance process streamlining of the oversight of HUD's IT investments, improve decision making, and clarify roles and responsibilities. The new governance process was implemented in 2010-2011. Since then, HUD has gathered lessons learned and implemented a few more refinements and additional requirements to meet mandates.
- The development of an IT investment management framework concept of operations, which offers, at a high level, the integration of IT activities required by the CIO authorities. The



framework ensures that all IT investment management activities work together to produce transparent, well-run initiatives that return real value to HUD.

Enterprise data services (EDS). EDS projects will improve HUD's data management capability to change from a system focus to an enterprise focus in order to increase data quality, data understanding, and data sharing across the Department. This Initiative and the services provided will allow HUD to accurately define, integrate, utilize, and retrieve data from applications across the Agency and external data sources and deliver it in a timely manner to support critical business decision making. Enterprise data governance and standards will increase data management efficiency and reduce duplicate and redundant data.

HUD Segment Architecture. HUD developed and implemented its HUD Segment Architecture Methodology (HSAM), a business-driven, results-oriented representation of the strategy, process, and data for a specific portion or "segment" of an enterprise that engages business stakeholders and delivers value to business areas. It helps establish clear relationships between strategic goals, detailed business and information management requirements, and measurable performance improvements.

Program Planning and Management (PPM) Life Cycle. To improve the management of all HUD IT projects, OCIO implemented the Program Planning and Management Life Cycle to provide guidance to projects on how to manage projects within a consistent HUD framework. The life cycle incorporates the CIO authorities that direct project planning, budgeting, execution, and close-out. The first version of PPM life cycle is currently being updated to include additional legislative and executive direction, including guidance for using IT commodity, cloud first, shared first, and others in the project planning cycle.

Project Health Assessment - monitoring actual project performance against expected outcomes for project cost, schedule, benefit, and risk; establishing and documenting cost-, schedule-, and performance-based thresholds for triggering remedial actions or elevating project review to higher-level investment boards.

- Monitoring of key performance indicators Early warning of overall performance
- Diagnosis/determination of most effective early course correction
- Strengthening of IT governance Improved line-of-sight between project teams and senior executives
- Boosting of quality/timing of interventions to keep projects on track
- Status visual through a dashboard to assess causes/impact
- Feeds decision-making boards; such as, Technical Review Committee (TRC), Customer Care Committee (CCC), Enterprise Investment Board (EIB), and Investment Review Committee (IRC)

Because the understanding of the CIO authorities is always evolving, the HUD CIO is committed to continuous improvement of the ways through which the OCIO authorities are implemented.



A-5 Cybersecurity Management

EXXA	Cybersecurity Management	Summarize your agency's strategy to ensure that IT investment and portfolio decisions align with the Administration's Cybersecurity Priority Capabilities and your agency's IT security goals, and how you will continue to strengthen this alignment
EXXB	Cybersecurity management	Describe your agency's approach to ensure that all mission critical applications have the proper continuity of operation and disaster recovery capabilities such as the agency can support the proper level of continuity of Government Operations in accordance with Federal statute and guidance.

Cybersecurity Priority Capabilities (EXXA)

The Federal cybersecurity Cross-Agency Priority Goal helps HUD improve cybersecurity performance by focusing efforts on what data and information is entering and exiting the networks, what components are on the information networks and when security status changes, and who is on the systems. HUD is focusing agency efforts on improving the security of networks by implementing the Administration's priority cybersecurity capabilities and developing metrics to measure their success.

Below is HUD's plan and current status in meeting the cybersecurity Cross-Agency Priority Goal. *Federal Target: Achieve 95% use of critical cybersecurity capabilities on federal executive branch information systems by 2014, including strong authentication, Trusted Internet Connections (TIC), and Continuous Monitoring.*

Trusted Internet Connections (TIC) - Consolidate external Internet traffic and ensure a set of common security capabilities for situational awareness and enhanced monitoring.

- Current Status: HUD has consolidated all of its external internet traffic onto four approved TIC Access Points (TICAP). The TICAPs are 95% compliant with TIC Capabilities based on the TIC evaluation performed in June 2012. A HEAT procurement action is in process to migrate from HUD operating its own TICAPs to obtaining TICAP services from a service provider available under the Federal Networkx contract. Procurement requires full compliance with TIC capabilities.
- 2014 Plans: All external traffic will flow through a TICAP service provider obtained through the Federal Networkx contract that is fully compliant with TIC capabilities.

Continuous Monitoring of Federal Information Systems - Transform the historically static security control assessment and authorization process into an integral part of a dynamic enterprise-wide risk management process. This change allows departments and agencies to maintain an ongoing near-real-time awareness and assessment of information security risk and rapidly respond to support organizational risk management decisions.

Current Status: HUD has stood up its Continuous Monitoring Program modeled on NIST guidance (SP 800-137, Information Security Continuous Monitoring for Federal Information Systems and Organizations) and the Continuous Asset Evaluation, Situational Awareness, and Risk Scoring Reference



Architecture (CAESARS) created and published by the Department of Homeland Security (DHS). HUD's program is network based at this time and provides regular reporting for 14 security domains.

2015 Plans: Under HEAT, HUD plans to establish an Automated Monitoring capability (AM2) for consolidated, continuous monitoring reporting from the HEAT service providers to produce enterprise level reports. Specifically, HUD's targeted capability will gather data from multiple, disparate sources and provide high level visibility into the Department's security posture. This effort will coordinate and leverage DHS's new Continuous Diagnostic and Mitigation Program to the greatest extent possible.

Strong Authentication - Ensure only authorized employees have access to Federal information systems by requiring a higher level of assurance through using multi-factor authentication, such as Personal Identity Verification (PIV) cards.

