



U.S. Department of the Interior Office of Inspector General

Advisory Report

DEVELOPING THE DEPARTMENT OF THE INTERIOR'S INFORMATION TECHNOLOGY CAPITAL INVESTMENT PROCESS:

A FRAMEWORK FOR ACTION

AUGUST 2002

No. 2002-I-0038



United States Department of the Interior

Office of Inspector General
Washington, D.C. 20240

August 26, 2002

Memorandum

To: Secretary

From: Earl E. Devaney
Inspector General

Subject: Advisory Report on Developing the Department of the Interior's Information Technology Capital Investment Process: A Framework for Action (No. 2002-I-0038)

I am pleased to provide you with our findings on the Department's information technology (IT) capital investment process. We evaluated the Department's IT capital investment process and identified promising practices recommended by the Department and employed by other Federal agencies. I believe our results provide a sound framework for the Department to begin developing a disciplined and controlled IT capital investment process.

In our report, we identify actions that, if implemented, will improve the Department's IT capital investment process and increase the success of the Department in securing scarce resources for IT investments. These actions include:

- Establishing a Departmental multi-tiered selection, review, and approval process for all IT significant investment projects.
- Establishing performance measures and selection criteria for IT projects.
- Considering a single IT budget for the Department.
- Establishing a training program for IT project management.

Some of our proposed actions may seem extreme; however, we believe they represent the Department's best opportunity to improve its IT capital investment process. Although this advisory report does not require a response, we would appreciate being kept apprised of the actions the Department takes on our proposals.

If you have any questions about our work or this report, please do not hesitate to call me at (202) 208-5745.

DEVELOPING THE DEPARTMENT OF THE INTERIOR'S INFORMATION TECHNOLOGY CAPITAL INVESTMENT PROCESS

A FRAMEWORK FOR ACTION

THE INFORMATION TECHNOLOGY (IT) INVESTMENT CHALLENGE

The purpose of an IT capital investment process is to ensure that information and related technology support the agency's mission objectives and that the agency's risks and costs are managed effectively. Agencies must make strategic decisions about technology investments to get the biggest "bang for the buck" and then deliver on their commitment. A means to meet these challenges is a repeatable, disciplined, and controlled IT capital investment process at the agency level. According to the General Accounting Office, the process should include the phases shown in Figure 1.

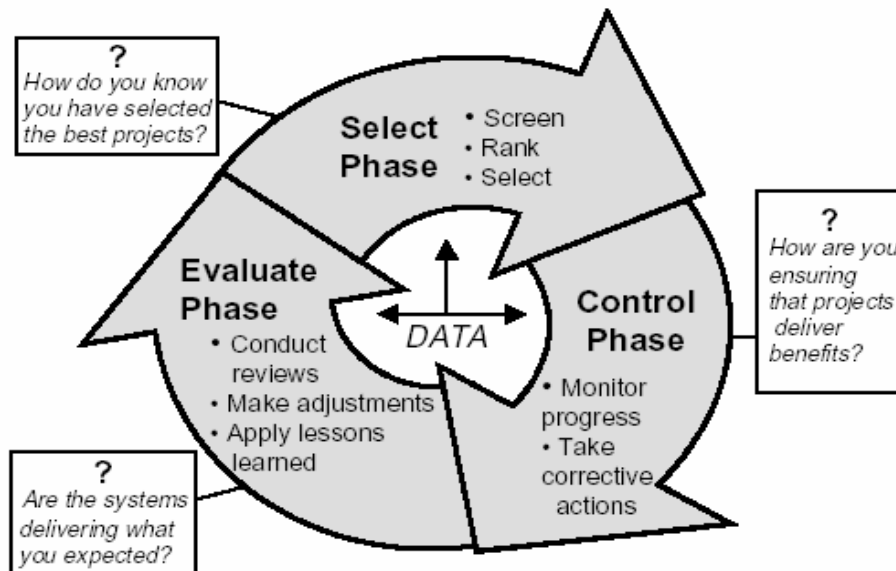


Figure 1. Fundamental Phases of the IT Investment Approach

The Department, unfortunately, does not have a process to ensure that IT capital investments or projects focus on Departmental mission objectives or Federal government goals and initiatives. The Department's IT investments are not focused on effectively and efficiently accomplishing the Department's goals from an enterprise perspective

