IG-00-038

AUDIT REPORT

NASA'S ORGANIZATIONAL STRUCTURE FOR IMPLEMENTING THE CLINGER-COHEN ACT

July 17, 2000

National Aeronautics and Space Administration

OFFICE OF INSPECTOR GENERAL

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Acronyms

CIO	Chief Information Officer
GAO	General Accounting Office
IRM	Information Resources Management
IT	Information Technology
NPG	NASA Procedures and Guidelines
OMB	Office of Management and Budget
PMC	Program Management Council

W July 17, 2000

TO: A/Administrator

FROM: Inspector General

SUBJECT: INFORMATION: NASA's Organizational Structure for Implementing the Clinger-Cohen Act
Report Number IG-00-038

The NASA Office of Inspector General has completed an audit of the Agency's Organizational Structure for Implementing the Clinger-Cohen Act.[1] We found that NASA can improve its Chief Information Officer (CIO) organization to more effectively implement the requirements of the Act. The NASA CIO is not a full member of the Capital Investment Council (the Council). By appointing the CIO to the Council, the Agency can better comply with the Clinger-Cohen Act and related guidance regarding the intended authority of the CIO position. In addition, most Center CIO Representatives are not full members of Center-level Program Management Councils (PMC's).[2] As a result, NASA lacks assurance that information technology (IT)[3] will receive appropriate emphasis in Center-level program oversight activities. Finally, the NASA CIO has not met the Clinger-Cohen requirement to annually assess the knowledge and skill of senior managers in information resources management (IRM)[4] and has not developed specific plans to remedy possible deficiencies in meeting established knowledge and skill requirements. Consequently, the Agency has not yet complied with statutory requirements and lacks assurance that executive-level personnel are appropriately qualified in IRM.

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[1] The Clinger-Cohen Act was formerly titled the Information Technology Management Reform Act.

[2] NASA has established a hierarchy of PMC's that are responsible for assessing program and project formulation and implementation and for providing oversight and direction. PMC's exist at the Agency, Lead Center, and Center levels.

[3] The Clinger-Cohen Act defines "information technology" as any equipment or interconnected system or subsystem of equipment, that is used in the automatic acquisition, storage, manipulation, management, movement, control, display, switching, interchange, transmission, or reception of data or information by the executive agency.

[4] U.S. Code 44, as referenced from the Clinger-Cohen Act, defines "information resources management" as the process of managing information resources to accomplish agency missions and to improve agency performance, including reducing information collection burdens on the public.

Background

In February 1996, Congress enacted the Clinger-Cohen Act to improve the way Federal agencies acquire and manage IT resources. To assure clear accountability for IT management activities, the Clinger-Cohen Act specified that each agency establish a CIO with the following responsibilities:

- Provide advice and other assistance to the head of the executive agency and other senior management personnel to ensure that IT is acquired and information resources[5] are managed in a manner that implements the specific requirements of the Act.
- Develop, maintain, and facilitate the implementation of a sound and integrated IT architecture.
- Promote the effective and efficient design and operation of all major IRM processes for the executive agency, including improvement to work processes.

Additionally, a CIO is responsible for annually assessing the extent to which senior management personnel meet the requirements established for knowledge and skill in IRM. To meet these responsibilities, each agency head must involve the CIO in IT decision-making at the highest level of the agency.

Recommendations

We recommended that the Associate Deputy Administrator strengthen the role of the NASA CIO by appointing the CIO as a full member of the NASA Capital Investment Council. Similarly, we recommended that the NASA CIO strengthen the role of Center CIO Representatives in program oversight by revising policies, procedures, and guidelines to require Center Directors to appoint their Center CIO Representatives as full members of Center-level PMC's. Lastly, we recommended that the NASA CIO reprioritize the Agency's approach to assessing the IT knowledge and skill of the workforce to initially focus on executive-level managers.

Management Response

Management concurred with the findings and recommendations. The Associate Deputy Administrator appointed the NASA CIO to the Capital Investment Council on June 1, 2000. In addition, the NASA CIO issued a letter to Center Directors, requesting that they appoint Center CIO Representatives to Center-level PMC's. Finally, the NASA CIO restructured the Agency's approach to assessing NASA's workforce IT knowledge and skills to focus on NASA's executive- and senior-level managers.

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[5] U.S. Code 44, as referenced from the Clinger-Cohen Act, defines "information resources" as information and related resources, such as personnel, equipment, funds, and information technology.

The details on the status of the recommendations are in the Executive Summary.

[original signed by]
Roberta L. Gross

Enclosure
Final Report on Audit of NASA's Organizational Structure
for Implementing the Clinger-Cohen Act

NASA'S ORGANIZATIONAL STRUCTURE FOR IMPLEMENTING THE CLINGER-COHEN ACT

W July 17, 2000

TO: AE/Chief Engineer
AI/Associate Deputy Administrator
AO/Chief Information Officer

FROM: Assistant Inspector General for Auditing

SUBJECT: Final Report on the Audit of NASA's Organizational Structure for Implementing the Clinger-Cohen Act
Assignment Number A9903400
Report Number IG-00-038

The subject final report is provided for your information and use. Please refer to the Executive Summary for the overall audit results. Our evaluation of your response is incorporated into the body of the report. Your comments on a draft of this report were responsive, and actions are sufficient to close recommendation 1 for reporting purposes. For recommendations 2 and 3, we request that you notify us of the actions taken, including the extent of testing performed to ensure corrective actions are effective. Recommendations 2 and 3 will remain open for reporting purposes.

If you have questions concerning the report, please contact Mr. David L. Gandrud, Program Director, Information Technology Program Audits, at (650) 604-2672, or Mr. Roger W. Flann, Program Manager, at (818) 354-9755. We appreciate the courtesies extended to the audit staff. The report distribution is in Appendix E.

[original signed by]

Russell A. Rau

Enclosure

cc:
B/Chief Financial Officer
B/Comptroller
BF/Director, Financial Management Division

G/General Counsel
JM/Director, Management Assessment Division

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NASA Office of Inspector General

IG-00-038 **July 17, 2000**
A9903400

NASA's Organizational Structure for Implementing the Clinger-Cohen Act

Executive Summary

Background. Congress enacted the Clinger-Cohen Act to improve the way Federal agencies acquire and manage IT resources. The Clinger-Cohen Act requires that each agency establish a CIO with clear accountability for IT management activities.

Objectives. The overall objective was to determine whether NASA has established a CIO organization that can effectively implement the requirements of the Clinger-Cohen Act. Specifically, we examined selected duties, responsibilities, and authority of the NASA CIO and his representatives. Details on our objectives, scope, and methodology are in Appendix A. Details on a prior report we issued on the Clinger-Cohen Act are in Appendix B.

Results of Audit. NASA can improve its CIO organization to more effectively implement the requirements of the Clinger-Cohen Act.

- The NASA CIO is not a full member of the Capital Investment Council (the Council). By appointing the CIO to the Council, the Agency can better comply with the Clinger-Cohen Act and related guidance regarding the intended authority of the CIO position.

- Most Center CIO Representatives are not full members of Center-level PMC's. As a result, NASA lacks assurance that IT will receive appropriate emphasis in Center-level program oversight activities.

- The NASA CIO has not met the Clinger-Cohen requirement to annually assess the knowledge and skill of senior managers in IRM and has not developed specific plans to remedy possible deficiencies in meeting established knowledge and skill requirements. Consequently, the Agency has not yet complied with statutory requirements and lacks assurance that executive-level personnel are appropriately qualified in IRM.

