

**U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
OFFICE OF INSPECTOR GENERAL**

**OFFICE OF EVALUATION
INFORMATION TECHNOLOGY EVALUATIONS DIVISION
WASHINGTON, DC**



HUD IT Modernization Report (2015-OE-0002)

HUD OIG Evaluation 2015-OE-0002

HUD OIG Office of Evaluation


T: 202-603-8410; E: OE@hudoig.gov



U.S. DEPARTMENT OF
HOUSING AND URBAN DEVELOPMENT
OFFICE OF INSPECTOR GENERAL

September 29, 2015

MEMORANDUM FOR: Rafael C. Diaz, Chief Information Officer

FROM: Kathryn Saylor, Assistant Inspector General for Evaluation, GAH


SUBJECT: Issuance of Evaluation Report "*Information Technology Modernization*," 2015-OE-0002

Attached is U.S. Department of Housing and Urban Development (HUD), Office of Inspector General's final report on our evaluation of HUD's Information Technology (IT) capital planning, Enterprise Architecture (EA), and IT modernization program effectiveness. A draft report was provided to OCIO on August 24, 2015 and all comments are included in this report.

The Inspector General Act, Title 5 United States Code, section 8M, requires that OIG post its publicly available reports on the OIG website. Accordingly, this report will be posted at <http://www.hudoig.gov>.

If you have any questions, please contact Office of Evaluation.

Attachment



Executive Summary:

2015 Evaluation of the HUD's IT Modernization Programs

Purpose

The U.S. Department of Housing and Urban Development (HUD) relies heavily on information technology (IT) to deliver and manage services. IT management and senior leadership support is key to successful IT modernization, enterprise architecture (EA), and IT capital planning and investment programs.

Our objective for this evaluation was to review the implementation and maturity of HUD's capital planning and investment control (CPIC) process and EA program, focusing on how they support HUD's strategic plan and IT modernization roadmap. To accomplish our objective, we analyzed HUD's processes and policies, operational practices, and program IT budget and project data.

Recommendations

- IMPLEMENT A MISSION-CRITICAL SYSTEM DEVELOPMENT LIFE CYCLE PROGRAM
- DEVELOP A COORDINATED EFFORT TO IMPLEMENT AN IT LIFE CYCLE REPLACEMENT PROGRAM FOR MISSION-CRITICAL SYSTEMS
- DEVELOP AN IT ENTERPRISE RISK MANAGEMENT OFFICE
- DEVELOP AND STAFF AN OFFICE OF THE CHIEF INFORMATION OFFICER (OCIO)-LEVEL RISK MANAGEMENT OFFICE
- STANDARDIZE COMMUNICATION
- FINALIZE AND APPLY A STRATEGIC COMMUNICATION PROGRAM OF IT POLICY ACROSS OCIO & BUSINESS SEGMENTS
- APPROVE POLICY & PROCESSES
- APPROVE AT APPROPRIATE LEVELS, IMPLEMENT, AND DISSEMINATE POLICY & PROCESSES AS INTENDED

What HUD OIG Found

HUD is preparing to undergo a significant IT contract transition, has had key personnel turnovers over the years, and needs to address program office IT legacy systems. Therefore, it is important for HUD OCIO to develop, improve upon, and implement crucial and strategic IT programs and policies, which were reviewed in this evaluation.

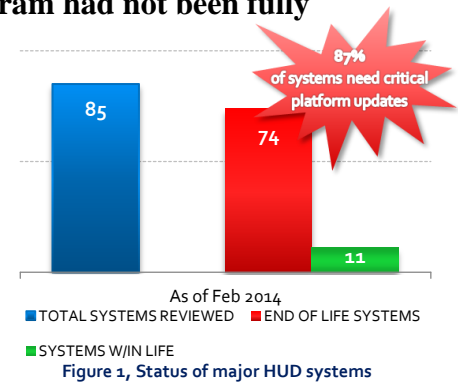
HUD had established initial elements of key IT programs and policies as a basis for effective IT capital planning, EA, and modernization. In our review, we identified several strategic deficiencies within HUD:

- **A HUD system development life cycle program had not been fully established:** OCIO maintains many IT systems for each program office; however, many mission systems are out of life cycle and require upgrades to both software and hardware. Based on data in the HUD high-level systems report,¹ 74 of 85 critical systems, which are operated by one or more components, are at the end of service or support from the vendor (figure 1).

- **An enterprise risk management office had not been established:** While some program offices implement and maintain a risk management program, an OCIO-level or department-wide enterprise risk management office had not been established. An independent risk management program at the department level can integrate risk management into the strategic and decision-making processes that cut across the organizational layers and reduce the practice of managing risks within functional silos or program offices.² At a minimum, it is recommended that the OCIO form a risk management office to establish integration of IT systems across business segments.

- **IT projects and project scopes differed between OCIO and program offices:** Project lists, scopes, and investments were not synchronized across OCIO departments and program offices. We found a number of lists that were not synchronized, were difficult to cross-reference, and could not be used to determine active or non-active projects and investments. Also, not all projects had been assigned a project manager according to the lists provided. Finally, these lists did not reconcile with the input in the electronic Capital Planning and Investment Control system and IT dashboard.³

- **IT policies and procedures were not consistently approved or properly communicated:** Many of the HUD policies and procedures were recently updated but had not been approved and signed by the appropriate senior leadership and were



¹ HUD, HUD Enterprise Roadmap, FY2014 – Version 5.0; Exhibit K: HUD High-level Components and Technology report (February 2014)
² IBM Center for the Business of Government, Managing Risk in Government: An Introduction to Enterprise Risk Management (2010)
³ HUD OIG Evaluation 2015-OE-0003, IT Dashboard Evaluation (January 2015)



not fully implemented or understood across the entire user base. This condition is due in part to a lack of a dissemination process, training, and communication between the program offices and OCIO.

HUD had effectively developed processes to operate and maintain commodity IT services and systems, including the network infrastructure and service desk functions. However, many mission-essential IT systems are legacy and in need of modernization or replacement. Based on U.S. Government Accountability Office reports, interviews, and documentation reviews during this evaluation, HUD mission IT systems were found to be duplicative and inconsistently integrated among program offices and employed antiquated technologies that required expensive maintenance. Specific program area recommendations have been made in each section of this report, and a consolidated list of recommendations can be found in the appendix A.



CONTENTS

<i>Executive Summary:</i>	3
<i>Background</i>	6
<i>Methodology and Scope</i>	6
<i>OCIO Strengths and Weaknesses</i>	7
<i>IT Modernization Roadmap</i>	8
State of HUD's Modernization Roadmap	8
Roadmap Status	8
HUD IT Infrastructure Contract Status	9
Program Office Review (TRACS and CHUMS)	9
TRACS	9
CHUMS	10
Data Governance	10
HUD IT Modernization Roadmap Recommendations	11
<i>HUD Enterprise Architecture</i>	12
HUD EA Project Status	12
EA Value Measurement	13
HUD EA Recommendations	14
<i>HUD Capital Planning and Investment Control</i>	15
HUD IT Budget	15
HUD CPIC Process Recommendations	16
<i>Appendix A: Summary of Recommendations</i>	17
<i>Appendix B: HUD OCIO Exit Conference Briefing Comments</i>	19
HUD OIG Comments	22
<i>Appendix C: HUD OCIO Draft Report Comments</i>	23
HUD OIG Comments	35



Background

Information technology (IT) plays a critical role in HUD's ability to carry out its mission and objectives. We reviewed the adequacy of key IT management and modernization controls within HUD, including strategic planning and performance measurement, enterprise architecture (EA) development and use, and modernization within program offices. These basic IT criteria are critical to creating a successful IT environment in HUD and are mandated by Office of Management and Budget (OMB) memorandums and applicable Federal law. Capital planning investments must be submitted annually to Congress via Exhibit 53 and Exhibit 300 reports. Further, EA plans and modernization roadmaps must be submitted to OMB, and regular working capital fund department progress updates must be reported to congressional committees annually. In addition, the Federal Chief Information Officer published an IT roadmap for the Federal Government and respective chief information officers to develop, implement, and maintain agency and department EA programs, the capital planning and investment control (CPIC) process, and modernization strategic planning.⁴ This evaluation report reviews the status of these programs within HUD.

