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**Testimony**

Before the Subcommittee on Transportation,  
Housing and Urban Development, and Related  
Agencies, Committee on Appropriations,  
House of Representatives

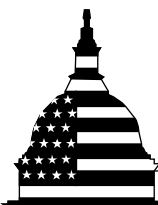
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**HUD INFORMATION  
TECHNOLOGY**

**More Work Remains to  
Implement Necessary  
Management Controls**

Statement of Valerie C. Melvin, Director  
Information Management and Technology  
Resources Issues



**G A O**

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Highlights of [GAO-12-580T](#), a testimony before the Subcommittee on Transportation, Housing and Urban Development, and Related Agencies, Committee on Appropriations, House of Representatives

## Why GAO Did This Study

The Department of Housing and Urban Development (HUD) performs a range of significant home ownership and community development missions that are integral to the U.S. economy. In doing so, HUD relies extensively on information technology (IT). However, HUD's IT environment has not effectively supported its business operations, and as a result, the department has been working to modernize its IT infrastructure. To provide oversight and inform decision-making, Congress required that HUD develop and submit plans describing how it intends to use its expenditures to support its modernization efforts. In addition, Congress required GAO to review these expenditure plans to determine if they meet statutory conditions.

GAO was asked to testify on HUD's progress in implementing its prior recommendations on (1) modernizing its IT systems and (2) improving its expenditure plans. In preparing this statement, GAO relied on previous work at HUD.

## What GAO Recommends

GAO is not making new recommendations. As noted, GAO has previously made recommendations aimed at assisting HUD in fully implementing key IT management controls.

View [GAO-12-580T](#). For more information, contact Valerie C. Melvin at (202) 512-6304 or [melvinv@gao.gov](mailto:melvinv@gao.gov).

March 29, 2012

## HUD INFORMATION TECHNOLOGY

### More Work Remains to Implement Necessary Management Controls

## What GAO Found

HUD has made progress in implementing prior GAO recommendations on modernizing its IT environment; however more actions are needed. In 2009, GAO reported that HUD lacked key IT management controls; which are essential to achieving successful outcomes. Specifically,

- Although the department had established an IT strategic plan that outlined goals and performance measures, it had not assessed its performance against established goals. As a result, HUD did not know how well it was achieving its goals and where it needed to improve.
- While the department had established policies and procedures for developing a complete portfolio of its investments, it had not established policies and procedures for evaluating that portfolio. This meant that it was limited in its ability to control risks and achieve benefits associated with the mix of legacy systems and modernization investments it selected.
- HUD's Office of the Chief Information Officer had not adequately assessed its IT workforce needs, inventoried existing staff knowledge and skills, and identified gaps between needs and existing capabilities. As a result, the department was not well positioned to acquire the skill sets it needed.
- The department had not fully developed its enterprise architecture (EA)—which provides a blueprint for investing that connects strategic plans with individual programs and system solutions. This meant that HUD lacked a sufficient basis for guiding and directing its modernization projects.

GAO made a number of recommendations to HUD aimed at strengthening its management capabilities, and while progress has been made in addressing them, work remains. For example, HUD issued a department-wide strategic plan with associated goals that aligned with new IT strategic goals. However, the department had not developed criteria for assessing the performance of its portfolios, finalized its plan to address its IT workforce needs, or established an approved policy for its enterprise architecture.

HUD's modernization expenditure plans, which are to describe how the agency plans to spend IT modernization funding, have improved in response to GAO's recommendations. These plans are to meet statutory conditions that include identifying, for each modernization project, capabilities to be delivered, expected benefits, estimated costs, and key milestones; and showing that each project is supported by adequate staff, conforms to capital planning and investment control requirements, complies with the department's EA, and is being managed in accordance with department lifecycle management policies. GAO found that HUD's 2010 expenditure plan contained weaknesses and thus was limited as a congressional oversight and decision-making mechanism. Accordingly, GAO recommended, among other things, that the department ensure future plans satisfied each element of the statutory conditions. In response, subsequent expenditure plans submitted in 2011 and 2012 satisfied the conditions. As a result, these more recent plans have provided key information needed for continued oversight of the modernization projects.