(See also: HUD Enterprise Roadmap, 4.6 Security and Privacy; 4.6.1 Security Reference Model; 4.6.2 Enterprise Security Architecture)

Security Requirement (EXXB)

The portfolio shared services/systems solutions "must" be technically and operationally feasible; they should be suitable as input for more detailed design phases; they should be located within proximity of the overall portfolio Pareto front with regard to the portfolio metrics; and they should explicitly consider opportunities for commonality in internal functions, technology choices, operations, and design parameters (to be captured in a commonality scheme for each of the portfolio design solutions).

A set of nine systems architecting principles for commonality in shared systems portfolios was synthesized based on previous work, literature and first-hand experience in applied systems architecting and commonality analysis for shared systems, which will be applied to ensure that mission critical applications have the proper continuity of operation and disaster recovery capabilities such that the agency can support the proper level of continuity of government operations in accordance with Federal statute and guidance.

Principle 1: Equal external system requirements enable equal system design solutions

In system design theory, it is generally assumed that the choice of design solutions for a technical system is exclusively driven by the need to fulfill specific requirements provided by the customer or system stakeholders [PB-96] [Suh-01]. These requirements can either be functional requirements stating what the system is supposed to do, performance requirements specifying how well the systems is supposed to accomplish a specific function, or operational requirements specifying the operating environments and regimes that the system has to provide its functionality in. Based on this external requirements-driven approach to system design, identical functional, performance, and operating requirements for two systems would lead to the exact same technology choices and design implementations for the two systems. Unless two design implementations have exactly the same metric values but use different technology choices or operating processes (which is very unlikely), there could not be a motivation for choosing different design implementations. A possibly exception for the deliberate choice of divergent design solutions even if the external requirements are identical would be the need for protection against common cause failures. An example for this situation is the design of the space shuttle guidance system which features different computer designs with identical requirements [KSC-88] in order to achieve redundancy and protect against common cause failures of all guidance computers.



The practical significance of Principle 1 lies in its applicability and potential as a heuristic for identifying opportunities for common technology choices, common operating processes, and common elements of system form. Commonality opportunities may be feasible and beneficial if

Principle 2: Solution-neutral requirements and metrics are the basis for effective system design the functional, performance, and operational requirements for two systems are similar but not necessarily identical. The degree of similarity (perhaps better called “overlap”) in requirements can be used to judge the likelihood of the occurrence of beneficial commonality. If a high degree of overlap exists, the likelihood for beneficial use of commonality is high. The degree of similarity or overlap required for specific commonality opportunities can be varied to investigate the sensitivity of the overlap and to identify robust commonality opportunities.

Principle 2: Solution-neutral requirements and metrics are the basis for effective system design

In Principle 1, we have established that system design is driven by functional, performance, and operational requirements. If these requirements can only be fulfilled by a small set of or a single technology or design choice, then the design analysis will not necessarily result in the most effective design solution because an insufficient number of alternatives for the design will be considered feasible (i.e. the space of designs will be too small). This situation can best be described by the term solution-specific requirements; which are usually based on making assumptions about the system form or internal functionality, rather than basing requirements purely on externally delivered functionality. An example for solution-specific requirements would be to require a specific number of wheels or a specific energy storage technology for a planetary exploration ground vehicle; the correct way to formulate requirements in this case would be to specify a vehicle payload and range capability and leave the choice of internal functionality and associated technologies open to the system architect or designer for analysis. Solution-specific requirements are often derived by using a previous architecture (heritage architecture) as the basis for writing requirements. This approach is often taken if there are severe resource constraints (time, budget) on the architecting phase. The resulting exploration of the architecture space is then generally constrained to the vicinity of the heritage architecture and may result in local optimization instead of global optimization.

A similar argument can be made for the metrics used to compare architecture alternatives for a given system: good metrics should measure objective attributes such as cost, risk, and performance properties of the system architecture alternatives, rather than measuring whether or not architecture provides a particular internal functionality or utilizes a particular technology choice or operating process.

It is important to note that the definition of what solution-neutrality means is always only relative to the level of analysis being conducted. At the top-level, solution-neutral requirements and metrics are defined by the system stakeholders/beneficiaries. As the analysis proceeds to lower levels of system design with increased design resolution (for example to individual subsystem design), the choice of internal functions, technology choices, operating processes, and elements of form at the higher level will become fixed requirements and specifications for the lower-level analysis; and constrain the way solution-neutral requirements and metrics can be defined for the lower-level design analysis. At any level, a definition of solution-neutrality therefore requires careful examination of the analysis assumptions to be made.

Principle 3: Comprehensive investigation of the architectural space enables the informed selection of a set of “good” architectures



Traditionally, design space exploration is either carried out manually and involves the exploration of a limited number of concepts selected based on expert judgment [PB-96]; or it is carried out in automated fashion and involves optimization, i.e. the numerical selection of a preferred concept based on minimization of one or more objective functions.

Expert judgment may lead to the choice of a design solution that represents a global optimum, but no guarantee can be made of the global optimality because the space of solutions is not comprehensively known. A similar argument can be made for optimization approaches. Given that most design problems feature discrete variables (e.g. discrete choices of design features or technologies), the analytical derivation of a global optimum is often not possible; and the analysis must rely on numerical analysis using heuristic algorithms such as simulated annealing or genetic algorithms. While repeated application of these algorithms with differing initial conditions can provide a degree of certainty with regard to finding the global optimum, the identification of the actual global optimum cannot be guaranteed for arbitrary architecting or design problems.

In addition, the selection of a single perceived global optimum, either through expert judgment or through optimization does not provide insight into other good design solutions which may only be slightly worse with regard to the metrics used for comparing design solutions. As the selection of preferred design solutions for a system is often influenced by non-quantifiable properties as much as by quantifiable metrics; knowing a range of “good” design solutions is therefore generally considered to be better than just knowing “the best” design solution. This observation could be considered a separate principle, but for the purposes of this thesis we will consider this concept of “good” architecture or design part of Principle 3. The answer to these limitations of traditional design approaches is the comprehensive enumeration and evaluation and ranking of design alternatives across the entire design space. This way, all optima (both global and local) can be identified and a robust set of “good” design solutions can be chosen based on the quantifiable metrics. We use the term “good” architecture or design solution because of the influence of non-quantifiable externalities which contribute to the selection process in addition to the quantitative metrics defined prior to the analysis. A selection of a single or multiple preferred design solutions is then possible based on the non-quantifiable properties. Examples for comprehensive design space exploration are provided in the literature. Tools specifically developed for supporting the comprehensive investigation of architecture level design spaces are the Morphological Matrix methodology, Ben Koo’s Object Process Network (OPN), and the Architectural Decision Graph developed by Willard Simmons.