Methodology and Scope

We performed the IT modernization evaluation to determine the effectiveness of the HUD capital planning, EA, and IT modernization processes and programs. To address our objective, we reviewed the following:

- Core HUD Office of the Chief Information Office (OCIO) functions and documentation, including
 - The CPIC process,
 - The EA program, and
 - The IT modernization roadmap.
- Applicable laws and regulations governing and directing the core functions being reviewed, such as
 - The Clinger Cohen Act,
 - The E-Government Act,
 - OMB memorandums and circulars, and
 - Other relevant Federal and department policies and guidance such as those of the U.S. Department of Commerce.
- A modernization and investment review of the following sample systems:
 - The Computerized Homes Underwriting Management System (CHUMS) and
 - The Tenant Rental Assistance Certification System (TRACS).
- Interviews with OCIO personnel.
- Previous U.S. Government and Accountability Office (GAO) reports referencing HUD's CPIC, EA, and IT modernization programs.

We completed our fieldwork at HUD headquarters in Washington, DC, and conducted the evaluation in accordance with the Quality Standards for Inspections and Evaluation, issued by the Council of Inspectors

⁴ OCIO; Federal CIO Roadmap



General on Integrity and Efficiency. OCIO was briefed on the draft outcome and recommendations on February 26, 2015, and provided comments in appendix B.

OCIO Strengths and Weaknesses

During the course of the evaluation, we found the following OCIO strengths and weaknesses in relation to the evaluation topics.

Strengths

- Documented modernization roadmap to improve EA program
- Knowledgeable new EA leadership
- Strong, positive attitude to make necessary changes
- Program office interest in greater coordination with OCIO
- Instances of mature commodity & enterprise services delivery (for example, Enterprise Service Desk)

Weaknesses

- Lack of modernization project measurements
- Lack of policy and procedure approval and understanding across program offices
- Deficient system development life cycle program
- Lack of a coordinated risk management office
- IT investment governance not operating according to policy
- Program offices' lack of knowledge and understanding of development, modernization, and enhancement planning
- Lack of appropriate funding plan to implement roadmap

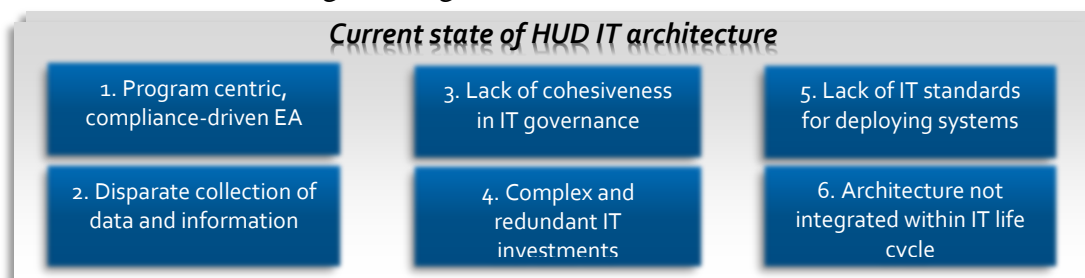


IT Modernization Roadmap

An effective IT modernization roadmap provides the following:

- Improves the organization's ability to effectively, efficiently, and economically leverage IT.
- Increases the organization's capability to collect, process, and make available quality data and information to drive and support agency-wide mission and objectives.
- Identifies government and industry standards and best practices to produce modernized systems that support the agency's mission, are transparent, and are in alignment with business models and segments.

We found that HUD had many legacy systems and inefficiencies throughout the IT mission-critical system inventory. Further, in the fiscal year (FY) 2014 HUD Enterprise Roadmap, HUD OCIO recognized that the IT environment had the following challenges:⁵



The future state environment, as outlined in the FY 2014 HUD Enterprise Roadmap, will result in mission-driven and customer-focused IT architecture, reduction in duplication, increased efficiency, and alignment of IT investments with business needs. To reach the stated efficiencies, HUD must gain senior leadership's full support and approval of the roadmap, communicate and implement the roadmap, synchronize efforts among the business segments, and improve measurements of the roadmap's implementation.

State of HUD's Modernization Roadmap

Roadmap Status

HUD OCIO had conceptually developed an IT enterprise modernization roadmap and transition plan to achieve an efficient IT target environment but must gain support of senior HUD leaders through the IT governance structure and continue implementation. GAO developed and recommended using the modernization roadmap process in the GAO-12-791 report.⁶ HUD should continue to leverage this process to refine the roadmap and achieve modernization that supports business needs and enhance efficiencies through reduction of duplicative and legacy systems.

⁵ Exhibit N: HUD EA Self-Assessment, HUD FY 2014 Enterprise Roadmap, v 5.0. (March 28, 2014)

⁶ GAO, GAO-12-791 Report, Organizational Transformation: Enterprise Architecture Value Needs to Be Measured and Reported, pg. 44-45 (September 2012)



Finally, we determined that HUD should develop a strategic approach to measure the overall modernization effort. HUD had taken steps to define the scope and a strategy to implement modernization projects in alignment with the HUD mission; however, HUD had not developed comprehensive plans and measurements to determine the health and effectiveness of IT projects. For example, the “HUD Integrated Sequencing Plan, Development, Modernization, and Enhancement (DME) Funded Activities FY2010-2015” showed that the Affirmatively Furthering the Fair Housing Data Mapping Tool project was to have been completed in FY 2013. However, this project appeared in the “FY 2014 IT Expenditure Plan” as an ongoing project. Our findings for EA roadmap implementation are consistent with the recommendations in the GAO-14-283 report.⁷

HUD IT Infrastructure Contract Status

The transition of HUD IT Services (HITS) to HUD Enterprise Architecture Transformation (HEAT) is a large ongoing contract initiative within the HUD modernization roadmap. The goal of this effort is to recomplete the contract and obtain the greatest efficiencies by the service providers. The initial target to begin the transition was FY 2012;⁸ however, delays have prevented the transition from occurring as of this evaluation. The HITS contract expired in 2013, and HUD is in the second and last year of a sole-source contract extension. The HUD FY 2013 EA policy and FY 2014 Modernization Roadmap include a migration requirement for HITS to HEAT transition, yet HUD had not documented a transition plan.

Program Office Review (TRACS and CHUMS)

The Tenant Rental Assistance Certification System (TRACS) and Computerized Homes Underwriting Management System (CHUMS) were reviewed, and we determined that both were legacy and mission-critical IT systems. We determined that the program offices did not have a clear understanding or vision of the OCIO EA program, the modernization roadmap, or a HUD risk management process. Modernization of these programs had not been completed; therefore, program offices had implemented their own risk management, modernization efforts, and organizational IT components to manage IT system functions. The OCIO modernization roadmap and the program office transformation initiatives need to align and be coordinated to ensure implementation and operations of systems within business segments.

TRACS

TRACS satisfies an important role in HUD’s multifamily housing program. TRACS accounts for 78 percent of all of HUD’s housing subsidy processing (\$9.8 billion). Of that 78 percent, 50 percent represents voucher payments within the Office of Multifamily Housing Programs, and the other 50 percent is for Section 8 programs. For nearly 7 years, the TRACS program office had requested DME funding through the capital planning process to upgrade critical systems and

TRACS legacy components

Six of ten software platform components require modernization.

⁷ GAO, GAO-14-283 Report, HUD’s Expenditure Plan Satisfied Statutory Conditions; Sustained Controls and Modernization Approach Needed (February 2014)

⁸ HUD, Working Capital Fund, Fiscal Year 2012, retrieved at http://portal.hud.gov/hudportal/documents/huddoc?id=WorkingCapFund_2012.pdf



components. Specifically, a need for \$3.5 million had been identified by the program office to modernize critical components. TRACS had been requesting a system upgrade since fiscal year 2013. The program office for TRACS submitted an impact assessment, which stated, “TRACS has no vendor support agreement, therefore, when the old system catastrophically fails, there is no means to manage Housing’s rental assistance programs and/or pay subsidy payments of approximately \$9.8 billion annually.” The TRACS program office was scheduled to receive the funding for DME purposes; however, in 2013, the funding was redirected.

CHUMS

CHUMS, within the Office of Single-Family Housing, is an integral business process in HUD as a loan endorsement system for the Federal Housing Administration. The system is outdated, and security maintenance is impacted by legacy platforms, putting 1.5 million personally identifiable information records at risk. CHUMS modernization was not on the OCIO FY 2014 DME list; however, it is on the OCIO FY 2015 draft spending plan for funding with conditions. According to the FY 2015 draft spending plan, CHUMS will be reviewed for contract and hardware consolidation with other systems. CHUMS does not have an alternative operational solution in the event of an IT component failure. CHUMS program officials fully understand the IT modernization need and estimate the cost to be \$25 million.