principally because of the Department's decentralized approach to IT investments. For fiscal years 2002 and 2003, the Department budgeted more than \$1.3 billion for IT investments, yet only \$317 million representing 20 investment projects were subject to Departmental review and approval through submission of capital asset plans. Consequently, almost \$1 billion, or 77 percent of the \$1.3 billion budgeted for IT investment projects, was not subject to Departmental level capital investment review and approval. These projects were "under the radar" and were not prioritized from a Department perspective of a singular enterprise. Because of the Department's inadequate process, at least one project that was not approved for funding by the Department was forwarded to the Office of Management and Budget (OMB) and approved for funding by OMB. Conversely, IT projects not approved for funding by OMB continued to progress as though the project had been approved. In addressing a single Departmentwide material weakness to change business processes throughout the Department, multiple Bureau-level IT investment projects were developed rather than one Departmental IT investment project. Clearly, a better way of doing business is needed.

An OMB analysis of the effectiveness of Federal executive agencies' IT management processes in the President's fiscal year 2003 budget reported that the Department "puts large sums of public funds at high risk for failure and does not comply with the Paperwork Reduction Act or the Clinger-Cohen Act."¹ In addition, the analysis reported that the Department had not been able to adequately identify major projects within its IT portfolio or demonstrate the need for all of the identified major projects through adequate business cases. Out of the 23 Federal agencies included in the fiscal year 2003 President's budget supplemental document titled "*Performance Information for Major IT Investments*," the Department was one of two Federal agencies unable to provide the necessary performance information.

To help the Department improve its IT capital investment process, we highlight in this report the critical actions needed to begin developing a comprehensive, proactive, reliable, and disciplined IT capital investment process. We believe our suggestions will provide the Department with a framework to improve the IT capital investment process and increase the success of the Department in obtaining scarce resources for IT investments.

BUILDING ON THE DEPARTMENT'S EFFORTS

The Department's existing IT investment process requires that IT projects with full life-cycle costs² of \$35 million or more for nonfinancial systems and \$0.5 million or more for financial systems be processed through the Department's Policy, Management

¹ The Paperwork Reduction Act of 1995 requires each agency to define its information needs and develop strategies, systems, and capabilities to support programs and to improve productivity, efficiency, and effectiveness. The Clinger-Cohen Act requires agencies to link IT investments to agency accomplishments and establish a process to select, manage, and control IT investments.

² Full life-cycle costs include all direct and indirect costs for planning, procurement, operations and maintenance (an operational analysis should be used to evaluate the condition and any negative trends on cost projections for assets in use), and disposal. In other words, full life-cycle costs are all direct and indirect costs from the identification of the need for a system through the disposal of the system.

and Budget's (PMB)³ offices and the Assistant Secretary for PMB. Under the current process, Bureaus and offices submit their IT project documentation (generally an OMB Exhibit 300 form, "Capital Asset Plan") to each of the PMB offices separately for review and follow-up.

In July 2000 an outside consultant provided an assessment of the Department's IT Capital Planning to the Department's Chief Information Officer. The assessment identified numerous areas for improvement in the Department's IT capital investment process. As a result of the assessment, a process to select IT capital investment projects in the Department was initiated by the Office of the Chief Information Officer but was never formalized or fully implemented. In January 2002 the Office of the Chief Information Officer, the Office of Acquisition and Property Management, and the Office of Budget jointly began developing a process for selecting IT capital investments for the Department. In March 2002 a proposal was provided to the Secretary for approval to establish a formal process for selecting IT capital investments. In addition to the Department's process, Bureaus and offices are developing their own processes for selecting, controlling, and evaluating IT investments. The Bureaus' and offices' processes range from informal to well-documented, such as the Bureau of Land Management's. We believe successful implementation of the IT capital investment process at the Department and Bureau/office level requires an enhanced senior management commitment.

The March 2002 proposed process includes an additional level of approval by the Department's Management Excellence Council⁴ and it includes plans to better coordinate evaluation of the Bureaus' and offices' IT investment projects by the PMB offices. The Department's proposed process is presented in Figure 2.