Principle 4: Sensitivity analysis and associated design iterations enable informed concept selection

Once a comprehensive investigation of the architectural space has been carried out, it is not necessarily clear which assumptions and requirements drive the ranking of concepts with regard to the metrics used for ranking architectural alternatives. Varying requirements and assumptions

Principle 5: Choosing non-optimal system design solutions may enable superior portfolio-level design solutions

The life cycle cost, risk, and performance properties of a portfolio of shared systems are determined by the properties of each of the constituent systems. In case the constituent systems are coupled, as for example through common element designs and technology choices, the properties of the systems can be traded against each other. It may, for example, be necessary to select a system design solution which is non-optimal when viewed individually in order to enable commonality in design with another system in the portfolio. The implementation of this commonality opportunity then may result in significant



improvement of the portfolio life cycle properties. This illustrates that it is necessary to consider more design solutions than the best-ranked one for each of the constituent systems of a shared portfolio in order to enable effective architecting of the portfolio. This principle has been explicitly recognized and implemented in the fuzzy-Pareto-front approach.

It is interesting to note that this principle is somewhat different from the points on “good” architecture made above. For an individual system, non-quantifiable externalities are the reason for choosing non-optimal architectures or design solutions. For a portfolio of systems, non-optimal individual architectures or design solutions can lead to portfolio level optimality due to synergies like commonality, even if non-quantifiable externalities are not present in the selection process.

Principle 6: Commonality opportunities for complex systems can be classified by a set of distinct types

The review of the state of the practice of commonality analysis for shared systems portfolios (see Chapter 1) showed that existing commonality analysis methods tend to be focused on commonality as identified in design parameter values; other types of commonality between shared systems are generally not considered explicitly. While this formulation can be used to capture commonality opportunities that are relevant to decreasing cost and risk in detailed design and manufacturing, it does not address the causes for commonality or customization within a particular portfolio: similarities or dissimilarities in internal functional and operational requirements, and in technology choices for the internal functions. If two systems are designed to the exact same functional and performance requirements, there is no need for two customized solutions (see Principle 1). This indicates the need for a more

Principle 7: The different commonality types for complex systems form a logical hierarchy

The commonality types functional, operational, technology, design commonality, and reusability form a hierarchy in the sense that the preceding commonality type is a precondition for the succeeding one. This observed hierarchy within the commonality types can be used to more efficiently identify commonality opportunities: functional overlap is assessed first; if functional overlap is satisfactory, then operational overlap is assessed, and so on. Using this branch-and-bound approach the number of system pairs that need to be investigated for commonality opportunities can be reduced significantly compared to a comprehensive combinatorial analysis.

Principle 8: The actual net benefits of commonality opportunities are smaller than envisioned benefits due to the occurrence of divergence

Research shows that during the development of portfolios of complex systems commonality that was architected into the system during the early phases of design has a tendency to diminish during preliminary and detailed design. There are multiple mechanisms for this so-called “divergence” phenomenon between common system designs in the portfolio, including sacrifice of commonality for short term cost and schedule gains as well as changes in requirements resulting from insight gained during the design and testing of the actual system. The impact of the observation of divergence in shared and automotive programs and the associated portfolios is that projected benefits of commonality during the architecting phase must be regarded as upper limits to the cost and risk benefits that will actually materialize, and that in addition to pure technical and economic feasibility, managerial feasibility of commonality also needs to be considered.

Principle 9: Continuous active portfolio-level management of commonality is required to realize the benefits of commonality



The tendency for commonality in shared systems portfolios to diminish over time due to the occurrence of divergence indicates the need to actively preserve and perhaps even re-introduce commonality during the course of design and testing of the systems in the portfolio. Given that the systems in the portfolio which are designed and tested first usually carry the penalties of commonality, there is not necessarily strong incentive for the preservation of commonality on the system-level of management. This indicates that active portfolio-level management support of commonality is the best way of ensuring that a maximum extent of commonality is realized in the final implementation of the portfolio. Studies of historical US human space flight and defense programs by Ryan Boas and Shawn Quinn are the basis for this observation.

In addition to active management of commonality, enforcement of commonality through a potentially modified contracting process is crucial to the success of commonality. By applying the set of nine systems architecting principles for commonality in shared systems portfolios, all mission critical applications will have the proper continuity of operation and disaster recovery capabilities, which will enable the agency to support the proper level of continuity of operations in accordance with Federal statute and guidance. In addition, as increasing capabilities are obtained via the cloud, under HEAT, the Agency will place increased reliance on risk management, as opposed to reactive remediation.

(See also: HUD Enterprise Roadmap, 4.6 Security and Privacy; 4.6.1 Security Reference Model; 4.6.2 Enterprise Security Architecture)



A-6 Workforce

FXXA

Workforce

Summarize your agency's approach to IT human capital planning, including the ability to build a future ready workforce to support the agency's strategic goals and objectives

Workforce (FXXA)

See: HUD Enterprise Roadmap, 3.1.4.1 OCHCO Human Resource Management Assessment; 3.1.4.2 OCIO Workforce Assessment; 3.1.4.3 Competency Requirements; 5.2.7.1 HUD Human Capital Transformation; 5.2.7.2 OCIO Human Capital Development



A-7 Managing Information as an Asset

GXXA	Managing Information as an Asset	Address how your agency will promote interoperability and openness throughout the information life cycle and properly safeguard information that may require additional protection
GXXB	Managing Information as an Asset	Describe how your agency ensures that personal information, including personally identifiable information (PII) and controlled, unclassified information (CUI), is accessible only to authorized personnel and how frequently these controls are verified

Asset Requirement (GXXA)

Technology is fundamentally transforming how HUD conducts business and interacts with citizens. The President has charged us with harnessing the power of technology to help create a 21st century digital government – one that is efficient, effective and focused on improving the delivery of services to the American people. The roadmap actions outlined within the Digital Government Strategy form a series of critical next steps to help build a 21st century government that innovates with less. To put HUD on a path to unlock the potential of a digital government, the strategy emphasizes several key objectives.