Recommendations. NASA should strengthen the role of the NASA CIO by appointing the CIO as a full member of the NASA Capital Investment Council. Similarly, the Agency should strengthen the role of Center CIO Representatives in program oversight by revising policies,

procedures, and guidelines to require Center Directors to appoint their Center CIO Representatives as full members of Center-level PMC's. Lastly, the NASA CIO should reprioritize the Agency's approach to assessing the IT knowledge and skill of the workforce to initially focus on executive-level managers.

Management's Response. Management concurred with all recommendations. On June 1, 2000, management appointed the NASA CIO to the Capital Investment Council. Also, the NASA CIO asked the Center Directors to appoint Center CIO Representatives to Center-level PMC's. Lastly, the Agency will initially focus on NASA's executive- and senior-level managers in assessing NASA's workforce IT knowledge and skill. The complete text of management's comments is in Appendix D.

Evaluation of Management's Response. The actions taken or planned by management are responsive to the recommendations. We consider the recommendation related to appointing the NASA CIO to full membership on the Capital Investment Council closed for reporting purposes. The recommendations related to appointing Center CIO Representatives as full members of Center-level PMC's and reprioritizing the Agency's approach to the "IT

completed.

Introduction

In February 1996, Congress enacted the Clinger-Cohen Act to reform and improve the way Federal agencies acquire and manage IT resources. Central to implementing these reforms is the need to establish effective IT leadership within each agency. The law requires each agency head to establish clear accountability for IT management activities by appointing an agency CIO with the visibility and management responsibilities necessary to carry out the specific provisions of the Act. The CIO plays a critical leadership role in driving reforms to (1) help control system development risks; (2) better manage technology spending; and (3) succeed in achieving real, measurable improvements in agency performance.

In February 1995, prior to enactment of the Clinger-Cohen Act, NASA established the CIO position as an executive-level manager within the Office of the Administrator. The NASA CIO is the principal advisor to the Administrator and other senior officials on matters pertaining to IT. NASA Procedures and Guidelines (NPG) 2800.1, "Managing Information Technology," September 1998, states that the CIO is responsible for establishing IT policies and for promoting standards and a secure architecture to support scientific, engineering, and administrative data requirements.

Since establishing the CIO position, the Agency has developed and refined a CIO organization to support the CIO in carrying out his responsibilities. This organization includes a Center CIO Representative at each NASA Center. Center Directors appoint Center CIO Representatives who remain accountable to Center management while working on a collaborative basis with the NASA CIO. Center CIO Representatives are responsible for ensuring that Agency IT policy, plans, architectures, standards, procedures, practices, and guidance are implemented for their respective organizations.

The Agency has also incorporated IT as a key focus area in capital investment and program management processes. Within NASA's capital investment process, IT is designated as a key investment area for consideration by the Capital Investment Council. The Council is the principal advisory group to the Administrator in prioritizing capital investments and balancing resources among the Agency's Strategic Enterprises.[6] Within NASA's program management process, IT requirements are integrated into the planning and technical management effort throughout a program's life cycle and are reviewed by the cognizant PMC. PMC's exist at the Agency, Lead Center, and Center levels to oversee the formulation, approval, implementation, and evaluation of Agency programs and projects.

In August 1996, the General Accounting Office (GAO) issued an audit report on "NASA Chief Information Officer: Opportunities to Strengthen Information Resources Management." GAO reported that although NASA was one of the first Federal agencies to appoint a CIO and had

[6] The Agency's four Strategic Enterprises are (1) Aero-Space Technology, (2) Earth Science, (3) Human Exploration and Development of Space, and (4) Space Science.

taken some good first steps toward improving its information resources management, opportunities still existed to enhance the CIO's authority. GAO concluded that more authority for the CIO could result in improved economies and efficiencies in information technology. In responding to GAO's audit observations, NASA disagreed that the authority and responsibility of the CIO should be significantly strengthened. Further, the Agency described several revisions to the CIO management structure that addressed some of the challenges discussed in the GAO report. GAO acknowledged that the revisions may ameliorate its concerns over time, but stated that it was still too early to determine the effectiveness of the revised management structure.

Findings and Recommendations

Finding A. Role of the NASA CIO in Capital Investment Decision-Making

The NASA CIO is not a full member of the Capital Investment Council because the Agency has limited Council membership to managers having direct budget authority.[7] By appointing the CIO to the Council, the Agency can better comply with the Clinger-Cohen Act and related guidance regarding the intended authority of the CIO position. Further, the Agency can also better assure that IT will be given appropriate consideration in Council deliberations.

Requirements and Related Guidance

The Clinger-Cohen Act requires that each Federal agency create a CIO to help ensure that IT is acquired and information resources are managed in a manner that implements the specific policies and procedures of the Act. Further, the Act requires that each agency design and implement a capital planning and investment control process for maximizing the value and assessing and managing the risks of IT acquisitions. This process must be integrated with the process for making budget, financial, and program management decisions.

In July 1996, the President issued Executive Order 13011, "Federal Information Technology." The Order required executive agencies to provide clear accountability for information resources management activities by establishing CIO's with the visibility and management responsibilities necessary to advise the agency head on the design, development, and implementation of information systems.

In November 1995, the Office of Management and Budget (OMB) issued guidance[8] identifying three overall organizational attributes that are critical to the success of an IT investment evaluation process. The first of these critical attributes is senior management attention. The OMB guidance states that a key mechanism in achieving accountability for the success of IT projects is to routinely involve program management, financial management, and IT management in operational decisions. Similarly, a GAO report[9] states:

> An agency should place its CIO at a senior management level, making the CIO an equal partner with other senior officials in decision-making with regard to IRM issues, and supporting the position with an effective organizational framework for leading agency-wide IRM initiatives.

[7] The former Executive Secretary of the Capital Investment Council told us that, at the time the Council was formed, the NASA Administrator and Deputy Administrator limited Council membership to managers with direct budget authority.

[8] The guidance was in OMB report, "Evaluating Information Technology Investments: A Practical Guide."

[9] GAO report, GAO/AIMD-96-78, "NASA Chief Information Officer: Opportunities to Strengthen Information Resources Management," was issued in August 1996.

In March 2000, GAO issued an Executive Guide[10] on implementing effective CIO organizations. The guide identifies critical success factors for effective information management in leading organizations. One of these success factors focuses on the role of the organization's senior executive managers in developing a culture that includes the CIO in senior-level decision-making. The guide states that an agency's executive-level managers, "…must embrace the central role of technology, and the CIO must be at the table with them as business strategy is discussed." Although leading organizations generally include their CIO's in executive business decision-making, in the Federal Government, information management is often managed as a support function.

NPG 1000.2, "NASA Strategic Management Handbook," February 2000, defines the strategic management roles and relationships of NASA's organizational elements. Major operational and investment decisions are made at several levels. The Administrator is the highest level decision-maker, providing overall strategic direction, internal policies, and budget priorities. The Council makes recommendations regarding significant Agency-wide capital investments and infrastructure initiatives, including IT programs, projects, and investments. The Council plays a critical role in the Agency's capital planning process. The Council is the principal advisory group to the NASA Administrator in resolving issues, prioritizing activities, and balancing resources among the Agency's Strategic Enterprises. The Handbook identifies IT as a key investment area for Council consideration.

NPG 2800.1, "Managing Information Technology," September 17, 1998, defines the role of the NASA CIO and the IT Investment Council. The CIO is the principal advisor to the Administrator and other senior officials on matters pertaining to IT. The CIO is also the primary advocate for the Agency's IT investment strategy. Additionally, the CIO chairs the IT Investment Council. This council establishes Agency-level IT policies and provides a forum for addressing Agency-level initiatives and issues. The IT Investment Council sets the IT investment strategy for the Agency and serves as the IT capital investment advisory group to the Capital Investment Council.