³ The offices within the Department's Policy, Management and Budget Office involved in reviewing IT projects are: Office of the Chief Information Officer, Office of Acquisition and Property Management, Office of Budget, and under certain circumstances Office of Managing Risk and Public Safety.

⁴ The Management Excellence Council includes the Secretary, Deputy Secretary, Assistant Secretaries, and Bureau and Office Directors or Commissioners.

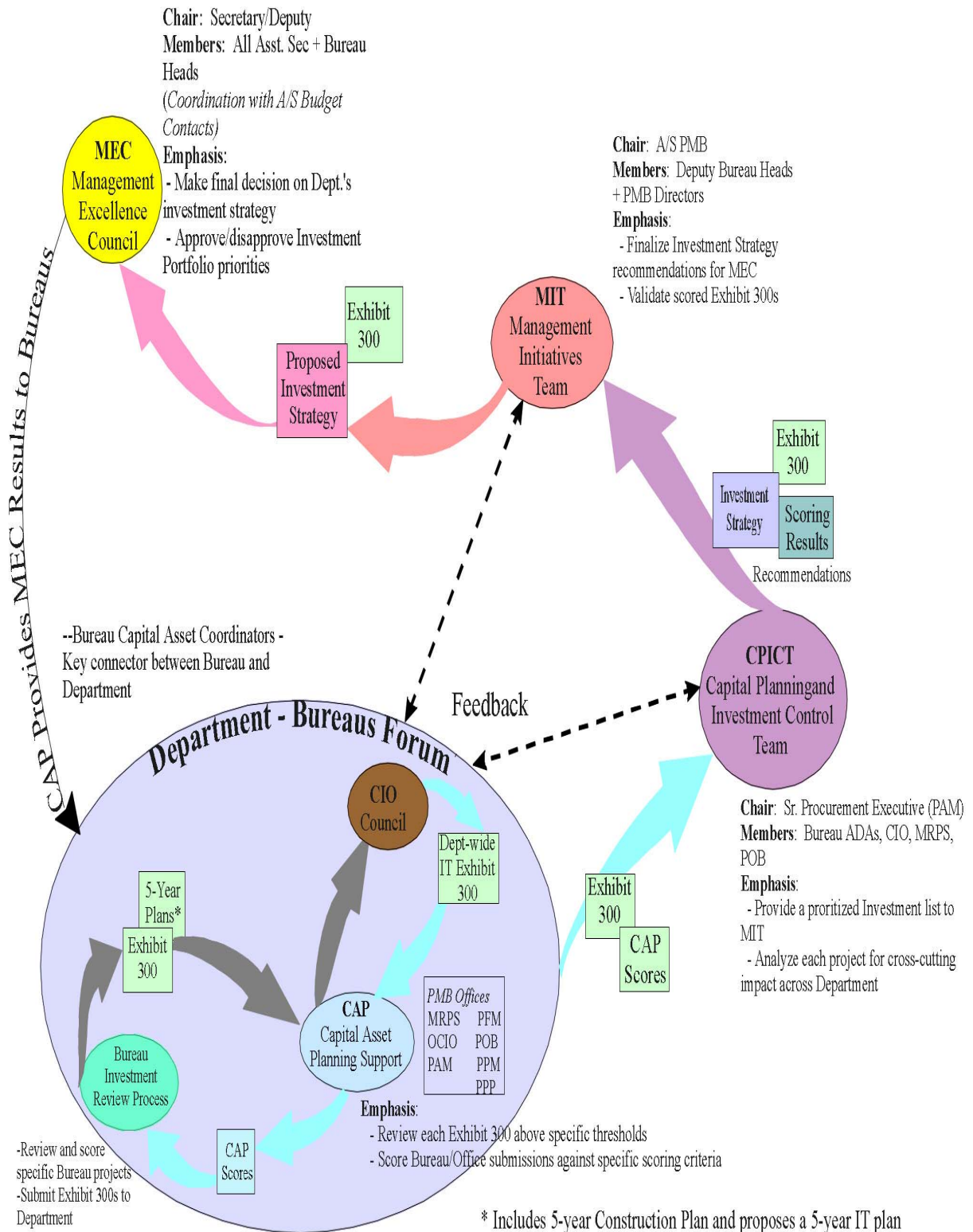


Figure 2. Department's Proposed Process for Capital Planning and Investment Control
Source: Office of the Chief Information Officer