First, HUD must enable citizens and an increasingly mobile federal workforce to securely access high-quality digital government information, data and services – “anywhere, anytime, on any device”

Secondly, HUD must ensure that the organization adjusts to this new digital world and leverage a modern infrastructure to support HUD’s digital government efforts and leverage the Federal Government’s buying power to reduce costs

Lastly, HUD’s strategic platform will fundamentally shift how HUD connects with, and provides services to, the American people

In addition, the Privacy program at HUD supports and promotes interoperability and openness throughout the information life cycle through participation in Integrated Project Teams (IPT) and active membership in the Technical Review Sub-Committee (TRC). The privacy function on these teams allows information to be properly safeguarded through the use of privacy artifacts, initial privacy assessment, and the privacy impact assessment. These documents are required to be completed during the life cycle phases of all IT systems prior to system production. In addition, information collection requests are also properly safeguarded with the requirement to complete an initial privacy assessment to ensure privacy protection controls are implemented and maintained. These practices are mandated to ensure that legislative guidance is adhered to for the protection and safeguarding of Personally Identifiable Information (PII).

NEED DIGITAL STRATEGY – MILESTONE 2.1 & 7.1.4 DOCUMENT TO INCLUDE

Digital Strategy – Milestone 2.1 & 7.1 R
(See also: HUD Enterprise Roadmap, 5.2.2.4 Open Government)



Asset Requirement (GXXB)

The Privacy Office partners with program offices to ensure that PII is protected through SSN/PII minimization efforts requiring agencies to significantly reduce and or minimize the use of SSNs and PII in IT systems. Through these efforts the agency is able to review controls in place and secure that appropriate authorized personnel have access and the responsibility to verify controls through continuous monitoring. The Privacy Office works closely with the Office of IT Security, Privacy Liaison Officers (PLOs), and the Information System Security Officers (ISSOs) to ensure these efforts are complete and to provide the necessary guidance for agency best practices.

The Department has implemented Access Controls consistent with Federal Cybersecurity Standards contained in NIST 800-53 - Recommended Security Controls for Federal Information Systems and Organizations. Access controls include ensuring:

Users undergo appropriate reviews prior to being granted access to any HUD system including appropriate background screening and undergo a formal approval process in order to obtain access into any HUD IT system.

- Users are granted only the level of access needed.
- Temporary and emergency accounts and strictly managed and time restricted.
- Ensuring individuals who perform duties as administrators shall have separate administrator and non-administrator accounts.
- Prohibiting guest/anonymous accounts.
- Ensuring all default vendor or factory-set administrator accounts and passwords are changed before installation or use on all systems
- At a minimum, reviewing user accounts annually.
- Disabling user accounts after set periods of inactivity but no more than 90 days.

In addition to access controls, the Department:

- Has implemented encryption on all Departmental laptops.
- Is implementing end point encryption to mitigate the potential for data leakage if data is saved to a removable end point device.
- Is developing a program to monitor and prevent inadvertent data leakage in Departmental email
- Has a major, multi-year project underway to modernize and automate its HUD's Identity, Credential and Access Management (ICAM) processes which rely predominantly on manual processes built up over time to meet discrete information technology system requirements.

As a formal mechanism, HUD's Privacy Impact Assessment Guidance ensures that personal information, especially PII, is accessible only to authorized personnel.

PRIVACY IMPACT ASSESSMENT GUIDANCE

What is a Privacy Impact Assessment (PIA)?

A PIA is an analysis of how personally identifiable information is collected, used, disseminated, and maintained. It examines how the Department has incorporated privacy concerns throughout the development, design, and deployment of a technology or rulemaking.

"Personally identifiable information" is defined as any information that permits the identity of an individual to be directly or indirectly inferred, including any information which is linked or linkable to



that individual regardless of whether the individual is a U.S. citizen, lawful permanent resident, visitor to the U.S., or employee or contractor to the Department.

Purpose of a PIA

The purpose of a PIA is to demonstrate that program managers and system owners have consciously incorporated privacy protections throughout the development life cycle of a system or program. This involves making certain that privacy protections are built into the system from the initiation of development and not after the fact when they can be far more costly or could affect the viability of the project.

The PIA is a document that helps the public to understand:

- What information the Department is collecting,
- Why the information is being collected,
- How the information will be used and shared,
- How the information may be accessed, and
- How it will be securely stored.

The PIA demonstrates that the Department considers privacy from the beginning stages of program and system development and throughout the life cycle of the program or system. The PIA process and the document itself are intended to ensure that privacy protections are built into the program or system from the start, not after the fact when privacy concerns can be far more costly to address or could affect the investment's viability. Additionally, the PIA demonstrates that the program and system owners have made technology choices that reflect the incorporation of privacy into the system's architecture.

The PIA is a living document that needs to be updated regularly as the program and system are changed and updated, not just when the program or system is deployed. In cases where a legacy system is being updated, the PIA demonstrates that the system developers and program managers have implemented privacy protections into the updates.

A PIA should accomplish two goals:

- It should determine the risks and effects of collecting, maintaining and disseminating personally identifiable information via an electronic information system; and
- It should evaluate protections and alternative processes for handling information to mitigate potential privacy risks.