Role of the NASA CIO

Thirteen senior NASA managers are full members of the Capital Investment Council – the CIO is not. Although IT is an important element in capital investment decision-making,[11] the NASA CIO's responsibilities with respect to the Capital Investment Council are limited to providing

[10] The exposure draft of GAO Executive Guide, GAO/AIMD-00-83, is titled, "Maximizing the Success of Chief Information Officers: Learning from Leading Organizations."

[11] The NASA IT budget for fiscal year 2000 is approximately $1.7 billion and supports more than 40 Agency programs.

support for Council deliberations. Agency membership in the Capital Investment Council[12] consists of the following:

- Associate Deputy Administrator (Chair)
- Chief Financial Officer
- Chief Engineer
- Chief Scientist
- Enterprise Associate Administrators[13]
- Center Directors (two, 2-year rotational terms)
- Associate Administrator for Human Resources and Education
- Associate Administrator for Management Systems and Facilities
- Associate Administrator for Life and Microgravity Sciences and Applications

Influential IT leadership is crucial in accomplishing NASA's missions and programs efficiently, effectively, and securely. In this regard, Executive Order 13011 requires the Agency to give its senior IT decision-maker the visibility and management responsibilities necessary to fully implement the requirements of the Clinger-Cohen Act. Although NASA has given the CIO significant authority by establishing him as chair of the NASA IT Investment Council, the Agency has not given the CIO the level of authority needed to help provide sufficient, direct influence in capital investment decision-making.

The NASA CIO is not a full member of the Capital Investment Council because the Agency limited Council membership to managers having budget authority. When the CIO position was initially formulated, NASA decided the CIO would not have direct budget authority over IT investments. According to GAO report GAO/AIMD-96-78 (see footnote 9), NASA concluded that, "The CIO would not take part in individual program decisions and would not have responsibility for setting priorities, making trade-offs, or forming investment decisions among NASA-wide IT systems[14] and programs."

Because the CIO is not a member of the Capital Investment Council, the Agency has not fully complied with the Clinger-Cohen Act and related guidance regarding the CIO's intended authority and influence. The CIO should be an equal partner with other senior-level officials in the Agency's capital investment decision-making. Because the Capital Investment Council is the Agency's highest-level council for such decision-making, the CIO should participate as a full member. Until the CIO becomes a member of the Capital Investment Council, the Agency also

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[12] In addition to the full members of the Council, the NASA General Counsel and Associate Administrator for Legislative Affairs serve as ex officio advisors.

[13] NASA has four Strategic Enterprises (see footnote 6). The senior official in each Enterprise is the Associate Administrator having principal responsibility for developing long-term strategy and ensuring that the necessary capabilities are in place to meet near-term program objectives and long-term goals.

[14] U.S. Code 44, as referenced from the Clinger-Cohen Act, defines an "information system" as a discrete set of information resources organized for the collection, processing, maintenance, use, sharing, dissemination, or disposition of information.

lacks assurance that IT will be given appropriate consideration in Council deliberations. To assess the extent to which IT issues were considered in Capital Investment Council meetings, we examined minutes of Council meetings in 1999.[15] The minutes showed no clear indication that IT had been discussed or considered.

The Agency can ensure that IT is given due consideration in major capital investment decision-making by elevating the role of the CIO from "advisor" to "full member" of the Capital Investment Council. CIO membership would help give IT full consideration in the Council's key investment decisions and help the Agency in satisfying the intent of the Clinger-Cohen Act.

Recommendation, Management's Response, and Evaluation of Response

1. The Associate Deputy Administrator should appoint the NASA CIO to full membership on the Capital Investment Council.

Management's Response. Concur. Management appointed the NASA CIO to the Capital Investment Council on June 1, 2000. The full text of management's response and a copy of the memorandum on the appointment are in Appendix D.

Evaluation of Response. Management action is responsive to the recommendation. The action take by management is sufficient to disposition the recommendation and close it for reporting purposes.

[15] The Capital Investment Council conducted 18 meetings in 1999; however, minutes exist only for those 6 meetings that did not focus on budgetary issues.

Finding B. Role of Center CIO Representatives in Program Oversight

Most Center CIO Representatives are not full members of Center-level[16] PMC's. This condition exists because NASA has no policy that requires Center Directors to appoint CIO Representatives as full PMC members and that ensures the representatives are fully involved in the PMC oversight process. As a result, the Agency lacks assurance that IT will receive appropriate emphasis in Center-level program and project oversight activities.

Requirements and Related Guidance

The Clinger-Cohen Act, section 5122, requires agencies to design and implement an IT capital planning and investment control process that shall be, "...integrated with the processes for making ... program management decisions within the executive agency."

NPG 7120.5A, "NASA Program and Project Management Processes and Requirements," April 3, 1998, identifies IT as a critical management area applicable to all programs and projects and specifies that IT requirements be integrated throughout the program and project management process. Also, NPG 7120.5A describes a hierarchy of PMC's to ensure that programs and projects receive an appropriate level of management oversight. At the highest level of the hierarchy, the Agency PMC is responsible for evaluating proposals for new programs; providing recommendations to the Administrator; and evaluating existing programs for cost, schedule, and technical content. The hierarchy also includes PMC's at the Center level. Similar to the Agency PMC, Center-level PMC's evaluate cost, schedule, and technical content to ensure that Center-level programs and projects meet their commitments.

The NASA CIO is the senior IT official at the Agency level. NPG 2800.1, "Managing Information Technology," September 17, 1998, identifies the CIO as a full member of the Agency PMC, "…to assure that the IT investments which enable mission-focused programs and projects are given appropriate visibility and review." Center CIO Representatives are the senior IT officials at their respective Centers and are responsible for:

- Implementing an effective IT investment plan consistent with Agency, Enterprise, and Center policies, goals, and standards.
- Concurring on all Center major IT investments to assure policy and procedural compliance with standards.
- Advising and counseling Center senior managers, including program managers, on IT investments.

[16] The report uses the term "Center-level PMC's" to refer to both Lead Center and Center-level PMC's. NASA assigns to a Lead Center PMC all multi-Center programs and projects that do not require review by the Agency PMC. Also, NASA assigns to a Center-level PMC all single-Center programs and projects not reviewed by a higher level PMC.

- Ensuring that implementation procedures and Center standards are established in compliance with Agency and Enterprise policies and standards.
- Reporting to an individual who has management and budgetary authority to implement Center IT investment decisions.
- Coordinating the Center IT budgets, requirements, and investments with Enterprise CIO Representatives.
- Representing and, as necessary, committing the Center at Agency management meetings.
- Assuring a secure IT environment, resolving areas of duplication, and encouraging IT training for Center personnel.

Role of Center CIO Representatives

Of nine Center CIO Representatives,[17] seven are not full members of Center-level PMC's. Center Directors had not granted full membership to the Center CIO Representatives even though:

- The NASA CIO is a full member of the Agency PMC.
- NASA policy acknowledges that IT is a "critical management area" that is universally applicable to all NASA programs.
- Center-level PMC's exist to oversee the formulation, approval, implementation, and evaluation of all NASA programs and projects that are not reviewed by the Agency PMC. Center-level PMC's were responsible for reviewing 18 NASA programs and 200 projects. Of those, 17 programs and 157 projects were managed by Centers that did not assign Center CIO Representatives to the Center-level PMC's (see Appendix C).

At Goddard Space Flight Center (Goddard), the Center Director plans to change the membership of the Center-level PMC to include the Center CIO Representative as a full Council member. A Goddard CIO official stated that Center management intends to elevate the authority of the Center CIO Representative because Goddard wants to send a signal to both the Goddard community and external colleagues that information science and IT are strategic assets.