We found several shortcomings in the Department's proposal. Specifically, the Department's process:

- Does not support a paradigm shift to considering all IT projects as Departmental investments.
- Considers only Bureau IT investment projects that exceed high dollar and other thresholds for selection and excludes Departmental Offices' IT investment projects. We believe that the thresholds for selection should be significantly reduced as criteria for the Departmental review process until such time as the Department and the Bureaus and offices have a stable and an "institutionalized" IT capital investment process.
- Is based on all Bureaus and offices having well-disciplined and controlled IT investment processes for IT projects under the Departmental thresholds. A means to encourage the Bureaus and offices to establish their disciplined and controlled IT investment processes would be through the use of a graduating or a sliding scale for thresholds. Without a disciplined and controlled IT capital investment process, a Bureau or office would be required to submit its business cases for each IT project for evaluation by the Departmental process. For IT projects requiring Departmental reviews, the thresholds could be increased as each Bureau or office approaches an "institutionalized" IT investment process.
- Only the Offices within PMB perform scoring for Departmental selection of IT investments, thus discouraging buy-in of the process by Bureau and office project and program managers and senior management.
- Is combined with the construction investment process.

NEEDED ACTIONS

First and foremost, a paradigm shift is needed to regard all IT projects as Departmental investments rather than Bureau/office specific investments. To foster this change, we suggest a multi-tier approach that requires the Department to plan for and select IT capital investments from all IT projects for the current fiscal year and the next four budget fiscal years. Only those projects selected and approved by the multiple select, review, and approval entities would be included in the Department's budgeting and procurement process. Based on our review of best practices suggested by the General Accounting Office and practiced by other Federal agencies, we suggest a Departmental IT capital investment process as shown in Figure 3 and described in the paragraphs that follow.

**FORMALLY
ESTABLISH A
MULTI-TIERED
SELECT, REVIEW,
AND APPROVAL
PROCESS**

Best practices include a centralized multi-tiered process that at a minimum comprises three levels to assure an optimal IT investment portfolio. Each tier is empowered to make decisions and approvals through formal charters. The select, review, and approval multi-tiered process is designed to both review and control all future IT projects and all ongoing IT projects. This may result in reallocating or requesting new funding, adding new projects, and postponing or even canceling projects.

Each tier must ensure that:

- IT investment-project business cases address Departmental missions, goals, and business functions; full life-cycle costs; the affordability of full life-cycle costs relative to expected funding levels; associated risks; and agency capacity to manage the asset.
- Ongoing IT investment projects address Departmental initiatives and objectives, and any necessary corrective actions are taken (such as identifying additional funding needs, suspending or canceling projects, or expanding projects).
- Implemented projects produce the benefits expected, and adjustments are made where appropriate.
- Processes are adjusted based on lessons learned through evaluating IT projects.
- The investment supports core mission functions that must be performed by the Federal government and demonstrates projected returns on investment that are equal to or better than alternative uses of available public resources.
- The investment supports work processes that have been simplified or otherwise redesigned to reduce costs, improve effectiveness, and make maximum use of commercial, off-the-shelf technology.
- The investment needs to be undertaken by the requesting agency because no alternative private sector or governmental source can better support the function.

**Establish a
Departmental Initial
Prioritization/Selection
Working Group**

This Group should be chaired by the Department's Chief Information Officer and be composed of:

- The Office of the Chief Information Officer's IT Investment Portfolio Manager and staff,
- Other PMB Offices such as the Office of Acquisition and Property Management and the Office of Budget, and
- Bureaus' and offices' IT project and program managers.

The purpose of this Group is to select, control, and evaluate future and ongoing IT investment projects from the Bureaus and offices including Departmental offices for subsequent review and approval by the higher-level tiers. The selection of IT investments would be based on the following actions:

- Evaluate all IT investment projects against specific scoring criteria;
- Rank and prioritize the projects; and
- Analyze each project for consolidation and/or cross-cutting impact throughout the Department.

Those IT investment projects selected and approved would be forwarded to the Department IT Senior Review Board for review and approval.