Information Covered by the PIA

A PIA should be completed for any program, system, technology, or rulemaking that involves personally identifiable information. Personally identifiable information is information in a program, system, online collection, or technology that permits the identity of an individual to be directly or indirectly inferred, including any other information which is linked or linkable to that individual regardless of whether the individual is a U.S. citizen, lawful permanent resident, visitor to the U.S., or Department employee or contractor.

Examples of personally identifiable information include:

- Name
- Date of birth
- Mailing address



- Telephone number
- Social security number
- E-mail address
- Address zip code
- Account numbers
- Certificate/license numbers
- Vehicle identifiers including license plates
- Uniform resource locators (URLs)
- Internet protocol addresses
- Biometric identifiers (e.g., fingerprints)
- Photographic facial images
- Any other unique identifying number or characteristic
- Any information where it is reasonably foreseeable that the information will be linked with other information to identify an individual

Office of Management and Budget (OMB) Memorandum M-03-22, Guidance for Implementing the Privacy Provisions of the E-Government Act of 2002, states that these data elements may include a combination of gender, race, birth date, geographic indicator, and other descriptors.

In some cases the technology may only collect personally identifiable information for a moment. For example, a body screening device may capture the full scan of an individual. While the information may not be maintained for later use, the initial scan may raise privacy concerns and a PIA could be required. Examples of technology with privacy implications could include systems utilizing radio frequency identification devices (RFID), biometric scans, data mining, or geospatial tracking. In other cases, the technology may not be changing, but a program or system opts to use data from a new source such as a commercial aggregator of information. A PIA is required when such new sources of information are used.

When to Conduct a PIA

A PIA should be conducted when a program or system is doing any of the following:

Developing or procuring any new technologies or systems that handle or collect personally identifiable information. A PIA is required for all budget submissions to OMB. The PIA should show that privacy was considered from the beginning stage of system development. If a program or system is beginning with a pilot test, a PIA is required prior to the commencement of the pilot test.

Developing system revisions. If an organization modifies an existing system, a PIA will be required. For example, if a program or system adds additional sharing of information either with another agency or incorporates commercial data from an outside data aggregator, a PIA is required.

Issuing a new or updated rulemaking that entails the collection of personally identifiable information. If an organization decides to collect new information or update its existing collections as part of a rulemaking, a PIA is required. The PIA should discuss how the management of these new collections ensures conformity with privacy law. Even if a component has specific legal authority to collect certain information or build a certain program or system, a PIA is required.

The PIA requirement does not provide an exemption for pilot testing a program or system. If a PIA is ultimately required for a system, any pilot of that system must have the PIA completed prior to the pilot launch. This applies even if the pilot initially plans to use anonymous data but will use personally



identifiable information as it moves out of pilot. This is because the decisions affecting privacy are made leading up to the initiation of a pilot. Completion of a PIA prior to launch of a pilot ensures that privacy protections are considered during the development process instead of after a pilot has concluded when changes are potentially more costly and time-consuming.

The Initial Privacy Assessment (IPA) is designed to assess whether a Privacy Impact Assessment (PIA), a Privacy Act system of records notice (SORN), and/or other related privacy documents are required. Both the IPA and PIA have explanation and instructions to distinguish the difference and the use of each form.

Regarding “Private” Information

Personally identifiable information should not be confused with “private” information. Private information is information that an individual would prefer not be known to the public because it is of an intimate nature. Personally identifiable information is much broader; it is information that identifies a person or can be used in conjunction with other information to identify a person, regardless of whether a person would want it disclosed. If the information or collection of information connects to an individual it is classified as “personally identifiable information.”

Example: A license plate number is personally identifiable information because it indirectly identifies an individual, but it is not deemed “private” because it is visible to the public. PIAs require analysis of the broader “personally identifiable information,” not just the narrower “private information.”

Classified and Sensitive Information and Systems

A PIA should be conducted for all systems handling personally identifiable information, including classified or sensitive systems, but the program or system may be exempted from the requirement to publish the PIA. Note that Privacy personnel are cleared to read classified and sensitive materials, and prior to public release of any PIA all proper redactions will be made. The Privacy Act Officer will work cooperatively with the program manager or system owner to make all appropriate redactions or determine whether the PIA is exempt from the publication requirement.

Classified and sensitive systems conduct PIAs in order to ensure that the use and sharing of Department data has been carefully and thoughtfully considered. Conducting a PIA at the beginning of the development process allows the Privacy Act Officer, program management, and system developers to ensure that the information is handled appropriately in the first instance. The PIA also provides for a framework to conduct ongoing reviews of these programs.

Privacy Act System of Records Notice (SORN) Requirements vs. PIA Requirements

The Privacy Act of 1974 requires agencies to publish Systems of Records Notices (SORNs) in the Federal Register that describe the categories of records on individuals that they collect, use, maintain, and disseminate. Generally, the requirements to conduct a PIA are broader than the requirements for SORNs. The PIA requirement is triggered by the collection of personally identifiable information. SORN requirements are triggered by the collection of personally identifiable information that is actually retrieved by a personal identifier. Even if the collection of information remains the same and is already covered by an existing SORN or PIA, if the technology using the information is changed or updated, a PIA must be completed or updated to analyze the new impact of the technology. The SORN covering the system must also be reviewed to ensure its completeness and accuracy.

(See also: HUD Enterprise Roadmap, 4.6.3 FICAM Initiative)



A-8 Commodity IT and Shared Services

HXXA	Commodity IT and Shared Services	Describe your agency's approach to maturing the IT portfolio, to include optimizing commodity IT (including data centers), rationalizing applications and adopting a service orientation approach
HXXB	Commodity IT and Shared Services	Describe the agency's plan to re-invest savings resulting from consolidations of commodity IT resources (including data centers)
HXXC	Commodity IT and Shared Services	Describe your agency's approach to maximizing use of inter- and intra-agency shared services (such as those enabled by common platforms and lines of business) and shared acquisition vehicles for commodity IT, such as those determined by the Strategic Sourcing Leadership Council, in order to reduce duplicative contract vehicles

Commodity Requirement (HXXA)

Building on the work previously done to commoditize IT and shared services, the Department is planning to continue to outsource its IT services to better support the execution of its mission. The process of planning HUD's future IT support capabilities, HEAT, provides an excellent opportunity to refine the Department's requirements and optimize the services it receives.