CHUMS legacy components

One of two software platform components requires modernization.

Our detailed review of two mission-critical applications revealed material risks to HUD. A cursory review of other mission-critical applications revealed similar risks that need to be addressed with proper IT modernization planning, funding of approved modernization projects, and continual IT governance.

Data Governance

Data governance was not directly within scope of this evaluation; however, it does relate to IT modernization efforts and, therefore, was reviewed at a strategic level. Key observations and considerations are discussed below. Data governance is the overall management of availability, usability, integrity, and security of the data employed in an enterprise.⁹ Successful implementation of major modernization initiatives such as New Core and HEAT, while maintaining a secure environment, require a sound data governance program. Systemic data governance issues were revealed during this evaluation. For example, TRACS data are susceptible to quality and integrity issues due to the implementation of four different unsupported database platforms. Data governance within HUD is necessary to achieve a seamless interface between TRACS and New Core, which is HUD’s initiative to replace its aging financial systems.

According to HUD’s EA documentation, the HUD Data Stewards Advisory Group and the EA program officials had conducted studies in 2012-2013 of HUD’s data management practices. The studies identified a number of data governance deficiencies. HUD also recognized that OMB Memorandum M-13-13, Open Data Policy – Managing Information as an Asset, required actions and improvements to data management practices. Improvements in the program will be key to modernization success. The following recommendations can improve the HUD data governance

⁹ TechTarget definition of “data governance”



program:

- **Support the Data Stewards Advisory Group:** The Data Stewards Advisory Group should meet regularly with attendance from HUD and business segment leadership to develop a data management strategy.
- **Review and fix data accuracy:** OCFO should identify the system data owners and develop a plan to clean and consolidate data before migrations.
- **Continue and finalize the master data management and enterprise data modeling projects:** OCFO should devote personnel resources to these projects to define data redundancy, quality, and integrity issues before transition of modernization projects (for example, HEAT, TRACS) or other IT migrations.

HUD IT Modernization Roadmap Recommendations

1. **Formalize and fully implement segment governance:** As noted in the EA documentation, segment governance had not been formally established.¹⁰ This condition limits the ability for senior departmental and segment leadership to make consistent decisions across segments to create financial, business, and IT efficiencies.
2. **Develop and finalize the IT infrastructure services contract migration plan:** OCIO is working to finalize the HEAT migration plan but should include the program offices and segments in the development of the plan. In addition, the HUD EA document should be updated to align with the adopted HEAT plan.
3. **Implement project health assessments to measure the effectiveness of IT project planning and execution:** HUD had developed project scope, implementation strategy, schedule, and related goals in the modernization roadmap and FY 2014 IT Expenditure Plan. However, measurements need to be developed to define the health and status of the modernization projects. This is consistent with recommendations from the GAO-14-283 report. This recommendation also applies to the CPIC process.

¹⁰ HUD, HUD Enterprise Roadmap, FY2014 – Version 5.0 (March 28, 2014)



HUD Enterprise Architecture

We found that the HUD EA program was gradually progressing, and a critical lead EA position was filled in 2014. HUD had drafted both an EA policy and EA roadmap as recommended by GAO in 2012,¹¹ and had made improvements in the EA program since GAO began citing issues starting in 2009.

Enterprise architecture adds value to business
The value of employing an EA program and outcome measurements are realized cost savings through consolidation and reuse of shared services and elimination of antiquated and redundant mission operations, enhancing information sharing through data standardization and system integration, and optimizing service delivery through streamlining and normalizing business processes and mission operations.

Based on the HUD EA Division’s self-assessment and our evaluation, we agree that the EA program, using the GAO EA Maturity Model Framework, is at stage (level) 2 as shown in figure 2. Although HUD was improving the overall EA program and continuing to make progress, HUD OCIO needs to continue implementing the EA strategies and projects set forth in the HUD EA roadmap.¹² In addition, the HUD FY 2013 target EA policy from November 2012 requires an update and review, incorporating the latest OCIO goals and objectives, project updates, and forming corrections.

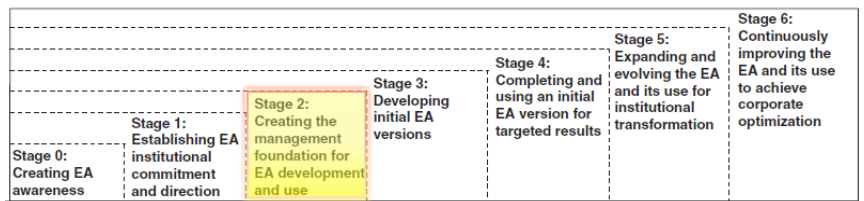


Figure 2. HUD EA Maturity Model Assessment Level

HUD EA Project Status

The HUD EA program tracks all DME of systems and major IT projects. To assist with managing IT projects and IT modernization efforts, HUD OCIO employs an enterprise Project Management Office (ePMO). The ePMO is in the process of implementing a project health assessment to identify underperforming projects in the IT portfolio. However, at the time of this evaluation, neither initiative had been fully implemented or documented, resulting in ad hoc project management across the program offices and hindering HUD’s ability to identify underperforming projects. The following processes are required by HUD OCIO to fully implement and mature the ePMO.¹³

- Provide employee training
- Develop, finalize, and communicate the ePMO processes & procedures (in coordination with the CPIC process, EA program & roadmap)
- Define and institutionalize the right technical tools to perform ePMO functions
- Define and fill ePMO positions
- Develop and execute a strategic communications plan to gain leadership and program office or segment buy-in

We found a number of active IT investment and project lists in HUD OCIO that were inconsistent or did not

¹¹ GAO, GAO-12-791 Report, Organizational Transformation: EA Value Needs to Be Measures and Reported, pg. 10 (September 2012)

¹² When properly managed, EA can help optimize the relationships among an organization’s business operations and the IT infrastructure and applications supporting them.

¹³ HUD OCIO, Executive Status Briefing Enterprise Program Management Division: ePMO (November 2014)



reflect the data in the EA roadmap. Figure 3 shows a partial example of two lists with differing data for two active investments. Two organizational components within OCIO (ePMO and the Information Technology Investment Management office) maintain IT project lists for major IT investments; however, they did not agree. We recommend that these lists be reconciled into one authoritative list and approved in accordance with the HUD IT governance framework.¹⁴ We identified a third list, Exhibit E, HUD Project Information Report, from the FY 2014 HUD Enterprise Roadmap as the most comprehensive project list. The Exhibit E list assessed the compatibility for the project to follow the HUD enterprise roadmap and support the business strategy. Adopting this list for all OCIO entities as the authoritative project list would ensure consistency and be a beneficial step in coordinating projects across the agency.

HUD Major Investments from ePMO		HUD Major Investments from ITIM	
Investment	Project	Investment	Project
Core Financial Services	New Core Program	Core Financial Services	HUD Ent. Fin. Services; HUD Ent. Fin. Services; Program Acc. Sys; Line of Credit Con. Sys.; Consolidated Cost & FTE Files; Fin. Data Mart; Personnel Ser. Cost Subsys.; Consolidated Fin. Rep. Sys.; HUDCAPS; Bond Payment; FHA Subsidiary Ledger; Secure Payment System; Ginne Mae Financial and Accounting Sys (GFAS)
	Travel and Relocation		Homeownership Finances
	Time and Attendance	Title I Insurance and Claims; Albany Financial Operations Center Sys; FHA Subsidiary Ledger (FHA-SL)	
	Financial Management General Ledger / Procurement		
	Financial Management Grants and Loans Processing / Procurement		
Homeownership Finances	No Projects		

Figure 3. Example HUD Investment Lists

EA Value Measurement

OMB provides guidance through the Federal Enterprise Architecture program for developing EA value measurement programs. Agencies are required to measure enterprise architecture strategic mission value (outcomes and benefits) by means of an EA value measurement plan. This plan is intended to establish enterprise outcomes and a documented method of metrics that are measureable, meaningful, repeatable, actionable, and aligned with HUD’s enterprise architecture strategic goals. In addition, the measurements should periodically measure and report the enterprise architecture and roadmap outcomes and benefits. According to GAO, HUD had completed this report for FY 2011 but had not established goals for reducing redundancy or updating legacy systems.¹⁵ HUD submitted to OMB an FY 2013 EA value measurement report, but we found that a number of measurements were incomplete, reducing HUD’s ability to make strategic decisions and implement the IT target environment. The agency is required to establish and determine a way to measure the agency EA program through self-assessments and EA value measurement reports.