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Chairman Latham, Ranking Member Olver, and Members of the Subcommittee:

I am pleased to participate in today's hearing to discuss the Department of Housing and Urban Development's (HUD) management challenges. HUD performs a range of significant home ownership and community development missions that are integral to our nation's economic well-being, and it relies extensively on information technology (IT) to carry out these missions. Moreover, legislation enacted since 2008 to stimulate the economy, in part through strengthening the housing market, has continued to expand the department's responsibilities and thus its need for IT support. For example, the department's increased responsibilities under the Housing and Economic Recovery Act of 2008 introduced greater processing requirements for Federal Housing Administration (FHA) mortgage insurance programs, which further increased its reliance on information systems and other IT services.<sup>1</sup>

Nevertheless, HUD has long experienced shortcomings in its IT capability. As we reported in 2009, the department's IT environment did not effectively support its business operations.<sup>2</sup> The department's operating plans and budget submissions indicated, for example, that its information systems were overlapping and duplicative, were not integrated, necessitated manual workloads, and employed antiquated technologies that were costly to maintain. Since our report, the department has been working to modernize its IT infrastructure.

To provide oversight and inform decision-making, Congress established limitations on funding for HUD's IT modernization efforts through appropriations acts in fiscal years 2010 and 2011.<sup>3</sup> In addition, these acts required us to review and provide an assessment of HUD's IT modernization expenditure plans. To this end, we issued two reports—in

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<sup>1</sup>Housing and Economic Recovery Act, 2008, Pub L. No. 110-289, § 2126, 122 Stat. 2654, 2840-41 (July 30, 2008).

<sup>2</sup>GAO, *Information Technology: HUD Needs to Strengthen Its Capacity to Manage and Modernize Its Environment*, [GAO-09-675](#) (Washington, D.C.: July 31, 2009).

<sup>3</sup>Department of Housing and Urban Development Appropriations Act, 2010, Pub. L. No. 111-117, div. A, tit. II, 123 Stat. 3074, 3093-3094 (Dec. 16, 2009); and Department of Defense and Full-Year Continuing Appropriations Act, 2011, Pub. L. No. 112-10, § 2259, 125 Stat. 38, 197-98 (April 15, 2011).

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November 2010 and September 2011—that documented the results of our fiscal year 2010 expenditure plan review.<sup>4</sup> Further, earlier this week, we briefed the Committees’ staff on a just-completed third review which examined the department’s fiscal year 2011 expenditure plan.

At your request, my testimony today summarizes HUD’s progress in implementing our prior recommendations on (1) modernizing its IT systems and (2) improving its expenditure plans.

The information in my testimony is based on our previous reports on HUD. All work on which this testimony is based was conducted in accordance with generally accepted government auditing standards.

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## Background

HUD’s mission to create strong, sustainable, and inclusive communities and quality and affordable homes for all has significantly evolved due to the current economic and housing crisis. Accordingly, the department has increased its reliance on IT. In particular, legislation enacted over the past several years has given the department new responsibilities for, among other things, strengthening the housing market. For example, the Housing and Economic Recovery Act of 2008<sup>5</sup> established a program intended to help families avoid home foreclosure by refinancing them into mortgages insured by FHA.<sup>6</sup> As a result, the number of mortgage loans insured by FHA more than tripled between 2006 and 2010, from almost half a million loans to 1.7 million loans. This in turn resulted in the need for much greater system processing capabilities to accommodate the increased demand.<sup>7</sup>

IT plays a critical role in the department’s ability to carry out its growing mission by supporting data collection and dissemination throughout the

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<sup>4</sup>GAO, *Information Technology: HUD Needs to Better Define Commitments and Disclose Risks for Modernization Projects in Future Expenditure Plans*, [GAO-11-72](#) (Washington, D.C.: Nov. 23, 2010); and *Information Technology: HUD’s Expenditure Plan Satisfies Statutory Conditions, and Implementation of Management Controls Is Under Way*, [GAO-11-762](#) (Washington, D.C.: Sept. 7, 2011).

<sup>5</sup>Pub. L. No. 110-289, § 2126.

<sup>6</sup>FHA provides mortgage insurance on loans made by approved lenders.

<sup>7</sup>GAO, *Federal Housing Administration: Improvements Needed in Risk Assessment and Human Capital Management*, [GAO-12-15](#) (Washington, D.C.: Nov. 7, 2011).

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department and to external parties. For instance, the department reports that its business areas rely on IT to process over 50,000 loan requests per week, over 12,000 service calls per month, and more than 7,000 grant requests annually for each of its major grant programs.

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## HUD's IT Environment

Despite its growing mission, HUD's IT environment has not effectively supported its business operations. In 2009, we reported that the department's IT had consisted of:

- over 200 information systems, many of which performed the same functions and, thus, were duplicative;
- stove-piped, nonintegrated systems that could not share related data;
- manual processing for key business processes; and
- systems that were nearly 15 years old (on average), including several different operating systems and using 35 different programming languages.