Reducing costs by reducing consumption.

- Providing open solutions to enhance sharing, reduce delivery time, standardize and streamline processes.
- Offering government visibility into and control over the IT architecture.
- Providing accurate and complete analysis of problems to optimize solutions.
- Supporting the ability to adapt to new technologies as they become deployment-ready
- Minimizing the disruption to the agency.
- Providing price/cost transparency.
- Provisioning of End-to-end services.
- Supporting more efficient spending based on demand management and cost control
- Providing better resource allocation through improved cost transparency, insight, and control.

HUD had identified four target areas to focus its "immediate" consolidation efforts:

1. Human Resources End-to-End (HR E2E) – Performance Management Module (Shared Service).
2. MicroStrategy Enterprise Licensing / Business Intelligence (Shared Service).
3. Microsoft Enterprise Licensing.
4. Email to the Cloud.

The first two target areas are related to the implementation of HUD's Shared Services. The remaining two target areas, Microsoft Enterprise Licensing and Email to the Cloud, are still in the planning phase



and therefore are not as evolved and do not report the same level of information. Going forward HUD will impose a cloud-first, shared services mandate for all new initiatives.

By its nature, this framework and rationale will provide the strategy to improve the life cycle cost and risk properties of HUD's IT portfolios through use of commonality. [1]

The Office of Management and Budget stated: Federal Agency CIOs are well positioned to work with other agency executives and provide leadership for the Shared-First effort by using a cross organizational perspective to identify "opportunities" for the consolidation of redundant mission, support, and commodity IT services [2] at all levels, in all federal sector Lines of

Business (LOBs), in all program areas, and with all IT acquisition vehicles. This is consistent with the requirements set forth in Presidential Executive Order 13589[3] that address efficient agency spending. To this end, in August 2011 OMB Memorandum M-11-29[4] clarified the authority of Agency CIOs in four areas: IT Governance, Commodity IT Management, IT Program Management, and Information Security.

Additionally, OMB Memorandum M-12-10 directed Federal Agency Chief Operating Officers (COOs) to annually lead an agency-wide IT portfolio review, called a PortfolioStat. A PortfolioStat session is a face-to-face, evidence-based review of an agency's IT portfolio that includes examining cost, schedule and performance data on commodity IT investments, and identifying potential duplications or investments that do not appear to be well aligned to agency missions or business functions, with an eye toward consolidating or eliminating those investments to free up agency funds for innovation and other requirements.

HUD's systems are business and technical systems that have at least one key element which nominally operates in or in support of the housing industry. Portfolios of business and technical systems are sets of systems which are interrelated by a common purpose. Commonality is the concept of reusing elements of existing HUD systems for future systems or reusing elements between future systems [Wai-87]. In the context of this framework, commonality and shared elements are used interchangeably. The last decades have seen an increasing trend towards the development of portfolios of systems rather than the development of individual systems.

The high costs and risks associated with the development, production, and operation individual systems provide the motivation for developing methods to improve these life cycle properties (i.e. to reduce life cycle cost, developmental risk, and operational risk). The organization of systems into shared initiatives enables the systematic use of synergies between the individual systems to reduce the overall lifecycle cost and risk of the portfolio when compared to developing the constituent systems individually. These synergies manifest themselves in the form of common subsystem or component designs, common testing and training procedures and infrastructure, among others. Experience with past systems portfolios suggests that synergies in the form of commonality can, under the right circumstances, lead to significant reductions in life cycle cost and risk.

(See also: HUD Enterprise Roadmap, 6.3.2 Support for ITIM Investment Select Process)



Commodity Requirement (HXXB)

Commonality in shared systems portfolios is defined as the possession of shared features or attributes by two or more systems or services in the portfolio [MW2-08]. It is important to note that this definition of commonality does not discriminate with regard to the developmental status of the systems in question, i.e. whether a service or system has already been developed (legacy system), is currently under development, or is planned for future development.

Commonality has long been recognized as an important tool for improving the life cycle cost and risk properties of shared systems portfolios. Major benefits achievable through commonality within shared systems portfolios are:

Reduced overall development effort and risk leads to both reduced development cost and a shortened development schedule for the portfolio, i.e. to benefits in the non-recurring parts of the portfolio lifecycle. The mechanism for achieving these benefits is the sharing of cost, reuse of designs, either intentionally or opportunistically from legacy designs. If implemented properly, the reuse of design will reduce the design effort required for the later designs in the portfolio, leading to a development cost reduction.

Reduced fixed recurring and variable recurring cost: reuse of existing capabilities, production, testing and training infrastructure leads to reduced fixed recurring cost (sometimes also called “standing army cost”), and economies of scale and learning curve effects through increased purchasing volumes of common components as well as reuse of manufacturing and production processes leads to reduced variable recurring cost in the portfolio.

Decrease operational risk of the portfolio through accumulation of more operational experience with the common elements. This is a particularly attractive benefit of commonality for systems for which generally very few units are built and operated. Each additional common unit that is operated provides a significant increase in operational experience.

Reduction in the number of dedicated spares required for system operation can lead to a significant reduction of logistics mass and spare part cost. It is easy to understand why common spare parts would lead to these benefits: if each spare part was unique, one would have to provide at minimum one unit each to protect against failures. If common spare parts are used, one unit may protect against several possible failures, thereby reducing the number of spare parts that need to be kept.

The success of HUD’s commodity IT strategy is based on maximizing cost savings. The most prolific commoditization will be the continued outsource of HUD’s IT services, to better support the execution of its mission. The process of planning HUD’s future IT support capabilities, HEAT, provides an excellent opportunity to refine the Department’s requirements and optimize the services it receives.