**Establish a
Department IT Senior
Review Board**

This Board should be chaired by the Assistant Secretary for PMB and be composed of:

- PMB Members -- Chief Information Officer, Directors of PMB Offices
- Ad hoc members -- Bureau and office IT project and program managers and Bureau and office heads for the IT investment projects selected and approved by the Prioritization/Selection Working Group.

The ad hoc members should have the same voting power as the PMB members.

The purpose of this Board is to review the IT investment projects submitted by the Prioritization/Selection Working Group and to develop the proposed IT Investment Portfolio by performing the following:

- Analyze each IT project for cross-cutting impact in the Department;
- Validate the business cases, assuring costs and benefits and that the functionality of the projects are adequate;
- Ensure that the selected IT projects address the Department's strategic plans and mission needs and the Secretary's initiatives;
- Ensure performance measures are defined; and
- Validate and revise priorities as necessary to ensure the IT projects are ranked based on the priorities of the Department and, if necessary, add or reject IT projects.

Other responsibilities include: (1) developing and updating scoring criteria to be used by the Prioritization/Selection Working Group for evaluating and ranking IT capital investment projects and (2) developing the proposed IT Investment Portfolio and IT investment strategy for approval by the Executive Review Council.

Establish an Executive Review Council

This Council should be chaired by the Secretary of the Interior or the Deputy Secretary and be composed of:

- All Assistant Secretaries,
- All Bureau and Office directors and commissioners, and
- The Department's Chief Information Officer.

The role of this Council is to review the proposed IT investment projects submitted by the Senior Review Board and develop the final IT Investment Portfolio for the Department by performing the following:

- Evaluate the IT projects included in the proposed IT Investment Portfolio to ensure these IT projects are the most critical systems needed by the Department and add or reject IT projects as necessary;
- Analyze each project for cross-cutting impact in the Federal government; and
- Evaluate business cases to ensure each case is well-developed.

After the final IT Investment Portfolio is approved, it is the responsibility of the Office of Budget to develop the budget for the selected/approved IT projects and the Office of Acquisition and Property Management to develop the acquisition plans. Only the IT projects approved by this Council will be submitted to OMB for inclusion in the President's budget regardless of which Bureaus' or offices' budgets may be affected. It is the responsibility of the Executive Review Council to identify a single point of contact between the Department and OMB to address any OMB questions on IT investment projects. We believe that the point of contact should be within the Department's Office of the Chief Information Officer.

**ESTABLISH SPECIFIC
MEETING DATES
AND HOLD COUNCIL
MEMBERS
ACCOUNTABLE FOR
ATTENDING
MEETINGS**

For each level of selecting, reviewing, and approving IT projects, establish and publish meeting schedules that are relatively stable and occur periodically throughout the year, generally with at least three meetings per annual cycle. The goal of these scheduled meetings is to have the Executive Review Council approve the Department's IT investment portfolio by July of the current fiscal year for the upcoming budget submissions. This will allow the Bureaus and offices to establish internal timelines to adequately prepare and plan for IT projects early enough in the budget cycle and Departmental approval process so that responses to questions about the approved IT projects are not hastily prepared.

The meetings should ensure that good business cases are developed to support the OMB form Exhibit 300s (Capital Asset Plan). Thus if changes are needed in the Exhibit 300s based on revised instructions from OMB, the information will be readily available for input into the Exhibit.

Further, hold members accountable for attending the scheduled meetings. If members are not present at meetings, their IT projects will not be approved. While this may seem extreme, it will demonstrate that Departmental senior

management is committed to instituting a well-disciplined IT capital investment process. This will help ensure that each IT project and program manager, Bureau or office head, and Assistant Secretary has a vested interest in making sure the process works.

**ESTABLISH
PERFORMANCE
MEASURES AND
SELECTION
CRITERIA FOR IT
PROJECTS**

Best practices for instituting a well-disciplined IT capital investment process require establishing performance measures and selection criteria for evaluating all IT projects. The performance measures should address the planned improvements the IT project will advance. This is accomplished by breaking the IT project into specific elements, estimating the costs, developing a schedule for each element, and charting and evaluating the project's status based on time and cost goals of the entire project. In addition, monitoring performance of the project readily identifies risks that may jeopardize the project, thus requiring a timely determination as to whether or not the project should be continued and whether or not additional resources are needed.