A factor that had contributed to the state of HUD's IT environment was the department's focus, primarily, on the maintenance of its existing systems and infrastructure, rather than on the modernization needed to meet its expanding mission needs. For example, in fiscal year 2008, about 2 percent of the department's IT obligations were for new development, whereas the remaining 98 percent were obligated for operating and maintaining legacy systems.

HUD's Office of the Chief Information Officer (OCIO) is responsible for supporting the department's programs, services, and management processes by providing IT solutions and services. Additionally, the OCIO is responsible for developing, modernizing, and enhancing the IT environment. To this end, in 2010, the OCIO established four management goals, which aligned with the department's 2010-2015 Strategic Plan: (1) enhance the quality, availability, and delivery of HUD information to citizens, business partners, and government; (2) promote an enterprise approach to IT that will foster innovation and collaboration; (3) achieve excellence in IT management practice; and (4) transform the OCIO to a culture of operational excellence that can achieve current and future departmental goals.<sup>8</sup>

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<sup>8</sup>HUD Strategic Plan Fiscal Year 2010-2015 (May 2010).

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To assist HUD in its modernization efforts, Congress has authorized and appropriated funding for the department in multiple statutes. For example, in recognizing the need to modernize the department's IT environment, the Housing and Economic Recovery Act of 2008 authorized \$25 million for each fiscal year, from 2009 through 2013, for improvements to FHA's IT, among other things. In addition, according to department officials, HUD used approximately \$1.5 million of the funding provided in the American Recovery and Reinvestment Act of 2009 for improving IT capabilities across a range of programs. More recently, the appropriations acts for fiscal years 2010 and 2011<sup>9</sup> made available to HUD for expenditure \$180 million and \$71 million, respectively, for IT modernization to support its Transformation Initiative.<sup>10</sup>

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## Progress Has Been Made in Implementing Recommendations on HUD's IT Modernization, but More Work Remains

While HUD has been working to modernize its IT systems, we reported in 2009 that the department lacked sound management controls that are essential to achieving successful outcomes. These controls included IT strategic planning, investment management, enterprise architecture, and human capital planning. We recommended that the department make improvements in these areas, and while it has taken a number of important steps, additional actions are still needed by the department to respond to remaining concerns.<sup>11</sup>

- **Strategic planning and performance management:** Effective IT strategic planning and performance management are intended to ensure that an organization's IT strategic goals are aligned with its overall mission goals and outcomes and that these goals are supported by clearly defined (1) activities aimed at accomplishing the goals and (2) measures for determining performance in accomplishing the activities and goals.

In 2009, we found that although HUD had established an IT strategic plan that outlined goals and performance measures, it had not assessed its IT performance against established goals since fiscal

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<sup>9</sup>Pub. L. No. 111-117 and Pub. L. No. 112-10.

<sup>10</sup>HUD's Transformation Initiative consists of four components: (1) research, evaluation, and program metrics; (2) program demonstrations; (3) technical assistance and capacity building; and (4) information technology.

<sup>11</sup>[GAO-09-675](#) and [GAO-11-762](#).

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year 2007. By not regularly assessing and reporting progress against its strategic IT performance measures and activities, HUD did not know how well it was achieving its strategic goals and where it needed to improve. We recommended that HUD establish a plan for developing and implementing the department's performance management framework, including an implementation schedule of key activities and related resource needs, and ensure that this plan provides for annually reporting progress in achieving IT strategic goals.

In September 2011, we reported that HUD had fully implemented this recommendation by issuing a new department-wide strategic plan with associated goals that aligned with new IT strategic goals that the OCIO developed.

- **IT investment management:** Investment management is aimed at selecting, controlling, and evaluating IT investments in a manner that better ensures that they produce business value, reduce investment-related risks, and increase accountability and transparency in the investment decision-making process. As we have previously reported, moving away from project-centric investment management and toward a portfolio-based approach, is considered a best practice. By managing investments as a portfolio, an organization can consider new investment proposals, along with previously funded investments, and identify the appropriate mix and synergies of these investments to best meet mission needs, technology needs, and priorities for improvement.