- Reducing costs by reducing consumption;
- Identify opportunities for commodity based solutions;
- Providing open solutions to enhance sharing, reduce delivery time, standardize and streamline processes;
- Providing accurate and complete analysis of problems to optimize solutions;
- Providing price/cost transparency;
- Provisioning of End-to-end services;
- Supporting more efficient spending based on demand management and cost control; and
- Providing better resource allocation through improved cost transparency, insight, and control.



If the Agency is successful in its above efforts, the actions will allow for reinvestment of the savings to insert innovative technologies, through technology upgrades, refresh and, or insertion. As part of the “roadmap,” HUD will include strategies for reallocation of savings resulting from consolidations of “commodity IT” resources which will serve as a guide for investment planning.

Commodity Requirement (HXXC)

Shared-services/systems or commonality offers great potential for improving the life cycle properties of shared systems portfolios. However, in order to be implemented with maximum net benefit, commonality must be considered during the architecting stage of the portfolio and it must be managed actively and according to realistic expectations (such as loss of net benefit due to divergence) over the life cycle of the portfolio. The system architect responsible for a shared services/systems portfolio [5] with commonality is faced with four very different challenges when trying to find an effective design solution:

1. The creative challenge of finding good technically and operationally feasible design solutions for each of the systems in the portfolio.
2. The challenge of identifying opportunities for commonality that is technically and operationally feasible.
3. The challenge of evaluating economic (benefits vs. penalties), managerial and organizational feasibility of technically and operationally feasible commonality opportunities.
4. The challenge of selecting one or several portfolio architectures that can serve as the basis for more detailed engineering development activity.

HUD plans to integrate and automate its human capital management services and consolidate the agency’s HR systems by acquiring products and services from the U.S. Treasury, a Federal shared services provider. HUD will also procure services to augment U.S. Treasury’s Human Resources Line of Business (HRLOB) System, HR Connect. These include Succession Planning, Workforce Planning, Workforce Analytics, and HR so for HUD’s customers and counterparts, leading to improved customer satisfaction, better workflow management, and faster and more accurate service delivery.

(See also: HUD Enterprise Roadmap, 5.2.2.1 PortfolioStat; 5.2.2.2 Shared Services; 5.2.2.3 Cloud First Policy)



A-9 Accessibility

IXXA	Accessibility	Creating a diverse environment where individuals of all abilities can work, interact, and develop into leaders (IXXA);
IXXB	Accessibility	Integrating accessibility considerations into the processes used in developing, procuring, maintaining, or using IT
IXXC	Accessibility	Building workforce skills to support an environment where Section 508 requirements and responsibilities are well understood, communicated, implemented, and enforced

Accessibility Requirement (1XXA)

Emerging Leaders Program

"Keys that Open Doors to Empowerment, Leadership, and Performance" Program Overview

The Emerging Leaders Program (ELP) is currently a 12-15 month competency-based training program for HUD's high performing employees who are interested in broadening their knowledge and developing the skills that are the foundation of effective leadership. This program is designed to improve the current performance of its participants as well as prepare them for future leadership positions. A variety of learning activities have been incorporated into the curriculum that allows participants to explore leadership issues and practices through venues such as, classroom training, executive interviews, developmental and shadowing assignments, and team projects. Participants also network with senior managers and executives within HUD and other organizations, and to gain ideas on how to become a successful leader.

The Program yields the following benefits to the participants and to the Department:

- A broadened perspective on effective organizational performance at HUD;
- Increased understanding of the role managers and supervisors play in the Department, the issues they handle, and the partnerships they build with other program organizations;
- Firm knowledge of the technical skills required to meet management challenges over the next decade;
- Strengthened commitment to personal responsibility for career planning and management;
- Creation of a network of talented and competent leaders from various segments of the Department who will collaborate for years to come on issues that support the mission and goals of HUD; and
- Increased retention of high-caliber and high-potential employees.

THE CURRICULUM



The ELP provide participants with an array of innovative tools, information, and experiences to enhance and develop their leadership practices. The training will consist of five non-consecutive weeks of formal training and through a series of developmental activities and assignments, participants will:

Receive training in the leadership competencies, as identified by the Office of Personnel Management, needed for successful performance in supervisory/managerial positions;

- Identify the roles, responsibilities, and expectations of a supervisor;
- Create a shared sense of mission within their organization; and
- Build efficient organizational systems that promote regular feedback, ongoing performance measurement, and continuous improvement.

DEVELOPMENTAL ASSIGNMENTS

Individual Development Plan – Each participant creates a Leadership Development Plan as a road map for professional career development while in the ELP. Participants are provided tools to help them define and meet specific career development objectives. Program facilitators counsel participants throughout the course of the year.

Book Reading – In order to broaden knowledge of the management field and strengthen analytical skills, participants read and write reviews of two books on management issues.

Management Interviews – Participants interview a minimum of three Federal managers at the GS 13, 14 or 15 levels. These interviews provide an additional opportunity for participants to gain visibility at the management level and critical information for long-term career planning and development.

Shadowing Assignment – A one-week "shadowing" assignment of a Federal manager at the GS 13, 14 or 15 levels allows participants to witness the concepts participants learn in the program as they apply to real world situations.

Development Assignments – Participants complete a 60-day internal and/or external developmental assignment to allow them an opportunity to explore other positions, functions, and program areas within HUD. It also allows them to work on challenging projects to enhance or develop their leadership capabilities.

Learning Team Activities – Participants are assigned to learning teams during a training session. Each team explores a Department-related issue and makes a one-hour team presentation of this issue during the final week of the program. This activity is designed to strengthen leadership and interpersonal skills, stimulate commitment to personal development, value and increase the understanding of diversity and provide a forum to explore current issues facing leaders in the Federal workplace.

ELIGIBILITY REQUIREMENTS

Interested candidates must meet the following criteria:

Must be a current, permanent, full-time HUD non-supervisor employee at the GS 12, 13 or 14 grade levels.