At John F. Kennedy Space Center (Kennedy), the CIO Representative is a PMC member and has made valuable contributions to Council oversight activities. During a Kennedy PMC meeting, a manager discussed plans to purchase a commercial off-the-shelf software package that would link computers and allow users to view the same information at the same time. The

[17] CIO Representatives are members of Center-level PMC's at Lyndon B. Johnson Space Center and John F. Kennedy Space Center. CIO Representatives are not members of Center-level PMC's at the following Centers: Ames Research Center, Dryden Flight Research Center, John H. Glenn Research Center at Lewis Field, Goddard Space Flight Center, Langley Research Center, George C. Marshall Space Flight Center, and John C. Stennis Space Center.

Center CIO Representative identified the package as having an IT security vulnerability and began working with the manager to identify a more secure software package. At another PMC meeting held to discuss the status of a joint-base operations support contract between NASA and the Air Force, the Air Force requested that its security standards be applied to the contract. The Center CIO Representative noted that the Air Force policies would limit Kennedy's communication with the other NASA Centers and began working with the Air Force to resolve the issue. These examples illustrate how Center CIO Representatives can provide influential IT management through full Council membership.

Most Center CIO Representatives are not full members of Center-level PMC's because NASA has no policy requiring Center Directors to appoint CIO Representatives as full PMC members. Absent such a policy, only two of nine Center Directors have appointed Center CIO Representatives to Center-level PMC's. Agency policy should be revised to ensure that all Center Directors emphasize influential and effective IT management by appointing Center CIO Representatives to full Council membership. Further, Center Directors should ensure that Center CIO Representatives are fully involved in all aspects of the PMC oversight process

Because most Center CIO Representatives are not full members of Center-level PMC's, they do not have the visibility and authority possible through full Council membership. Consequently, the Agency lacks assurance that IT will receive appropriate emphasis in program and project oversight activities. Just as membership on the Agency PMC provides needed visibility and authority for the NASA CIO, membership on Center-level PMC's would provide needed visibility and authority for Center CIO Representatives.

Recommendation, Management's Response, and Evaluation of Response

2. The NASA CIO should coordinate with cognizant Agency officials to revise appropriate policies, procedures, and guidelines to require Center Directors to appoint Center CIO Representatives as full members of Center-level PMC's.

Management's Response. Concur. In May 2000, the NASA CIO began regular teleconferences with Center Directors to discuss CIO issues including the appointment of Center CIO Representatives to Center-level PMC's. Additionally, the NASA CIO sent a letter to the Center Directors, requesting that they appoint Center CIO Representatives to Center-level PMC's (see Appendix D). The NASA CIO anticipates that all appointments will be made by September 30, 2000.

Management stated that the audit report should acknowledge that the Goddard CIO Representative has been a full voting member of the Center PMC since November 1999. However, Goddard procedures and guidelines have not yet been modified to reflect this change.

Evaluation of Response. The initial actions taken by management are responsive to the recommendation. However, the recommendation will remain undispositioned and open pending evidence of Center CIO Representative appointments as full members to Center-level PMC's and evidence of related changes to Center-level policies, procedures, and guidelines. The report does not reflect the Goddard CIO Representative's appointment to the Center-level PMC because Goddard's policies and procedures do not yet reflect this change.

Finding C. Assessing IT Knowledge and Skill

The NASA CIO has not met the Clinger-Cohen Act requirement to annually assess the knowledge and skill of senior managers in IRM. Further, the CIO has not met the Act's requirement to develop specific plans to remedy possible deficiencies in meeting established knowledge and skill requirements. These conditions exist because the CIO's office has instead undertaken a broad and time-consuming effort to assess the IT knowledge and skill of NASA's entire workforce. As a result, the Agency has not yet complied with statutory requirements and lacks assurance that personnel in executive-level positions are appropriately qualified in IRM.

Clinger-Cohen Act Requirement

The Clinger-Cohen Act, Section 5125, states that the CIO shall annually:

- assess the extent to which the positions and personnel at the executive level of the agency and the positions and personnel at management level of the agency below the executive level meet . . . [established knowledge and skill] requirements; and

- in order to rectify any deficiency in meeting those requirements, develop strategies and specific plans for hiring, training, and professional development.

Assessments of IRM Knowledge and Skill

The NASA CIO has neither assessed the IRM knowledge and skill of senior managers as required by the Clinger-Cohen Act nor developed specific plans to remedy possible deficiencies in meeting established requirements. These conditions exist because the CIO has undertaken a much broader effort, called the "IT Workforce Challenge," that will assess the IT knowledge and skill of virtually all NASA employees.

The CIO's efforts regarding knowledge and skill levels began in June 1999 with establishment of an Agency-wide team to address the "IT Workforce Challenge." Since then, the team has:

- Developed a model depicting the overall IT knowledge of NASA's workforce.
- Begun to develop a Strategic Plan for addressing IT workforce issues (the team plans to publish the plan in spring 2000).
- Conducted a survey to obtain a high-level insight into current and desired IT skill levels, future skill needs, and the loss of IT skills due to personnel turnover and future retirements.

In addition, the team has developed a survey that will be issued to all NASA Centers as a special focus area in the fiscal year 2002 Program Operating Plan cycle. The goal of the survey

is to obtain Center-level information about strategies and specific plans for hiring, training, and retaining the appropriate IT skills to meet the Center missions. To date, the efforts of the CIO and the "IT Workforce Challenge" team have been directed toward assessing the aggregate IT workforce rather than assessing knowledge and skill on an individual basis.

The CIO's approach to the "IT Workforce Challenge" goes beyond the Clinger-Cohen Act requirement to assess senior management. The CIO's plans are commendable, but the additional time required to complete this broader effort will substantially delay the Agency's ability to fully comply with the Act. The Clinger-Cohen Act became effective 3 years ago, yet CIO personnel are still unable to estimate when the Agency will fully comply with the knowledge and skill requirements of the Act.

The Department of the Treasury (Treasury) has adopted an incremental approach to assessing the knowledge and skill of its workforce in IRM. Treasury's approach initially addressed the knowledge and skill of its senior decision-makers and is now addressing the knowledge and skill of its entire workforce. Treasury CIO officials concluded that an incremental approach will permit the Department to comply in a timely manner with the specific requirements of the Clinger-Cohen Act and, more important, to help assure that Treasury senior managers possess the appropriate IRM knowledge and skill. By incorporating the incremental approach into the "IT Workforce Challenge" initiative, NASA can more readily comply with statutory requirements and assure that executive-level managers are suitably qualified in IRM. Further, the Agency can develop timely training plans that more closely relate to the training needs of its senior managers.

Recommendation, Management's Response, and Evaluation of Response

3. The NASA CIO should reprioritize the Agency's approach to the "IT Workforce Challenge" to initially focus on assessing the IRM knowledge and skill of executive-level managers and to develop specific training plans to address possible deficiencies in meeting established IRM requirements.

Management's Response. Concur. The IT Workforce Challenge Program has initiated an activity to assess the IT knowledge and skill of NASA's executive- and senior-level managers using a Web-based assessment instrument (see Appendix D). Management will analyze the assessment results and make appropriate recommendations for training and developmental activities. The NASA CIO anticipates that corrective actions will be completed by December 31, 2000.

Evaluation of Response. Management's planned and completed actions are responsive to the recommendation. However, the recommendation will remain undispositioned and open until agreed-to corrective actions are completed.