¹⁴ Found in HUD OCIO, Information Technology Management Framework and Governance Concept of Operations, v 2.0. (June 2011)

¹⁵ GAO, GAO-12-791 Report, Organizational Transformation: Enterprise Architecture Value Needs to Be Measured and Reported, pg. 44-45 (September 2012)



HUD EA Recommendations

1. **Validate the accuracy of IT investment lists by segment and the associated projects and ensure alignment with EA strategy:** Leveraging the IT governance structure,¹⁶ OCIO should develop a consolidated project list by IT investment that is aligned to the EA and enterprise roadmap strategy.

2. **Define and assess measurements in a yearly EA value measurement report in accordance with OMB EA framework guidance:**¹⁷ These measures provide input to senior leadership on the status of efficiencies that EA has created for the agency. Value measurement reports should be part of the yearly agency enterprise roadmap submission to OMB. The HUD EA value measurement report should include targets for the following measurements:

Category	Inventory-outcome	Area of measurement	Measurement indicator
Spending	System inventories	Completeness	% of IT investments going through the investment review board that have been reviewed by the EA team
Spending	System inventories	Accuracy	% of IT investments approved by the investment review board aligned to the target architecture
Spending	Outcomes	Cost savings-avoidance	# of duplicative or overlapping investments
Systems	Outcomes	Cost savings-avoidance	# of dollars saved or how the EA program contributes in cost savings through system consolidation
Services	System inventories	Accuracy	% of agency services that are up to date and accurate
Services	Outcomes	Reduction of duplication	# of duplicate services EA helped identify
Security	Outcome	Reduction of duplication	# of duplicate security implementations EA helped identify

¹⁶ The HUD IT governance structure is a structure that “empowers business areas to influence IT strategic priorities and ensure that all portfolio & project activities align with mission area needs.” It can be found in the FY 2013 EA document and the Information Technology Management Framework and Governance Concept of Operations.

¹⁷ Value measurement reports should be included as part of yearly enterprise roadmap submissions to OMB according to OMB memorandum, Increasing Shared Approaches to Information Technology Services, dated May 2, 2012; the OMB Common Approach to Federal Enterprise Architecture; and GAO report GAO-12-791.



HUD Capital Planning and Investment Control

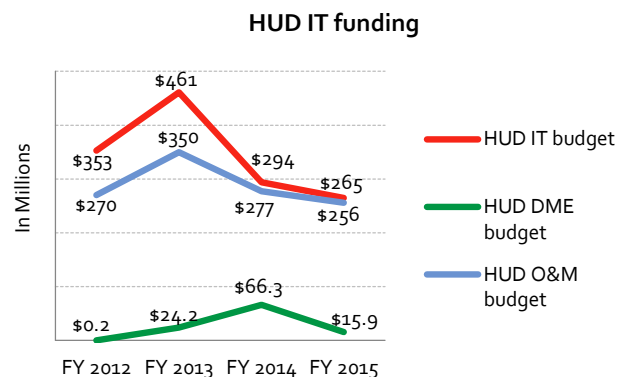
We found that HUD had a documented CPIC process that generally included elements of an effective IT investment management process. However, HUD lacked measurements and automated methods for tracking the IT portfolio (IT investments and projects). HUD was unable to identify underperforming projects or whether the investments had created cost-saving or operational efficiencies. HUD is in the process of implementing Project Health Assessments (PHA) through the enterprise project management office to address the identification of underperforming projects. However, as of this report, OIG has not seen evidence of the PHA implementation. In the 2015 appropriations bill, the committee requested that HUD provide “details regarding HUD’s portfolio of IT investments and the status of the Department’s efforts in applying IT management controls.”¹⁸ The bill also “strongly urges HUD establish a true working capital fund” with a cost-accounting structure to appropriately allocate charges to offices for services consumed. Our findings were consistent with the issues identified in the GAO report, GAO-15-56.¹⁹

The following adjustments would improve HUD’s CPIC processes:

- Establish a process to assess IT projects and identify underperformance;
- Establish criteria for determining large and small IT investments;
- Conduct meetings in accordance with the IT governance policy, such as the Executive Investment Board;
- Align investment decisions with business segments and a departmental strategy; and
- Transition to HUDPlus from manual spreadsheets for tracking IT projects.

HUD IT Budget

HUD’s primary IT funding consisted of direct appropriations for IT as well as program office sources. HUD had not established a working capital fund as recommended by the appropriations committee in the 2015 appropriations bill. Since 2012, the majority of the IT budget had been dedicated to operations and maintenance and not committed to DME and modernization. HUD’s IT budget had decreased over the last 3 fiscal years, and the IT DME budget had decreased in FY 2015 (figure 4). The overall IT budget across the Federal Government had decreased 0.23 percent (excluding the



¹⁸ House of Representatives, Report 113: Departments of Transportation, and Housing and Urban Development, and Related Agencies Appropriations Bill, 2015

¹⁹ GAO, GAO-15-56 Report, HUD Can Take Additional Actions to Improve Its Governance (December 2014)



HUD's future IT budget will require ongoing operations and maintenance funding for IT systems, while likely needing an increase in budget to modernize the legacy systems in the HUD infrastructure.

Department of Defense), while HUD's IT budget had decreased 2.97 percent from FY 2014 to FY 2015, according to the

FY 2015 IT Federal budget.²⁰ However, 15 major Federal agencies saw an increase in their IT budgets for FY 2015. Furthermore, HUD's IT budget decreased an overall 12.8 percent from FY 2012 to FY 2014 while decreasing a staggering 36 percent from FY 2013 to FY 2014 alone. HUD's future IT budget will require ongoing operations and maintenance funding for IT systems, while likely needing an increased budget to modernize a large number of legacy systems in the HUD infrastructure. For HUD to fully implement the OCIO modernization roadmap and improve efficiencies and realize cost reductions, it must have a viable enterprise strategic approach, be properly budgeted, develop attainable EA measurements, further develop data governance, and disseminate CPIC process guidance to program offices.

HUD CPIC Process Recommendations

1. **Fully develop, approve at appropriate levels, and disseminate current CPIC process policies and procedures:** CPIC process policies and procedures had not been approved or disseminated to program offices.
2. **Ensure that the Executive Investment Board meets in accordance with IT governance policy (related to recommendation from GAO-15-56):** OCIO should ensure that the Executive Investment Board meets as outlined in its charter and the HUD IT governance policy and distributes its decisions to appropriate stakeholders.
3. **Implement HUDPlus:** OCIO should finalize the implementation of HUDPlus to automate, track, and analyze the IT investment submissions and requirements.
4. **Provide CPIC training to all stakeholders to ensure program consistency and effectiveness across all program offices:** OCIO should conduct training for all intended users before and upon implementation of the latest CPIC guidance.

²⁰ OMB, President's Fiscal Year 2015 IT Budget of the U.S. Government (2015)



Appendix A: Summary of Recommendations

<i>Report</i>	<i>Number</i>	<i>Recommendation</i>	<i>Status</i>
Overall IT modernization recommendations			
<i>IT Modernization 2015-OE-0002</i>	1.	<i>Develop a coordinated mission-critical system development life cycle replacement program for mission-critical systems.</i>	
<i>IT Modernization 2015-OE-0002</i>	2.	<i>Develop and staff a risk management office at the OCIO level to manage department-wide information system risk management.</i>	
<i>IT Modernization 2015-OE-0002</i>	3.	<i>Finalize, apply, and strategically communicate all standard IT policy across OCIO and the program offices to ensure that there is a common understanding of the modernization, EA, and CPIC policies.</i>	
<i>IT Modernization 2015-OE-0002</i>	4.	<i>Approve at appropriate levels, Implement, and disseminate policy & processes as intended.</i>	
IT modernization roadmap recommendation			
<i>IT Modernization 2015-OE-0002</i>	5.	<i>Formalize and fully implement segment governance.</i>	
<i>IT Modernization 2015-OE-0002</i>	6.	<i>Develop and finalize the IT infrastructure services contract migration plan.</i>	
<i>Related to GAO-14-283 Report</i>	7.	<i>Implement project health assessments to measure the effectiveness of IT project planning and execution.</i>	
Enterprise architecture recommendation			