In 2009, we reported that while HUD had established a range of policies and procedures for developing a complete investment portfolio, it had not established policies and procedures for evaluating the portfolio.<sup>12</sup> Without having defined and implemented practices for evaluating the performance of its portfolios, HUD was limited in its ability to control the risks and achieve the benefits associated with the mix of legacy system and modernization investments selected. Accordingly, we recommended that HUD develop a plan for instituting policies and procedures for reviewing, evaluating, and improving the performance of the department's portfolio of investments; developing criteria for assessing portfolio performance and reviewing and

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<sup>12</sup>[GAO-09-675](#).

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modifying them at regular intervals; defining and collecting IT portfolio performance measurement data consistent with the portfolio performance criteria; and executing adjustments to the IT investment portfolio in reaction to actual portfolio performance.

In September 2011, we reported that, in response to our recommendations, the department had begun establishing a new investment management governance structure and had applied it to its portfolio for IT modernization projects. However, HUD had not yet developed criteria for assessing portfolio performance, or defined and collected data consistent with the criteria. In the absence of taking these key steps, the department has continued to be challenged in implementing proper investment management practices.

- **Human capital:** As we have previously reported, IT human capital management is intended to ensure that an organization has the employees with the appropriate knowledge and skills to effectively execute critical IT functions. Human capital management involves assessing IT workforce needs, inventorying existing staff's knowledge and skills and identifying any gaps between needs and existing capabilities, and developing strategies and plans to fill any gaps.

In 2009, we reported that HUD's OCIO had not adequately performed most of these activities. For example, while the office had analyzed skill gaps in its IT workforce and had developed a strategy for closing those skills gaps, OCIO officials did not know when implementation of this strategy would begin or be completed. Additionally, the gap analysis was based on an incomplete and outdated inventory of human capital skill levels, thus rendering its strategy unreliable. We noted that without effective human capital management, HUD's ability to have the right people to effectively operate and maintain existing systems was impaired. Therefore, we recommended that HUD establish and execute IT human capital gap closure strategies that are based on a complete and current inventory of its existing IT workforce skills.

In September 2011, we reported that HUD had made progress in this area. Specifically, HUD began working to establish a human capital plan that included tasks such as identifying challenges, developing performance metrics and strategies, and addressing the identified IT skill gaps. HUD anticipated finalizing this plan by December 2011; however, as of this month, the plan has not yet been completed. Until HUD finalizes its IT human capital management plan, implementation of this management control will continue to be a challenge.



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- **Enterprise architecture:** EA development and use is aimed at establishing a corporate blueprint for investing that connects strategic plans with individual programs and system solutions. As such, this blueprint provides the information needed to guide and constrain investments in a consistent, coordinated, and integrated fashion—thereby improving interoperability, reducing duplicative efforts, and optimizing mission operations. Developing an enterprise architecture with associated system solutions for portions, or segments (referred to as segment architectures), is an important aspect of this activity.

In 2009 we reported that, while HUD had established an enterprise architecture program that met key aspects of related best practices, its efforts to develop segment architectures were not sufficient. For example, HUD had identified and prioritized segments to be modernized; however, it did not adhere to these priorities, the segments developed did not reflect important elements of federal guidance, and most were out of date. We found that HUD had developed eight segment architectures; however, these segments were not the department's eight highest priorities. As a result, HUD's segment architectures did not provide a sufficient basis for guiding and directing segment projects in a manner to ensure that both, system enhancements and new development efforts were properly sequenced, well integrated, and not duplicative. We recommended that HUD develop a plan for reexamining segment priorities and updating and developing segment architectures in accordance with these priorities and relevant guidance.

We subsequently reported in September 2011, that the department had made progress toward implementing our recommendation, by, for example, creating a conceptual enterprise architecture. However, it had not yet established a policy to guide the development, maintenance, and use of this architecture. Thus, we further recommended that HUD establish and approve a policy to govern the EA prior to further developing its segment architectures. In response, HUD officials did not explicitly agree or disagree with our recommendation, but noted that the department was working to draft an enterprise architecture policy. As of this month, the department had not yet finalized its EA policy. To this end, establishing a commitment to its new EA direction remains a challenge for the department.