Appendix A. Objectives, Scope, and Methodology

Objective

The overall objective was to determine whether NASA has established a CIO organization that can effectively implement the requirements of the Clinger-Cohen Act. Specifically, we examined selected duties, responsibilities, and authority of the NASA CIO and his representatives.

Scope

We limited the scope of this audit to those sections of the Clinger-Cohen Act directly related to the announced audit objectives. Other important aspects of the Act were not addressed. For example, section 5123 of the Act requires the head of an executive agency to ensure that information security policies, procedures, and practices are adequate. Review of information security was beyond the scope of this audit. Similarly, section 5113 requires that agencies establish effective and efficient capital planning processes for selecting, managing, and evaluating the results of its major investments in information systems. NASA's capital planning and investment control processes were also beyond the scope of this audit; however, we addressed those processes in a previous audit report (see Appendix B for details).

Methodology

To assess the duties and responsibilities of the NASA CIO, we held discussions with the NASA CIO, members of the CIO's staff, CIO Representatives, and other NASA personnel associated with program and project management. We reviewed organization charts, PMC charters, position descriptions, Capital Investment Council minutes, and other relevant documentation. We submitted questionnaires to CIO Representatives and analyzed their responses.

To assess compliance with Clinger-Cohen Act knowledge and skill requirements, we held discussions with the NASA CIO and members of the CIO's staff charged with leading the "IT Workforce Challenge." We learned that the CIO at the Department of the Treasury had assessed the knowledge and skill of Treasury's senior IT managers. Accordingly, we reviewed related Treasury reports and held discussions with cognizant officials. We compared Treasury's approach for meeting the knowledge and skill requirements with the NASA CIO approach.

Appendix A

Management Controls Reviewed

We reviewed management controls relating to NASA's organizational structure for implementing the Clinger-Cohen Act. We considered the management controls to be adequate except that the role of the NASA CIO and Center CIO Representatives should be strengthened (see Findings A and B). We also reviewed controls relating to management's assessment of IT knowledge and skill within the NASA workforce. We considered the management controls to be adequate except that the assessment process should be reprioritized to comply in a timely manner with the Clinger-Cohen Act (see Finding C).

Audit Field Work

We performed the audit field work from July 1999 through March 2000 at NASA Headquarters, John H. Glenn Research Center, John F. Kennedy Space Center, and Langley Research Center. We conducted the audit in accordance with generally accepted government auditing standards.

Appendix B. Summary of Prior Coverage

The NASA Office of Inspector General has issued another report related to the Clinger-Cohen Act. See www.hq.nasa.gov/office/oig/hq/issuedaudits.html for a copy of the report.

"Audit of Information Technology Capital Planning and Investment Control," Report Number IG-98-034, September 25, 1998. The NASA IT investment process does not satisfy the Clinger-Cohen Act or OMB requirements for postimplementation reviews of major new IT investments. Although NASA has established a program and project evaluation process, it differs from that required by both the Clinger-Cohen Act and OMB requirements in that NASA has focused on assessing systems in the selection and control phases of the IT investment process rather than on assessing fully operational systems. In addition, the Agency's existing evaluation process results in conclusions regarding one specific program or project, whereas a postimplementation review should result in improvements in the overall capital planning and investment control process. We made recommendations to ensure that NASA's process for evaluating IT investments is fully compliant with Clinger-Cohen and OMB requirements. Management concurred with the recommendations and agreed that the CIO would submit a change proposal to NPG 7120.5A , "NASA Program and Project Management Processes and Requirements," April 3, 1998. In an April 5, 2000, memorandum to the Assistant Inspector General for Auditing, the CIO stated that NPG 7120.5A had been revised to address planning and investment requirements throughout the entire information technology lifecycle. The Office of Inspector General will review the applicable revisions to the draft document.

Appendix C. NASA Programs and Projects

The NASA programs and projects listed below were subject to review by seven Center-level PMC's during the period from December 5, 1999, through February 10, 2000. These Centers did not assign Center CIO Representatives to the Center-level PMC's.

Ames Research Center

Computational AeroSciences
NASA Research and Education Network
Learning Technologies
Advanced Air Transportation Technologies
Terminal Area Productivity
Short-Haul Civil Tiltrotor
Intelligent Propulsion Systems Controls
Aviation Systems Monitoring and Modeling
System-Wide Accident Prevention
Aerospace Operations Systems
Human-Automation Integration Research
Human Error and Countermeasures
Psychological/Physiological Stressors and Factors
Rotorcraft
Design for Efficient and Affordable Rotorcraft
Safe All-weather Flight Operations for Rotorcraft
Fast Response for Industry Assistance Requests
Information Technology
Analytical Tools and Environments for Design
Intelligent System Controls and Operations
Advanced Computing, Networking and Storage
Software Integrity, Productivity and Security
Integrated Vehicle Health Management
Stratospheric Observatory for Infrared Astronomy
Lunar Prospector
Gravitational Biology and Ecology

Dryden Flight Research Center

Revolutionary Concepts
Advanced Airplane Flight Research
Innovative Transport and Testbed Experiments
Flight Research
Advanced System Concepts
Atmospheric Flight of Space Systems
Flight Research Productivity
Environmental Research Aircraft Sensor Technology

Glenn Research Center

System Integration and Assessment
Highly Loaded Turbomachinery
Weather Accident Prevention
Aircraft Icing
Propulsion Research and Technology
Ultra-Safe Propulsion
Higher Operating Temperature Propulsion
Oil Free Turbine Engine Technology
Aerospace Propulsion for High Survivability
Propulsion Fundamental Research
Pulse Detonation Engine Technology
Emissions Reduction
Materials and Structures for High Performance
Accident Mitigation
Breakthrough Propulsion Physics
Propulsion and Power
Zero CO_2 Research
Turbomachinery and Combustion Technology
General Aviation Propulsion
Emerging Survivable Aeropropulsion Technology
Hybrid Hyperspeed Propulsion
Propulsion Research and Technology

Goddard Space Flight Center

Tracking and Data Relay Satellite System Spacecraft Replenishment
Research Carriers
Balloons
Explorers in Development
Galaxy Evolution Explorer Mission
Imager for Magnetopause-to-Aurora Global Exploration Mission
Full-sky Astrometric Mapping Explorer Mission
Cooperative Astrophysics and Technology Satellite Mission
Inner Magnetosphere Explorer Mission
Earth and Space Sciences
Astro-E Mission
X-Ray Multi-Mirror Mission
Thermosphere, Ionosphere, Mesosphere Energetics and Dynamics Mission
Cluster II Mission
Algorithm Development at Goddard
Solar B Mission
Terra Mission
Chemistry Mission
Solar Radiation and Climate Experiment Mission
Earth Observing System Data and Information System
Vegetation Canopy Lidar Mission
Geostationary Operational Environmental Satellites
Volcam Mission
University Earth System Science
Triana Mission
Advanced Technology Initiative
Geostationary Operational Environmental Satellite Missions N-Q
National Oceanic and Atmospheric Administration Missions A-N
Two Wide-Angle Imaging Neutral-Atom Spectrometers Mission
Operations and Ground Systems for Hubble Space Telescope
Sounding Rockets
Spartan Mission
High Energy Solar Spectroscopic Imager Mission
Microwave Anisotropy Probe
Flight Systems and Servicing for Hubble Space Telescope
High Energy Transient Experiment II Mission
Cosmic Hot Interstellar Plasma Spectometer Mission
International Collaborations at Goddard
Swift Gamma Ray Burst Explorer Mission
Solar Terrestrial Relations Observatory Mission
Spectrum-X-Gamma Mission
International Gamma-Ray Astrophysics Laboratory Mission
Solar Terrestrial Probes
CloudSat Mission
Space Technology 5
Aqua Mission
Ice, Clouds and Land Elevation Satellite Mission
Landsat-7 Mission
Pathfinder Instruments for Cloud and Aerosol Spaceborne Observations Mission
Gravity Recovery and Climate Experiment Mission
Polar Operational Environmental Satellites
Experiments of Opportunity
Total Ozone Mapping Spectrometer-5
Instrument Incubator Project
Advanced Information Systems Technology
Geostationary Operational Environmental Satellite Missions I-M
Earth Observing-1 Mission (Advanced Land Imager)
Tomographic Experiment Using Radiative Recombinative Ionospheric Expendable Ultralite Vehicle and Radio Sources Mission