<i>IT Modernization 2015-OE-0002</i>	8.	<i>Validate the accuracy of IT investment lists by segment and the associated projects and ensure alignment with EA strategy.</i>	
<i>IT Modernization 2015-OE-0002</i>	9.	<i>Define and assess measurements in a yearly EA value measurement report in accordance with OMB EA framework guidance.</i>	
<i>IT capital planning and investment control process recommendations</i>			
<i>IT Modernization 2015-OE-0002</i>	10.	<i>Fully develop, approve at appropriate levels, and disseminate current CPIC process policies and procedures.</i>	
<i>Related to GAO-15-56 Report</i>	11.	<i>Ensure that the Executive Investment Board meets in accordance with IT governance policy (related to recommendation from GAO-15-56).</i>	
<i>IT Modernization 2015-OE-0002</i>	12.	<i>Implement HUDPlus to automate, track, and analyze the IT investment submissions and requirements.</i>	
<i>IT Modernization 2015-OE-0002</i>	13.	<i>Provide CPIC training to all stakeholders to ensure program consistency and effectiveness across all program offices.</i>	




Appendix B: HUD OCIO Exit Conference Briefing Comments

Note: HUD OIG comments supplementing HUD OCIO's responses appear at the end of this appendix.

 U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
WASHINGTON, DC 20410-3000

CHIEF INFORMATION OFFICER MAR 27 2015

MEMORANDUM FOR: Kathryn Saylor, Acting Assistant Inspector General for Evaluations, GAH

FROM: Rafael Diaz, Chief Information Officer, Q 

SUBJECT: Exit Conference Briefing Document – OIG's Evaluation of HUD's Information Technology Investment, Enterprise Architecture, and Modernization Programs (2015-OE-0002)

This memorandum is in response to your February 26, 2015 exit conference briefing document. The Office of the Chief Information Officer (OCIO) has carefully reviewed the draft briefing document and is providing comments on the recommendations.

It is my understanding that OCIO will have the opportunity to review the final draft report document. We look forward to working with you and your staff to resolve and close out the recommendations.

If you have questions or require additional information, please contact Joyce M. Little, Chief, Audit Compliance Branch, at (202) 402-7404 (Joyce.M.Little@hud.gov) or Juanita L. Toatley, Audit Liaison, Audit Compliance Branch, at (202) 402-3555 (Juanita.L.Toatley@hud.gov).

Attachment(s)



See HUD OIG comment 1.

The following information is provided in response to the OIG - IT Modernization Evaluation Out-Brief (2015-OE-0002):

Recommendation 7 - Define missing measures in the yearly EA Value Measurement Reports (see backup slide)

Response: HUD's EA Value Measurement Plan includes the definition of six out of the seven measures in the table below. The EA team will define a new measurement indicator and plan to measure the percentage of Agency services that are up to date or accurate. While some of the performance indicators are not currently tracked, EA is in the process of developing appropriate measurement methods. See comments in the EA Response column in table below.

Perspective	Inventory / Outcome	Area of measurement	Measurement Indicator	EA Response
Spending	System Inventories	Completeness	% of IT investments going through the IRB that have been reviewed by the EA Team	In FY14 and FY15, EA reviewed, scored and provided comments for 100% of IT investment requests. Funded investments are managed through HUD's PPM process. EA is a contributing member of Integrated Project Teams and is engaged in the control gate review process.
Spending	System Inventories	Accuracy	% of IT investments approved by the IRB aligned to the Target Architecture	Although this indicator has been defined, EA is working to establish a method by which to measure alignment of investments to the Target Architecture. As the target architecture evolves and becomes more mature, EA will be in a better position to assess the alignment of all IT investments. Currently, EA is working with OCIO/CTO to refine and socialize the target architecture. *See comment at the bottom of this document for more details.
Spending	System Inventories	Cost Savings / Avoidance	# of duplicative or overlapping investments	Although a complete inventory of IT investments is maintained, further analysis to decompose business functions across systems and services must be accomplished to identify true redundancies across the IT Portfolio.



Systems	Outcomes	Cost Savings / Avoidance	# of dollars saved or how the EA Program contributes in cost savings through system consolidation	EA is working to establish a method by which to measure cost savings. While current IT Modernization initiatives have identified systems to be consolidated or decommissioned as a result of implementation, the value of the cost savings is not being consistently measured. Cost elements for systems and services are not consistently tracked across the IT Portfolio (infrastructure costs, FTEs, facilities, etc.). As HUD adopts a standard cost estimation methodology, EA will improve a method by which to measure cost savings.
Services	System Inventories	Accuracy	% of Agency services that are up to date and accurate	This measurement indicator will be defined and a method of measurement will be determined. It would be helpful to have more understanding of how 'up to date and level of accuracy' can be measured.
Services	Outcomes	Reduction of Duplication	# of duplicate services EA helped identify	In previous years, information was gathered through analysis of Configuration Change Management Board (CCMB) technology submissions. Additional analysis includes determining functionality of newly introduced technologies in relation to existing solutions to determine redundancy.
Security	Outcomes	Reduction of Duplication	# of duplicate security implementations EA helped identify	Although this indicator has been defined, EA is working to establish a method by which to measure it.

Recommendation 8 - Consolidate project and investment lists and align with EA strategy

Response: Please clarify / elaborate on what is meant by, "Consolidate lists and align with EA Strategy". Is this meant to refer to the alignment of IT assets to the IRM Strategic Plan or HUD Strategic Plan? EA maintains a list of all IT projects, systems and services funded by the IT Fund (Working Capital) and other assets that are funded by HUD Programs. This list, referred to as the IT Asset Inventory, is reported as an Appendix to the EA Roadmap on an annual basis.

See HUD OIG comment 2.



*A key component of HUD's Enterprise Architecture transformation is funding and developing a "shared services" capability within the agency. This will allow HUD to consolidate IT systems and services across the IT Portfolio, improving return on investment and increasing the overall effectiveness of IT solutions. Related to this effort, EA is in integrating a "Pre-Select" process, leveraging the Collaborative Planning Method, to assess, validate, and prioritize business needs according to HUD's mission. Instrumental to this process is a "Shared-First" strategy that promotes collaboration with sponsors in researching pre-existing investments, or developing new solutions to address common business needs.

Constraints relating to current and future funding levels along with the mix (less-to-no DME vs. O&M) remain a significant challenge. The stove-piped architectural vision of the past will require significant funding for HUD to develop an innovative suite of "Shared Services" along with a robust infrastructure.

HUD OIG Comments

The following are HUD OIG's responses to HUD OCIO's comments, dated March 27, 2015.

1. We recognize that OCIO EA is improving and making progress in developing a consolidated and consistent IT modernization plan. In addition, OCIO recently filled a key EA vacancy with a qualified and experienced individual. Work will need to continue, specifically in developing a strategic plan to communicate OCIO initiatives across all business segments and to gain senior leadership support of the modernization plan and required funding to pay for a simplified and scalable architecture.

Regarding HUD OCIO's comment requesting more understanding of the measurement, stating "% of Agency services that are up to date and accurate," we are looking for a measure that displays program office applications or services in need of modernization due to a lack of vendor or contract support in hardware, software, or other technical deficiencies. As programs or services are modernized, this measure would show the benefits of a sufficiently funded EA modernization roadmap.

2. We revised our report to reflect this comment. See the HUD EA Project Status section.
-



Appendix C: HUD OCIO Draft Report Comments

Note: HUD OIG comments supplementing HUD OCIO's responses appear at the end of this appendix.


See HUD OIG comment 1.

OCIO Response to the OIG Draft Report "Information Technology Modernization"
2015-OE-0002

COMMENTS AGAINST RECOMMENDATIONS

OIG Recommendation #1
Develop a coordinated mission-critical system development life cycle replacement program for mission-critical systems.

Recommendation Comment
OCIO has been working on several parallel initiatives to quickly develop "capability and capacity" within OCIO to ensure proper planning and execution activities on projects to modernize critical legacy applications. Most of the initiatives are being implemented in a very iterative manner to meet the current needs as well as develop a sustainable long term competency.

- 1. Staff and operationalize the Digital Services Group** to program manage and implement the Digital Services Strategy.