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## HUD's Implementation of Recommendations to Improve Expenditure Plans Enables More Oversight

Out of concern about HUD's capacity to manage its IT modernization efforts, Congress established limitations on the funding provided to the department for this purpose. Specifically, the appropriations acts stated that the department could not obligate more than 25 percent of fiscal year 2010 funds and 35 percent of fiscal year 2011 funds until the Secretary of HUD submitted to the appropriations committees in each year an expenditure plan that satisfied two sets of statutory conditions and had been reviewed by GAO. To address the first set of statutory conditions, for each modernization project, HUD was required to identify in the plan (1) functional and performance capabilities to be delivered, (2) expected mission benefits, (3) estimated lifecycle costs, and (4) planned key milestones. To address the second set of statutory conditions, the plan had to demonstrate that each project (1) was supported by an adequately staffed project office, (2) conformed to capital planning and investment control requirements, (3) complied with the department's enterprise architecture, and (4) was being managed in accordance with applicable lifecycle management policies and guidance.<sup>13</sup>

Our assessment found that the department's first expenditure plan, submitted in April 2010, did not adequately satisfy the two sets of statutory conditions.<sup>14</sup> In particular, we found that the plan did not describe specific and measureable mission benefits for all of HUD's IT modernization projects. In addition, the plan did not include information that demonstrated compliance with regard to the department's enterprise architecture and capital planning for IT investments. For example, the modernization projects could not show how they aligned to the department's EA because the existing EA was no longer operative. In the absence of this information, the plan was limited as a congressional oversight and decision-making mechanism. As a result, we recommended that HUD ensure that future expenditure plans satisfied each element of both sets of statutory conditions and describe the status of HUD's efforts to establish and implement modernization management controls.

In response, HUD submitted a revised 2010 expenditure plan in February 2011, which we found satisfied both sets of statutory conditions. For example, the plan identified key milestones by project phase and deliverable timeframes for the development of requirements and software

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<sup>13</sup>Pub. L. No. 111-117 and Pub. L. No. 112-10.

<sup>14</sup>[GAO-11-72](#).

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releases. The plan also described how each of seven identified modernization projects complied with the department's evolving enterprise architecture. Additionally, the plan clearly described the status of the department's efforts to implement the management controls.

Further, in January 2012, HUD submitted its 2011 expenditure plan for our review, which also satisfied both sets of statutory conditions. For example, the plan described specific and measureable mission benefits for each of the identified IT modernization projects. In addition, it described costs associated with the lifecycle of each project, providing details on funds needed for major work activities and deliverables. Further, the plan categorized each project relative to HUD's evolving architecture.

As a result of the measures that HUD has taken to respond to our recommendations and improve the content of each subsequent expenditure plan, it has rendered these plans more useful. In turn, the plans should facilitate continued and more effective oversight of the department's IT modernization projects.

Going forward, the fiscal year 2012 appropriations act has directed us to evaluate HUD's 2012 expenditure plan.<sup>15</sup> Additionally, the 2012 conference report directed us to evaluate implementation of project management practices, including contractor oversight and cost estimation for selected IT modernization projects.<sup>16</sup> We have also been directed to assess the department's institutionalization of IT governance. We anticipate initiating aspects of this work in spring 2012.

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In summary, HUD has made progress in addressing certain weaknesses that we identified in its IT management capabilities. However, it is important to note that more actions are still needed. In particular, fully addressing the recommendations that we have made is vital to helping

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<sup>15</sup>Consolidated and Further Continuing Appropriations Act, 2012, Pub. L. No. 112-55, 125 Stat. 552, 691-92 (Nov. 18, 2011).

<sup>16</sup>This direction is contained in the Senate Appropriations Committee report, S. Rep. No. 112-83, at 141-42 (2011), as approved by the conference committee in the Explanatory Statement, H.R. Conf. Rep. No. 112-284, at 286 (2011), accompanying the Consolidated and Further Continuing Appropriations Act, 2012, Pub. L. No. 112-55, 125 Stat. 552, 691-92 (Nov. 18, 2011).

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the department implement sound management controls and, ultimately, to overcome the challenges it has faced in improving its IT management capabilities. HUD has demonstrated progress in improving the content of its IT expenditure plans. As a result, these plans should be more useful as an oversight tool and thus should better help to demonstrate the extent to which the department takes the important steps that are essential to strengthening its capacity to manage and modernize its IT environment.

Chairman Latham, Ranking Member Olver, and Members of the Subcommittee, this concludes my statement today. I would be pleased to respond to any questions that you may have.

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## Contact and Acknowledgments

If you have any questions concerning this statement, please contact Valerie C. Melvin, Director, Information Management and Technology Resources Issues, at (202) 512-6304 or [melvinv@gao.gov](mailto:melvinv@gao.gov). Other individuals who made key contributions include Shannin G. O'Neill, Assistant Director; Kami J. Corbett; Lee A. McCracken; and Teresa M. Neven.

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