Appendix C

Langley Research Center

Propulsion-Airframe Integration
Synthetic Vision
Integrated Instrumentation and Testing Systems
Vehicle Systems Technology
Super Lightweight Multi-Functional Systems Technology
Aerospace Systems Concept to Test
Survivability
Noise Reduction
Small Aircraft Transportation System
Hyper-X
Stratospheric Aerosol and Gas Experiment III – Meteor Mission
Algorithm Development at Langley
Single Aircraft Accident Prevention
Select Integrated Low-Noise Technologies
Airframe Technology
Inherently Reliable Systems
Revolutionary Airframe Concepts Research and Systems Studies
Morphing
Advances Through Cooperative Efforts
General Aviation
Reduced Seat Cost
Airframe Technology
Stratospheric Aerosol and Gas Experiment III - Flight of Opportunity Mission

Marshall Space Flight Center

X-33 Advanced Technology Demonstrator
X-34 Advanced Technology Demonstrator
Flight Experiments
Reusable Launch Vehicle – Focused
Upperstage
Interstellar Precursor
Launch Technology
Microgravity Research
Spread Across Liquids
Extensional Rheology Experiment
Space Product Development
Colloidal Disorder-Order Transition
Critical Velocity of Xenon-2
Investigations of the Structure of Paramagnetic Aggregates From Colloidal Emulsions
Future-X Pathfinder
X-37 Advanced Technology Demonstrator
Space Transfer and Launch Technologies
Fastrac Engine
Space Transfer Technology
Propulsion Technology and Integration
Advanced Propulsion Research
Microgravity Smoldering Combustion
Candle Flames in Microgravity-2
Collisions Into Dust Experiment-2
Shear History Extensional Rheology Experiment J
Internal Fluid Flows Demonstration
Middeck Glovebox

Stennis Space Center

Affiliated Research Centers
Mississippi Space Commerce Initiative
Science Data Purchase
Earth Observing Commercial Application Program – Synthetic Aperture Radar
Food and Fiber Applications of Remote Sensing
Verification and Validation
Joint Sponsored Research
Regional Earth Science Application Center
Earth Observing Commercial Application Program - Applications
Earth Observing Commercial Application Program - Hyperspectral

Appendix D. Management's Response

National Aeronautics and
Space Administration
Office of the Administrator
Washington, DC 20546-0001

JUN 12 2000

TO: W/Assistant Inspector General for Auditing

FROM: AO/Chief Information Officer

SUBJECT: Draft Report on the Audit of NASA's Organizational Structure for Implementing the Clinger-Cohen Act (Assignment Number A9903400)

Thank you for the opportunity to review and comment on the subject draft report.

We concur with the three recommendations made in this report and will work to accomplish closure on them.

1. The Associate Deputy Administrator should appoint the NASA Chief Information Officer (CIO) to full membership on the Capital Investment Council.

   The NASA CIO was appointed to the Capital Investment Council on June 1, 2000 (enclosure 1). NPG 1000, The NASA Organization, 6.5.5 Membership lists the CIO as a regular member. We consider this recommendation closed.

2. The NASA CIO should coordinate with cognizant Agency officials to revise appropriate policies, procedures, and guidelines to require Center Directors to appoint Center CIO's as full members of Center-level PMC's.

   In May 2000, the CIO began regular teleconferences with Center Directors to go over CIO issues. One of the key points he made was that it is very important that Center CIO's should be full members of Center-level PMC's. The NASA CIO has written a letter to each Center Director requesting they appoint Center CIO's to Center-level PMC's if they are not already members (enclosure 2).

3. The NASA CIO should reprioritize the Agency's approach to the "IT Workforce Challenge" to initially focus on assessing the IRM knowledge and skill of executive-level managers and to develop specific training plans to address possible deficiencies in meeting established IRM requirements.

The IT Workforce Challenge Program has initiated an activity to assess the IT knowledge and skills of NASA's executive- and senior-level managers using a Web-based assessment instrument based on the Federal CIO Clinger-Cohen

Appendix D

Core Competencies. The NASA CIO has initiated a procurement activity to develop and administer this survey. The NASA CIO has issued a memorandum to Enterprise and Center CIO's requesting that they identify their survey population using criteria provided (enclosure 3). The survey population will include CIO's and their senior staff, including any matrixed positions, IT Security Managers, heads of IT divisions, and program managers of NASA's major IT investment programs, as identified in NASA's IT Implementation Plan. An analysis of the assessment results will be used to make recommendations for training and developmental activities.

In addition we would ask that you correct several statements concerning the GSFC CIO's role on the Center PMC.

See Evaluation of Response Page 10

Page 8, "Role of Center CIO":

The paragraph that discusses the GSFC CIO's role incorrectly states that "...the Center Director **plans** to change the membership of the Center-level PMC to include the Center CIO..." and "...Center management **intends** to elevate the authority of the Center CIO .."

GSFC management elevated the authority of the Center CIO in April 1999 when Al Diaz, Center Director, announced the selection of Dr. Milton Halem to be the Assistant Director for Information Sciences and GSFC Chief Information Officer. Additionally, Dr. Halem does sit on the Goddard Space Flight Center (GSFC) PMC and is a full voting member of it.

See Evaluation of Response Page 10

Page 8, Footnote #17:

This footnote incorrectly includes the GSFC in the list of Centers that do not have CIO's as members of Center-level PMC's.

Dr. Halem, GSFC CIO, does in fact sit on the GSFC PMC and is a full voting member of it. What has not occurred is the modification in the official GSFC Procedures and Guidelines (GPG) 1060.2, "Management Review and Reporting for Programs and Projects," formally reflecting this. The Office of the Associate Director has the action to make this GPG modification. In the interim, in November 1999, at Al Diaz's direction, William Townsend, GSFC's Deputy Director and PMC Chair, authorized Dr. Halem's inclusion on the PMC pending the formality of a GPG change being completed.

Appendix C, NASA Programs and Projects:

Appendix C is a list of programs and projects at Centers that **do not** include CIO's on the Center-level PMC. The list of GSFC programs and projects should be deleted from Appendix C.

See Evaluation of Response Page 10

Lee B Holcomb

3 Enclosures

cc:
JM/Mr. H. Robbins
GSFC/Mr. M. Halem

Appendix D

National Aeronautics and
Space Administration
Office of the Administrator
Washington, DC 20546-0001

JUN 1 2000

TO: Capital Investment Council Members

FROM: AI/Associate Deputy Administrator

SUBJECT: Capital Investment Council Items of Interest

I am pleased to welcome Lee Holcomb, Chief Information Officer, as a member of the Capital Investment Council (CIC). In addition, I have asked Al Diaz to become a third Center Director member consistent with the CIC Charter (see Enclosure 1). Finally, I am appointing Art Stephenson to the CIC to replace Roy Estess. I would like to thank Roy for his dedication during his CIC tenure. His service made the CIC a stronger team, and I am grateful for the invaluable advice and Center perspective he provided to the CIC.

Included in Enclosure 2 is a planning schedule of CIC meetings for the remainder of the fiscal year.