HUDigital Services
ActionPlanFinal.pdf
[<<HUD DS strategy document>>](#)
- 2. Award the Enterprise Architecture support contract** (January 2016) –will allow us to develop and apply Department's EA policies, procedures and guidance to facilitate the development, maintenance, and refinement of current and target architectures, the definition and execution of HUD's EA transition plan and roadmap and the information technology investments necessary to execute it. Target architectures include rationalizing the business processes, data, performance and modular services architecture that easy to develop and maintain.
- 3. Architecture and Design support contract** (awarded – September 2015) – capacity to develop standards, guidelines and reference architectures that link the HUD EA to the projects and IT systems portfolios. The purpose is to establish "actionable architecture". A HUD actionable architecture capability will allow top-level architecture decisions to manifest within the HUD operating environment through a framework of architecture and IT management practices that will influence the design of new applications and maintenance releases of current applications. The architecture practices and frameworks will enable HUD to act as a more effective general contractor by enabling architectural considerations to be included early on during the acquisition process.
- 4. Solution architecture:**
 - Work closely with business team to develop build vs. buy assessment for all investments in core mission areas and before investments are made.
 - Continue to iteratively develop and refining the HUD enterprise data model (CARS)
 - Standardize the technology for development of enterprise case management platform. Modular architecture
 - Implement managed DevOps (continuous integration/continuous delivery).
 - Exploit the capabilities and capacities delivered by HEAT. Including leveraging Microsoft Dynamic's for light weight case management use cases.
 - Develop a Quality Assurance capability to ensure all architectural guidance is followed from the beginning.

1



OCIO Response to the OIG Draft Report "Information Technology Modernization"
2015-OE-0002

Projects/PoC: Continue to work with the business to modernizing legacy systems like PIC and develop solutions for cash management. The cash management project also called Enterprise Business Transformation (EBT). Final operating state for EBT will allow HUD to more accurately forecast Section 8 customer needs; improve Budget Forecasting and Execution; reduce reliance on manual processes for Section 8 payments; capitalize on Improved Business Intelligence resulting from Integrated Enterprise Business Solutions supported by an Enterprise Data Warehouse; improve internal controls over financial reporting; substantially reduce O&M systems costs; and overall, improve the efficiency of its business operations.

OIG Recommendation #2

Develop and staff a risk management office at the OCIO level to manage department-wide information system risk management.

Recommendation Comment

OCIO recognizes the need for enterprise risk management and has identified the organization responsible for that. However, due to limited resources we have immediately focused on remediating project risks and will expand that capability as we're resourced appropriately. OCIO is aggressively pursuing staff augmentation through new hires, internal employee details and reassignments and contractor support.

The Performance and Risk Management Branch (PRMB) is responsible for monitoring IT performance in relation to HUD IT strategy, risk, and quality to report program and project performance information to support effective decision making. The PRMB reports directly to the Enterprise Program Management Division (EPMD) Director.

The PRMB works with OCIO executive leadership and stakeholders to monitor HUD IT portfolio performance and maintain internal performance reporting mechanisms. The PRMB coordinates the establishment of key performance indicators and performance reporting within OCIO throughout each year in order to produce an annual CIO Report on HUD IT performance. Another responsibility of the Branch is to carry out and oversee organizational and efficiency activities. An outcome of the assessment is to provide recommendations aimed to enhance components of the organization's contribution to its overall business contribution and success. Recommendations may include process enhancements, service improvements, and/or reorganization to address performance gaps.

The PRMB is responsible for managing all HUD organizational risks, which includes identifying risks across projects, programs, other functional areas and branches of the OCIO, and provides guidance for minimizing or eliminating the risk. This includes providing risk management guidance, documents, and templates to assist the OCIO in tracking and mitigating risk.

OIG Recommendation #3

Finalize, apply, and strategically communicate all standard IT policy across OCIO and the program offices to ensure that there is a common understanding of the modernization, EA, and CPIC policies.

See HUD OIG comment 1.



See HUD OIG comment 1.

See HUD OIG comment 1.

See HUD OIG comment 1.

See HUD OIG comment 1.

OCIO Response to the OIG Draft Report "Information Technology Modernization"
2015-OE-0002

Recommendation Comment

HUD's OCIO has invested in hiring an IT Policy Program manager to lead the establishment and coordination of HUD's IT Policy Program. Subsequent to that, the IT Policy Program planning has been completed and is in the beginning of the implementation phase. The IT Policy Program is designed to be the focal point for the consolidation, governance, communication, distribution and maintenance of all HUD IT policies. IT Policy contacts representing specific IT areas of interest (e.g. EA, CPIC, Cybersecurity, IT Operations, etc.) have been identified to lead the development of the necessary IT policies to support the implementation of FITARA and IT management. As OCIO implements the IT Policy Program, an associated Communication Plan will be executed to ensure a common understanding of the policies within the OCIO and across HUD.

OIG Recommendation #4

Approve at appropriate levels, implement, and disseminate policy and processes as intended.

Recommendation Comment

As a part of the IT Policy Program the OCIO and Departmental clearance processes will be followed to gain approval of the policies at the appropriate levels. HUD policies are publicized on the HUD internet and intranets as part of the HUD Handbooks. Upon approval the policies will be published as part of the HUD Handbooks. The Communication Plan will also utilize other mechanisms to disseminate the IT policies. OCIO will also align the IT processes to the appropriate IT policies. This alignment will be documented and disseminate through a variety of communication mechanisms.

OIG Recommendation #5

Formalize and fully implement segment governance.

Recommendation Comment

HUD is strengthening its segment governance process, starting with using HUD PLUS to give business segments a mechanism to better manage their own operations. Collaborative Segment Teams consisting of OCIO and program staff are validating data in HUD PLUS to establish a complete and accurate basis for leadership decision making. Detailed Master schedules will also be developed in HUD PLUS that will ensure a consistent approach to planning work across all segments, but which can be customized for each segment's specific needs.

OIG Recommendation #6

Develop and finalize the IT infrastructure services contract migration plan.

Recommendation Comment

The HUD Enterprise Architecture Transformation (HEAT) program implements the migration of HUD IT infrastructure services. HEAT is composed of multiple projects to facilitate the transition out of the previous HITS contract environment with minimal budget impact. Details of the migration plan and schedule are procurement sensitive and can be provided to GAO via an in-person briefing. Summary information is provided below.

Projects that compose HEAT include:



OCIO Response to the OIG Draft Report "Information Technology Modernization"
2015-OE-0002

- Transport – The transport contract provides WAN services to HUD. This contract was awarded to AT&T through GSA's ~~Network~~ contract. It was awarded in 2013 and implemented in 2014. All WAN services, including TIC services are provided through this contract.
- Office 365 – The O365 contract transitions email, SharePoint, network file storage (personal and organizational), and instant messaging from the existing HITS contract. Currently, HUD is in the middle of the velocity migration of email with an expected completion date of early November, 2015. Follow on efforts to deploy Office Pro Plus and migrate SharePoint, network file storage and instant messaging are in the planning stages with completion expected by August, 2016.
- Mobile Service – The mobile service contract leverages the FSSI Mobile contracts awarded by GSA. HUD has awarded task orders to AT&T and Verizon. HUD is currently transitioning this service from HITS provided devices to HUD provided devices and leveraging the ~~InTune~~ as the HUD provided Mobile Device Manager as part of the O365 effort. This effort will result in a modernized wireless environment outside the HITS contract. The transition is scheduled to be completed by the end of the 2015 calendar year.
- System Integrator/End User – This is a new contract to provide systems integration and end user support. The contract will provide SI services along with commodity IT and support. In order to protect the integrity of the procurement system, no additional details can be provided.
- Data Center – This effort is also in a contractual sensitive position so no additional details can be provided at this time.

OIG Recommendation #7

Implement project health assessments to measure the effectiveness of IT project planning and execution.

Recommendation Comment

The GAO requested HUD fully establish a well-defined process that incorporated key practices for overseeing investments, including:

- 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; and
- ~~conducting~~ post-implementation reviews to evaluate results of projects after they are completed. The IG reported OCIO needed to measure effectiveness of IT Project Planning & Management and Execution.