The selection criteria for IT projects should:

- Address the Department's mission and strategic goals;
- Provide for improvements in service or program delivery;
- Correct a material weakness or deficiency;
- Satisfy the requirements of a law or regulation; and
- Advance management initiatives.

In addition, other factors such as cost, risk, return on investment, life of the project, architectural alignment, and security for the IT investments should be considered. These criteria should be viewed as dynamic. They may change as the IT capital investment process matures.

The selection criteria should include a scoring methodology to ensure that the IT project and business case address all of the information necessary for making decisions. This selection and scoring criteria provides the foundation for selecting those IT investments needed by the Department as a whole.

Explore the Establishment of a Single IT Budget

To persuade OMB and the Congress to provide funds for IT capital investments, the Department must identify how much money it needs and the wisest ways to spend it. A single IT investment budget funded through a single appropriation for the Department would significantly advance these objectives.

In the immediate term, however, the Department must seize greater control over IT investment funds to ensure appropriate and efficient expenditures of IT monies. In that regard, the Department should:

- Establish single line item budgets for IT investments in each Bureau and authorize the Department's Executive Review Council to approve all IT investments. These budgets should be linked to Departmental missions and goals and fully support Activity Based Costing.
- Grant oversight authority to the Chief Information Officer for all IT investment budgets. The Chief Information Officer should, in concert with the Deputy Assistant Secretary for Budget and Finance, review and certify the budget requests and transactions of the IT investment line items based on IT investment projects approved by the Executive Review Council.

In the long term, the Department should explore the viability of establishing a single Departmental appropriation for IT investments to include linking IT investment budget requests to performance measures and strategic plans.

Establish a Training Program for IT Project Management

It is important that members of each tier understand the policies, roles, rules, and activities and exhibit core competencies in using the IT investment approach. This is accomplished through training and education in IT project management or having experience in managing IT and business process re-engineering projects. We found that agencies with best practices have established an IT project management training program. By establishing a training program for IT project management, the Department would have more assurance that the best projects are selected for investment and that the projects are effectively managed. The Department should take full advantage of OMB's planned project management training offerings.

EVALUATION SCOPE AND METHODOLOGY

We reviewed the Department and its Bureaus' and offices' IT capital investment processes for selecting, reviewing and approving IT capital investments for budget fiscal years 2002 and 2003. We interviewed the personnel responsible for IT investment planning and/or reviewed policies and procedures from the following Bureaus and offices:

Departmental Offices:

- Office of the Chief Information Officer
- Office of Acquisition and Property Management
- Office of Budget
- Office of Managing Risk and Public Safety

Bureaus and Offices:

- Indian Affairs
- Bureau of Land Management
- Bureau of Reclamation
- Minerals Management Service
- National Park Service
- Office of Surface Mining Reclamation and Enforcement
- U.S. Fish and Wildlife Service
- U.S. Geological Survey

We evaluated Departmental processes and compared these to best practices suggested by the General Accounting Office and practiced by other Federal agencies.

We performed this evaluation in accordance with the "*Quality Standards for Inspections*," issued by the President's Council on Integrity and Efficiency, and, accordingly, included such tests and inspection procedures considered necessary to accomplish the objective.

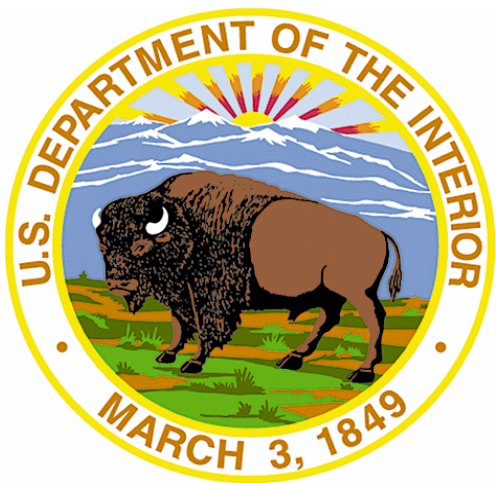
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