Daniel R. Mulville

2 Enclosures

cc:
Officials-in-Charge of Headquarters Offices
Directors, NASA Centers
Director, Jet Propulsion Laboratory

Enclosure 1

Distribtuion:
Directors, NASA Centers:
ARC/Dr. McDonald
DFRC/Mr. Petersen
GRC/Mr. Campbell
GSFC/Mr. Diaz
JSC/Mr. Abbey
KSC/Mr. Bridges
LaRC/Dr. Creedon
MSFC/Mr. Stephenson
SSC/Mr. Estess

Director, Jet Propulsion Laboratory:
Dr. Stone

Headquarters CIO's:
AE/Mr. Weinstein
CI/Ms. Daniels-Gibson

Enterprise CIO's:
M-2/Mr. Fishkind
RS/Ms. Edwards
SR/Mr. Bredekamp
YB/Ms. Sample

Center CIO's:
ARC/Mr. Santiago
DFRC/Mr. Hornstein
GRC/Dr. Pillay
GSFC/Dr. Halem
JSC/Ms. Carter
KSC/Mr. Kerr
LaRC/Ms. Mangum
MSFC/Mr. Allison
SSC/Mr. Matherly

JPL CIO:
Dr. Renfrow

Enclosure 2

Appendix D

National Aeronautics and
Space Administration

Office of the Administrator
Washington, DC 20546-0001

JUN -9 2000

TO: Distribution

FROM: AO/Chief Information Officer

SUBJECT: Center Chief Information Officers (CIO's) Represented on Center-level Program Management Councils

The Office of Inspector General (OIG) issued a draft audit report on May 12, 2000, NASA's Organizational Structure for Implementing the Clinger-Cohen Act, A9903400.

The results of that audit stated that most Center CIO's are not full members of Center-level Program Management Councils (PMC's). As a result, NASA lacks assurance that Information Technology (IT) will receive appropriate emphasis in Center-level program oversight activities.

The recommendation by the OIG was that the Agency should strengthen the role of the Center CIO in program oversight by revising policies, procedures, and guidelines to require Center Directors to appoint their Center CIO's as full members of Center-level PMC's.

Just as membership on the Agency PMC provides needed visibility and authority for the NASA CIO, membership on Center-level PMC's would provide needed visibility and authority for Center CIO's.

Information Technology is a "critical management area" that is applicable to all NASA programs. As such, IT should receive appropriate emphasis in program and project oversight activities. In talking with you and your CIO's I have endorsed the need for this policy change so that all Center-level PMC's will have representation of the Center CIO.

In my response to the OIG's draft audit report, I am concurring with their recommendation and enclosing a copy of this letter. I trust that you agree with the merit of this recommendation and will appoint Center CIO's to Center-level PMC's if they are not already members.

Thank you for your consideration in this matter.

Lee Holcomb

Lee B. Holcomb

Headquarters CIO's:
AE/Mr. Weinstein
CI/Ms. Daniels-Gibson

Enterprise CIO's:
M-2/Mr. Fishkind
RS/Ms. Edwards
SR/Mr. Bredekamp
YB/Ms. Sample

Center CIO's:
ARC/Mr. Santiago
DFRC/Mr. Hornstein
GRC/Dr. Pillay
GSFC/Dr. Halem
JSC/Ms. Carter
KSC/Mr. Kerr
LaRC/Ms. Mangum
MSFC/Mr. Allison
SSC/Mr. Matherly

JPL CIO:
Dr. Renfrow

Enclosure 3

Appendix D

National Aeronautics and
Space Administration
Office of the Administrator
Washington, DC 20546-0001

JUN - 8 2000

TO: Distribution

FROM: AO/Chief Information Officer

SUBJECT: NASA's Assessment of the IT Knowledge and Skill of its Executive-level and Senior-level IT Managers

The NASA Office of Inspector General recently concluded its audit of NASA's Organizational Structure for Implementing the Clinger-Cohen Act (Audit A9903400). One of its recommendations specifies that NASA should assess the IT knowledge and skill of its executive-level and senior-level IT managers. Although the IT Workforce Challenge Program had broadened the scope to the entire NASA workforce rather than specifically focus on this limited population, we feel it is prudent that we take the steps necessary to perform this assessment to align the Agency with the Clinger-Cohen Act requirements and ensure compliance. Therefore, the IT Workforce Team has started to implement a means for this assessment. Our goal is a Web-based self-assessment approach.

The first step in this assessment will be to determine the survey population. The determination of the population is important for two reasons (1) the population must be large enough by Center to ensure anonymity during analysis, and (2) the population must be realistic to lend credence to any findings and recommendations for training and developmental activities. We estimate this population to be approximately 100. Enterprise and Center Chief Information Officers (CIO's), their senior staff, individuals who are matrixed to a CIO for a significant percentage of their job responsibilities, IT Security Managers, and the Center leads for IT organizations will comprise this population. Additionally, the program managers of "Major and Significant IT Investments" (e.g., ODIN, NACC, NISN) identified in the enclosure, the Agency's FY2001-2005 IT Implementation Plan, Exhibit A-1, should be included.

Please identify your Center personnel who meet these criteria and send their names and email addresses to Dabney Hibbert by June 23, 2000.

Lee B. Holcomb

Enclosure

A.4 BUDGET PLANS FOR MAJOR AND SIGNIFICAN BUT NOT MAJOR IT INVESTMENTS

This section provides five-year budget plans for NASA's major and significant but non-major IT investments. The investment types are: Existing, New, or Pathfinding as defined in section A.1 of this plan.