- Demonstrate high achievement and leadership potential.
- Able to commit to being away from their position of record for approximately four months, spread over a 12-15 month period.
- Able to commit to continued personal and professional growth and available to travel during development period.



- Commit to continuing their career at HUD for at least three times the length of training following completion of the program.

SELECTION PROCESS

Candidates will be selected to participate in the program from Headquarters and Field Offices.

The distribution of slots among Program Offices shall be based on succession planning data. A panel consisting of Administrative Officers and Human Resources Specialists will review each application to determine whether the application package is complete and meets minimum qualifications based on the merit system procedures. Applications meeting the minimum qualification requirements are then forwarded to a ranking panel, who will select applicants based on crediting plan rating and ranking factors submitted in the application, and other job related information contained in the required supplemental materials. Determination of the Best-Qualified candidates will be conducted by this panel. The Best Qualified candidates' names will then be forwarded to the Office of Chief Human Capital Officer and to a Panel that will conduct interviews of the applicants. The final recommendations are forwarded by the Assistant Secretaries or designees to Training Services and Human Resources who will notify candidates of their selection or non-selection.

Accessibility Requirement – Integrating Accessibility - (IXXB)

HUD puts strong emphasis on our Section 508 policies and procedures in an effort to integrate accessibility considerations into all of our processes. HUD has stood up a Section 508 Advisory board, implemented Section 508 training, and incorporated 508 requirements into the Project

Planning and Management Life Cycle.

Section 508 Advisory Board – A Section 508 Advisory Board has been established at HUD and is responsible for understanding, vetting and distributing information regarding department-wide implementation of Section 508. Furthermore, the members of this board will speak for their respective organizational areas and will ensure that the responsibilities of Section 508 are recognized and implemented as appropriate to their respective areas. These key program areas includes:

- Office of Fair Housing and Equal Opportunity (FHEO)
- Office of the Chief Information Officer (OCIO) Office of Human Resources (OHR)
- HUD Training Academy (HTA)
- Office of Departmental Operations and Coordination (ODOC)
- Office of the Chief Procurement Officer (OCPO)
- Office of Administration (OA) Office of Disability Policy (ODP)
- Other members of the principal staff or Senior Managers who may be appointed by the Chairperson

Accessibility Requirement – Workforce Skills (IXXC)

The HUD Section 508 training curriculum was designed to help employees understand how Section 508 affects job responsibilities and operations at HUD. Courses have been conducted at HUD headquarters and three field offices to prepare employees with the knowledge, tools, and resources needed to implement Section 508 effectively.



In addition, HUD has taken each of the courses and combined the participant guides, PowerPoint slides, and the instructor guides into a useful word resource document for all employees to leverage. Below is a summary of the courses offered?

Accessible Meetings and Presentations – In this course, employees learn basic etiquette for interacting with people with disabilities and simple techniques to plan and conduct a presentation that allows people with disabilities to fully participate. Focus is given to how to prepare accessible materials and using EIT during a presentation.

Assistive Technology and Section 508 – Here, employees will have the opportunity to learn about the types of AT used by people with disabilities and general principles of how they work. Standard AT used at HUD will be demonstrated.

Buy Accessible Wizard – The Buy Accessible Wizard (BAW) is a web-based tool developed to aid in the task of conducting proper market research and determining whether or not products and services are Section 508 compliant. By using the Wizard, employees can quickly determine if Section 508 applies to an acquisition and which specific standards apply for the Electronic and Information Technology (EIT) products or services being acquired. The Wizard also compiles a running summary that employees may use to document their market research process.

Market Research – In this course employees learn how to:

- Prepare documentation that validates a good faith market research effort for each contract product and service
- Apply methods to help you identify vendor's capabilities that can meet the requirements of contract products and services.
- Identify applicable Section 508 standards for a particular procurement
- Identify EIT.
- Determine market research plans based on products and services.
- Apply the HUD procurement tools to determine the availability of Section 508 compliant products and services.
- Identify vendors that can provide Section 508 compliant products and services.
- Telecommunications and Office Machines – In this course, employees learn how to:
 - Identify the vendor that can provide the telecommunications or self-contained, closed products.
 - Illustrate how a large office machine can be accessible or inaccessible to someone using a wheelchair.
 - Identify how telecommunications products can be made more accessible to people with hearing, vision, and mobility disabilities.
 - Evaluate product information based on your knowledge of the Section 508 standards for telecommunications and self-contained, closed products.

Web, Software, and Computer Technologies – This is for anyone who develops web information or applications for HUD's internet or intranet, or who purchases or develops software or computers. In the training provided, employees will learn how to use text, graphics, navigation, and layout to maximize the accessibility of web pages and software to people with disabilities.



Employees will also learn which components are required to maximize a computer's compatibility.

Using Video and Multimedia – This course focuses on video hardware, including captioning for people with hearing disabilities and incorporating audio descriptions for people with visual disabilities. Application is extended to computer and web-based multimedia and video teleconferencing, as well. If employees have any involvement in live or recorded video production, multimedia presentations, or video conferencing, this page is for them.

Section 508 Micro-Purchase Training – This course is a one-stop resource for all Section 508 information about micro-purchases at HUD.

Section 508 Project Planning and Management V2.0 (PPM V2.0) Life Cycle Compliance PPM V2.0 is the methodology used in developing, procuring, and maintaining IT. Therefore, incorporating Section 508 compliance in PPM V2.0 is critical for HUD to integrate 508 compliance throughout its IT life cycle. To this end, HUD has included in the Execution & Control [Phase User guide](#) where Section 508 compliance is required within certain PPM activities.

For further guidance on 508 compliance, HUD practitioners can refer to the [HUD Section 508 Policy website](#), which provides a link to the HUD level policy and has links to other relevant HUD communication and acquisitions guidance, most comprehensively at <http://hudatwork.hud.gov/po/arc/socio/sec508.cfm> (internal use only)