The Department of Housing and Urban Development's (HUD's) Office of the Chief Information Officer (OCIO) institutionalized Project Planning and Management (PPM) Life Cycle, and Project Health Assessments to provide the agency with a practical approach to optimize innovation, minimize schedules and budget risk, and better plan and execute projects. In order for OCIO to demonstrate success in the implementation and use of a standardized and effective project management methodology, performance metrics were established, measured, analyzed, and reported. The setting of a baseline, realistic targets, and the establishment of the Project Health Assessment process set the stage to continuously assess the life cycle for improvement opportunities critical for the long-term success of PPM and execution of IT projects.

See HUD OIG comment 1.



OCIO Response to the OIG Draft Report "Information Technology Modernization"
2015-OE-0002

In addition, HUD is working to stand up the TechStats process where projects, services and systems which continue to struggle will be sent for corrective action and/or termination.

A set of PPM process metrics of particular importance to the organization were developed. These are known as "key process indicators" (KPIs) and they have been carefully selected, designed, implemented, and monitored. KPIs enable the organization to evaluate the quality of their processes, which in turn is the basis for the ongoing optimization and fine-tuning of the process designs. The Project Health Assessments focus on nine key performance indicators (KPIs);

- (1) Scope
- (2) Schedule
- (3) Cost
- (4) Risk
- (5) Requirements
- (6) Quality
- (7) Acquisition
- (8) Resources, and
- (9) PPM Compliance.

A Project Health Assessment is:

- It is a face-to-face, evidence-based accountability review of a project on a 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 Project Health Assessment 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 inform 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.

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. The IT Performance Framework looks at performance in terms of high-level, mid-level, and specific components. The IRM Enterprise (Strategy) covers critical HUD IRM mission goals aligned with HUD mission goals and strategic objectives. The metrics here are at the enterprise level outcomes. Current sources include the Enterprise Roadmap and the



OCIO Response to the OIG Draft Report "Information Technology Modernization"
2015-OE-0002

IRM Strategic Plan FY14-18. At the mid-level, we are addressing program, segment, and investment. The focus is on the Business/OCIO goal alignment, OCIO program maturity goals. The types of metrics are customer satisfaction (program and segment sponsor) and the OCIO Balanced Scorecard. The current sources of metrics come from the ITM Maturity Model Scorecard, PPM KPI Metrics, Policy Gap Analysis, and Annual EA Report.

In the Segment section the metrics come from the Balanced Scorecard. In the Investment section it remains under development. The type of metrics will focus on the following:

- Total Life Cycle Cost/Total Benefit from the investment and some sources of information may come from
- HUDPlus and other existing performance metrics being currently collected
- Portfolio Stat, HUDStat, etc.

At the Specific Component level, of project, system, and service the focus is dependent on the component. The type of metrics being collected for project health includes the triple constraint. The sources are the Project Health Assessment, IT Dashboard Report, and TechStats through the Corrective Action report. Additional information may be collected from HUDPlus. On the system and services actuals SLAs are the source of performance metrics. A current effort is underway with workbooks to collect data and document of all within HUD that fall within the Performance and Risk Management Branch in the Performance Management Framework.

OIG Recommendation #8

Validate the accuracy of IT investment lists by segment and the associated projects and ensure alignment with EA strategy.

Recommendation Comment

HUD agrees that a singular, authoritative list of for all OCIO entities would ensure consistency and be beneficial in coordinating projects across the agency. (An excerpt from EA Roadmap Exhibit E is provided at the end of the document in Attachment A).

The EA team continues to assess and align IT projects to strategic goals, objectives, and HUD's Enterprise Target Architecture. Regarding the differences in data reported on various lists, EA maintains the Enterprise IT Asset Inventory to report the alignment of projects and systems to IT investments and segments. This list includes all systems, regardless of whether they are funded by the IT Fund, and therefore it may include additional systems not reported through the eCPIC process.

OIG Recommendation #9

Define and assess measurements in a yearly EA value measurement report in accordance with OMB EA framework guidance.

See HUD OIG comment 1.



See HUD OIG comment 1.

OCIO Response to the OIG Draft Report “Information Technology Modernization”
2015-OE-0002

Recommendation Comment

The EA Team reviews all the proposed investments and provides recommendations to ensure successful project execution, alignment to mission objectives and opportunities to consolidate investments and reusing existing capabilities within the IT Portfolio. For example:

- The EA Team submitted assessments for all FY14 projects to meet statutory requirements as described in the appropriations language. These assessments serve as evidence of HUD’s adoption of IT management controls; however, it appears that the assessments may have been excluded from the Expenditure Plan submission.
- As a contributing member of the IPT, the EA Team conducted an in-depth assessment of the FHA ASAP project and raised multiple concerns of the health of the project and ability to meet stated objectives. The TRC made a recommendation to pause the development process so that the business requirements a solution architecture could be validated. This project continues to progress through PPM control gates and is currently preparing for user acceptance testing and implementation while the Requirements Document is still in draft form and has not been made available for review. Planning phase activities continue to evolve while Execution phase activities are underway. A roadmap for the full solution, to include required interface connectivity, has not been developed. The scope of functionality to be delivered over time is unclear. The COTS solution is a French product and there is no requirement for English versioned documentation (i.e., data dictionary, ERD) to be translated into English. Additional funds (FY14 DME) have been requested without basis for cost estimate. Initial implementation will require parallel processes to maintain the legacy system operations. In addition the solution will be implemented without critical interfaces to existing HUD systems.

While EA has defined performance measurement indicators, meaningful outcomes will require proper implementation and enforcement. See comments regarding performance measurement in the EA Response column in table below.

Perspective	Inventory / Outcome	Area of measurement	Measurement Indicator	EA Response
Spending	System Inventories	Completeness	% of IT investments going through the IRB that have been reviewed by the EA Team	In FY14 and FY15, EA reviewed, scored and provided comments for 100% of IT investment requests. Funded investments are managed through HUD’s PPM process. EA is a contributing member of Integrated Project Teams and is engaged in the control gate review process.
Spending	System Inventories	Accuracy	% of IT investments approved by the IRB aligned to the Target Architecture	Although this indicator has been defined, EA is working to establish a method by which to measure alignment of investments to the Target Architecture. As the target architecture evolves and becomes more mature, EA will be in a better position to assess the alignment of all IT investments. Currently, EA is



OCIO Response to the OIG Draft Report "Information Technology Modernization"
2015-OE-0002

				working with OCIO/CTO to refine and socialize the target architecture.
Spending	System Inventories	Cost Savings / Avoidance	# of duplicative or overlapping investments	Although a complete inventory of IT investments is maintained, further analysis to decompose business functions across systems and services must be accomplished to identify true redundancies across the IT Portfolio.
Systems	Outcomes	Cost Savings / Avoidance	# of dollars saved or how the EA Program contributes in cost savings through system consolidation	EA is working to establish a method by which to measure cost savings. While current IT Modernization initiatives have identified systems to be consolidated or decommissioned as a result of implementation, the value of the cost savings is not being consistently measured. Cost elements for systems and services are not consistently tracked across the IT Portfolio (infrastructure costs, FTEs, facilities, etc.). As HUD adopts a standard cost estimation methodology, EA will improve a method by which to measure cost savings.
Services	System Inventories	Accuracy	% of Agency services that are up to date and accurate	This measurement indicator will be defined and a method of measurement will be determined. It would be helpful to have more understanding of how 'up to date and level of accuracy' can be measured.
Services	Outcomes	Reduction of Duplication	# of duplicate services EA helped identify	In previous years, information was gathered through analysis of Configuration Change Management Board (CCMB) technology submissions. Additional analysis includes determining functionality of newly introduced technologies in relation to existing solutions to determine redundancy.
Security	Outcomes	Reduction of Duplication	# of duplicate security impls EA helped identify	Although this indicator has been defined, EA is working to establish a method by which to measure it.

OIG Recommendation #10

Fully develop, approve at appropriate levels, and disseminate current CPIC process policies and procedures.



See HUD OIG comment 1.

See HUD OIG comment 2.

See HUD OIG comment 1.

OCIO Response to the OIG Draft Report "Information Technology Modernization"
2015-OE-0002

Recommendation Comment

The CPIC process at HUD is governed by the HUD Policy for Information Technology Capital Management from July 2011. The ITIM organization has updated its CPIC documentation during the last few months, and has prepared drafts of many individual policies and procedures for components of the CPIC and budget processes. These have been provided to programs as needed, on various occasions. We have already implemented significant improvements to the selecting investments by using HUD PLUS as a means to capture all relevant information and to develop quantifiable criteria to assign scores to proposed investments. These were presented to the Deputy Secretary and the Customer Care Committee as an aid to making decision on FY17 investments. We will refine and update these draft procedures to fully incorporate new processes, such as greater implementation of HUD PLUS. Subject to resource constraints, we expect to finalize and disseminate the procedures within OCIO and to the programs by March 31, 2016.