Center	Investment Type	System Name	Fiscal Year FY 2001	FY 2002	FY 2003	FY 2004	FY 2005
			$K				
Major IT Investments for which an Exhibit 300B report is prepared							
HQS	New	Integrated Financial Management System (IFMS)	$66,000.0	$56,900.0	$49,600.0	$48,200.0	$48,400.0
MSFC & JSC	Existing	NASA Integrated Services Network (NISN)	$61,428.6	$71,509.9	$67,161.1	$64,291.8	$64,424.8
MSFC	Existing	NASA ADP Consolidation Center (NACC)	$20,427.0	$21,187.0	$22,046.0	$22,954.0	$23,646.0
GSFC & JSC	New	Earth Observing System Data Information System (EOSDIS)	$252,385.0	$249,208.4	$254,741.6	$281,518.1	$266,918.1
All	New	Desktop LAN & Voice Communications Services (CODIN)	$117,387.9	$118,068.0	$118,884.4	$118,978.7	$119,364.8
Significant, Non-Major IT Investments							
MSFC	Existing	Standard Agencywide Administrative Systems	$4,961.8	$5,006.6	$4,266.1	$2,727.2	$1,614.2
KSC	Existing	Kennedy Inventory Management System (KIMS)	$2,491.0	$2,566.0	$2,643.0	$2,724.0	$2,752.0
GSFC & JSC	Existing	Flight Dynamics System	$22,867.0	$17,529.0	$17,728.1	$10,809.5	$20,616.5
GSFC & JSC	Existing	Mission and Data Systems (M & DS)	$92,323.1	$70,896.9	$70,759.6	$46,116.9	$45,256.1
GSFC & JSC	Existing	Space Network Systems	$63,431.2	$67,588.5	$66,584.8	$57,637.5	$57,849.8
JSC	New	GSFC Integrated Mission Operations Center (IMOC)	$7,361.5	$4,242.4	$3,255.8	$2,922.4	$2,975.0
JSC	New	Data Services Management Center	$6,078.5	$5,434.3	$3,871.5	$2,236.2	$1,826.9
DFRC	Existing	Western Aeronautical Test Range (WATR)	$8,906.4	$8,916.2	$8,599.5	$7,647.2	$7,695.4
ARC	Pathfinding	High Performance Computing and Communication	$59,260.0	$58,060.0	$48,760.0	$48,560.0	$29,360.0
ARC	Pathfinding	IT R&T Base	$52,150.0	$51,550.0	$51,550.0	$52,650.0	$52,650.0
LaRC	Pathfinding	Intelligent Synthesis Environment (ISE)	$40,000.0	$40,000.0	$40,000.0	$40,000.0	$40,000.0
JSC	Existing	Shuttle Avionics and Integration Laboratory (SAIL)	$14,484.0	$14,611.3	$15,168.2	$15,810.3	$16,236.8
JSC	Existing	Shuttle Mission Training Facility (SMTF)	$49,208.0	$51,170.2	$53,135.3	$55,390.9	$56,921.0
JSC	Existing	Shuttle Software Production Facility (SPF)	$19,507.2	$19,485.0	$20,196.1	$21,017.3	$21,562.4
JSC	Existing	Station Vehicle Master Data Base (VMDB)	$2,000.0	$1,000.0	$1,000.0	$1,000.0	$1,000.0
JSC	New	Mission Control Center (MCC)	$52,387.9	$51,793.5	$52,950.4	$50,937.1	$51,251.9
JSC	New	Integrated Planning System (IPS)	$20,983.6	$21,479.8	$21,834.2	$20,626.9	$20,601.0
KSC	Existing	Launch Control Systems (LCS)	$49,751.7	$37,253.2	$15,903.9	$12,214.7	$11,346.2
KSC	Existing	Payload Data Management System (PDMS)	$1,153.0	$1,298.0	$1,349.0	$1,402.0	$1,458.0
MSFC	Existing	Huntsville Operations Support Center (HOSC)	$15,413.0	$16,748.0	$17,916.0	$18,886.0	$19,160.0
MSFC & JSC	Existing	Data Reduction Center (DRC)	$11,729.4	$11,881.1	$12,048.3	$11,491.0	$11,491.0
JSC	New	Space Station Training Facility (SSTF)	$21,048.1	$11,426.9	$8,236.8	$5,695.9	$110.1
GSFC	Pathfinding	Earth and Space Science (ESS) Project of the High Performance Computing and Communications (HPCC) Program	$5,400.0	$4,400.0	$4,400.0	$600.0	$0.0
GSFC	Existing	NASA Center for Computational Sciences (NCCS)	$11,501.5	$15,411.2	$12,315.8	$12,316.8	$12,316.8
ARC	Pathfinding	Intelligent Systems	$40,000.0	$45,000.0	$45,000.0	$45,000.0	$45,000.0
GSFC	Existing	National Space Science Data Center (NSSDC)	$4,986.0	$4,915.0	$4,815.0	$4,815.0	$5,055.8
JPL & JSC	Existing	Deep Space Network	$89,302.9	$79,024.4	$79,460.2	$72,096.3	$94,325.1
JPL & JSC	Existing	Advanced Multimission Operations System (AMMOS)	$49,670.0	$47,922.2	$46,500.7	$47,008.0	$47,018.0
All	New	Desktop LAN & Voice Communications Services (non-ODIN)	$63,356.7	$64,013.5	$65,303.3	$64,743.8	$66,096.4
All	Existing	IT Security	$44,363.3	$43,166.8	$42,562.9	$42,795.1	$43,719.8

Exhibit A-1: Major and Significant but non-Major NASA Information Technology Investments

Appendix E. Report Distribution

National Aeronautics and Space Administration (NASA) Headquarters

A/Administrator
AE/Chief Engineer
AI/Associate Deputy Administrator
AO/Chief Information Officer
B/Chief Financial Officer
B/Comptroller
BF/Director, Financial Management Division
C/Associate Administrator for Headquarters Operations
G/General Counsel
H/Associate Administrator for Procurement
HK/Director, Contract Management Division
HS/Director, Program Operations Division
J/Associate Administrator for Management Systems
JM/Acting Director, Management Assessment Division
L/Associate Administrator for Legislative Affairs
M/Associate Administrator for Space Flight
Q/Associate Administrator for Safety and Mission Assurance
R/Associate Administrator for Aerospace Technology
R/Chief Information Officer Representative
S/Associate Administrator for Space Science
U/Associate Administrator for Life and Microgravity Sciences and Applications
Y/Associate Administrator for Earth Science
Z/Associate Administrator for Policy and Plans

NASA Centers

Director, Goddard Space Flight Center
Chief Counsel, John F. Kennedy Space Center
Director, Lyndon B. Johnson Space Center
Director, George C. Marshall Space Flight Center
Head, Program Management Council Working Group

Non-NASA Federal Organizations and Individuals

Assistant to the President for Science and Technology Policy
Director, Office of Management and Budget
Deputy Director of Management, Office of Management and Budget

Non-NASA Federal Organizations and Individuals (Cont.)

Deputy Associate Director, Energy and Science Division, Office of Management and Budget
Branch Chief, Science and Space Programs Branch, Energy and Science Division, Office of Management and Budget
Associate Director, National Security and International Affairs Division, Defense Acquisition Issues, General Accounting Office
Professional Assistant, Senate Subcommittee on Science, Technology, and Space

Chairman and Ranking Minority Member – Congressional Committees and Subcommittees

Senate Committee on Appropriations
Senate Subcommittee on VA, HUD, and Independent Agencies
Senate Committee on Commerce, Science, and Transportation
Senate Subcommittee on Science, Technology, and Space
Senate Committee on Governmental Affairs
House Committee on Appropriations
House Subcommittee on VA, HUD, and Independent Agencies
House Committee on Government Reform
House Subcommittee on Government Management, Information, and Technology
House Subcommittee on National Security, Veterans Affairs, and International Relations
House Committee on Science
House Subcommittee on Space and Aeronautics

Congressional Member

Honorable Pete Sessions, U.S. House of Representatives

NASA Assistant Inspector General for Auditing
Reader Survey

The NASA Office of Inspector General has a continuing interest in improving the usefulness of our reports. We wish to make our reports responsive to our customers' interests, consistent with our statutory responsibility. Could you help us by completing our reader survey? For your convenience, the questionnaire can be completed electronically through our homepage at http://www.hq.nasa.gov/office/oig/hq/audits.html or can be mailed to the Assistant Inspector General for Auditing; NASA Headquarters, Code W, Washington, DC 20546-0001.

Report Title: NASA's Organizational Structure for Implementing the Clinger-Cohen Act

Report Number: _____ **Report Date:** _____

Circle the appropriate rating for the following statements.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	N/A
1. The report was clear, readable, and logically organized.	5	4	3	2	1	N/A
2. The report was concise and to the point.	5	4	3	2	1	N/A
3. We effectively communicated the audit objectives, scope, and methodology.	5	4	3	2	1	N/A
4. The report contained sufficient information to support the finding(s) in a balanced and objective manner.	5	4	3	2	1	N/A

Overall, how would you rate the report?

Excellent
Very Good
Good
Fair
Poor

If you have any additional comments or wish to elaborate on any of the above responses, please write them here. Use additional paper if necessary. _____

_____

_____

_____

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_____

How did you use the report? _____

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How could we improve our report? _____

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How would you identify yourself? (Select one)

Congressional Staff	Media
NASA Employee	Public Interest
Private Citizen	Other: _____

Government: _____ Federal: _____ State: _____ Local: _____

May we contact you about your comments?

Yes: _____ **No: _____**

Name: _____

Telephone: _____

Thank you for your cooperation in completing this survey.

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