OIG Recommendation #11

Ensure that the Executive Investment Board meeting in accordance with IT governance policy.

Recommendation Comment

The Executive Investment Board is directed and chaired by the Deputy Secretary. It is organized and run at her discretion. In recent year's planning processes, the Deputy Secretary has chosen to meet with heads of HUD organizations individually to discuss IT investments and portfolios rather than to convene a formal EIB group meeting. Regardless of this process choice, EIB members have the opportunity to meet with the Deputy Secretary and provide their input related to IT decisions and approvals that must be made at the Executive level.

The intended outcomes identified in the IT governance policy are being met with the current EIB process; therefore, HUD does not believe this item should be cited as a recommendation in the IT Modernization report.

OIG Recommendation #12

Implement HUDPlus to automate, track, and analyze the IT investment submissions and requirements.

Recommendation Comment

HUD is strengthening its segment governance process, through the HUDPlus solution/tool, which was implemented and used in for the FY 2017 OMB Budget submission. The tool gives the IT business segments a mechanism to submit, track, and manage their business needs and business cases. These submissions are then reviewed and analyzed, and through a collaboration of CIO and HUD subject matter experts, the business needs and cases are scored based on a number of criteria, which are managed within the HUDPlus tool.

In the FY 2017 Budget process, the scored business needs were then ranked and presented to the HUD leadership in several options by weighting the value of each criteria. The HUDPlus tool allowed the CIO and CFO to present many combinations and options of IT needs to fund, and using the HUDPlus tool to do it minutes what it had taken hours to do on spreadsheets. Beyond using the tool to support IT investment



OCIO Response to the OIG Draft Report "Information Technology Modernization"
2015-OE-0002

decisions, the information collected is being used to support the IT-53, IT-300s and the OMB Budget Justifications. Through the tool we will collect once and use many times. Detailed Master schedules will also be developed in HUDPLUS that will ensure a consistent approach to planning work across all segments, but which can be customized for each segments specific needs.

OIG Recommendation #13

Provide CPIC training to all stakeholders to ensure program consistency and effectiveness across all program offices.

Recommendation Comment

The OCIO provides CPIC training annually in several forms including written guidance, group meetings with stakeholders, and formal CPIC process training. The HUD IT capital planning process is automated through use of the HUDPLUS tool. Each year the OCIO provides training on HUDPLUS, including guidance on the timing and content of required submissions all program office users.

In addition, as part of the IT governance process, the OCIO meets with Segment Leaders and Program Office leadership to discuss IT portfolio submissions, assessment and scoring criteria, and to inform them of interim and final IT portfolio decisions. These efforts are designed to ensure a common understanding of requirements and to improve consistency and completeness of CPIC reporting.

These efforts have improved senior leadership insight into the IT portfolio and provided better support for senior leadership decision-making. Please clarify if there are specific training deficiencies that should be highlighted as part of the IT Modernization report.

OCIO does intend to enhance training on the entire CPIC process and will include all updated CPIC guidance. This will be planned for mid-2016. This will supplement existing training for each of the owners of Major Business Cases that informs them of new OMB requirements and assists them with updating their cases for changes in the investments, including newly planned projects. There will also be expanded training for HUDPLUS to increase the number of users and content in that system. This is a key to ensuring consistency across the program offices.

See HUD OIG comment 1.



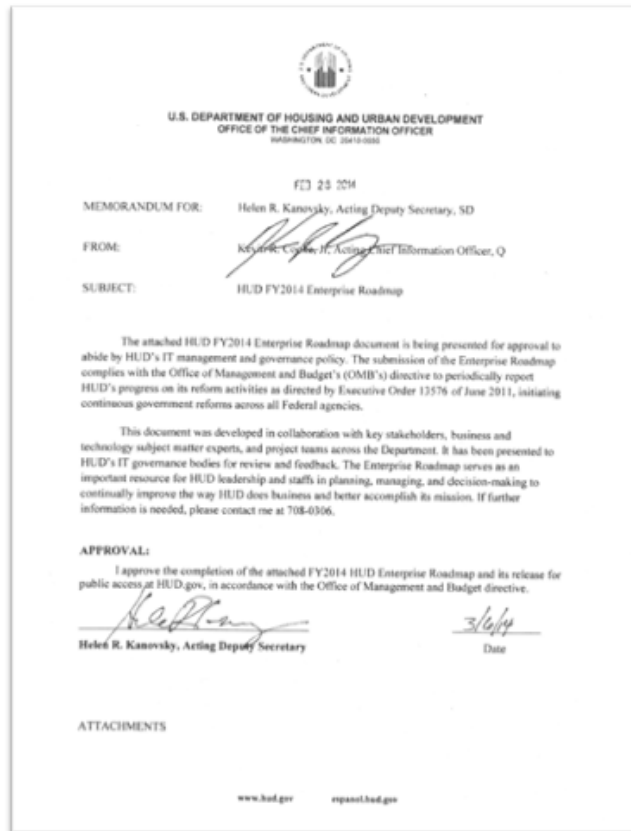
See HUD OIG comment 3.

OCIO Response to the OIG Draft Report "Information Technology Modernization"
2015-OE-0002

COMMENTS AGAINST THE REPORT

OIG Comment: (page 12) HUD had drafted both an EA policy and EA Roadmap as recommended by GAO in 2012 but it had been not formally approved by senior leadership.

EA Comment: HUD's FY 2014 Roadmap was approved by senior leadership (see below). The FY 2015 version of the EA Roadmap has been updated to reflect HUD's current strategic and IT goals and objectives. HUD's current EA Policy is dated April 2014. This document describes the EA Program's intent to maintain a single department-wide EA based on the Department's mission, strategies, goals, and objectives.





See HUD OIG comment 1.

OCIO Response to the OIG Draft Report "Information Technology Modernization"
2015-OE-0002

OIG Comment: (page 13) *We found a number of active IT investment and project lists in HUD OCIO that were inconsistent or did not reflect the data in the EA Roadmap.*

EA Comment: We agree that a singular, authoritative list of for all OCIO entities would ensure consistency and be beneficial in coordinating projects across the agency. (An excerpt from EA Roadmap Exhibit E provided below in Attachment A).

The EA team will continue to assess and align IT projects to strategic goals, objectives, and HUD's Enterprise Target Architecture. Regarding the differences in data reported on various lists, EA maintains the Enterprise IT Asset Inventory to report the alignment of projects and systems to IT investments and segments. This list includes all systems, regardless of whether they are funded by the IT Fund, and therefore it may include additional systems not reported through the eCPIC process.

Other EA Comments relating to the OIG Report:

- Although OCIO is taking action to become the agency provider of all IT services, program areas continue to execute their own IT development efforts, contributing to uncoordinated demands on the infrastructure.
- The EA organization recognizes the benefits of more closely aligning all OCIO functions and significant change to the level and process of budgeting. The rigid budgeting process and low level of funding are creating significant challenges in developing the capability, capacity and resource to develop more HUD shared services and rationalizing the architecture. Most of these issues are outside the control and influence of the OCIO leadership.



HUD OIG Comments

The following are HUD OIG's responses to HUD OCIO's comments, provided September 25, 2015.

1. We recognize that OCIO is continually improving and developing plans for IT modernization initiatives. For example, OCIO developed a new HUD 2015 Enterprise Roadmap between this report and receiving OCIO comments in addition to the initiatives documented in these provided comments. Continued effort, senior leadership support, and resources will be essential to implement and maintain the initiatives laid out by the OCIO in the provided comments.
2. Although this comment explains the practicing Executive Investment Board (EIB) process, it does not reflect the documented policy, which is the reason for the recommendation. The intended outcomes identified in the IT governance policy may be met but there was no evidence of those EIB outcomes such as meeting notes or minutes. Further, per the IT Governance policy, investment recommendations are submitted to the EIB from subcommittees, in particular the Customer Care Committee (CCC). It may be challenging to make collective strategic decisions on the IT investment portfolio if the EIB does not meet on a regular or on an as-needed basis.
3. We revised our report to reflect this comment and provided artifact. See the HUD EA section.