

June 2010

# ELECTRONIC RECORDS ARCHIVE

## Status Update on the National Archives and Records Administration's Fiscal Year 2010 Expenditure Plan



GAO

Accountability \* Integrity \* Reliability



Highlights of [GAO-10-657](#), a report to congressional committees

## Why GAO Did This Study

Since 2001, the National Archives and Records Administration (NARA) has been working to develop an electronic records archive (ERA) to preserve and provide access to massive volumes and all types of electronic records. NARA certified initial operating capability of the first two phases of ERA in June 2008 and December 2008 and plans to achieve full operating capability for the system by 2012. As required by the Consolidated Appropriations Act, NARA submitted an expenditure plan to Congress to support its request for fiscal year 2010 ERA funding. The act also requires that this plan meet six conditions, including a review by GAO. GAO's objectives in reviewing the fiscal year 2010 plan were to (1) determine whether the plan satisfies the legislative conditions, (2) determine the extent to which NARA has implemented prior GAO recommendations, and (3) provide any other observations on the plan or the ERA acquisition. To do this, GAO reviewed the expenditure plan and other agency documents and interviewed NARA officials.

## What GAO Recommends

GAO is recommending that the Archivist of the United States ensure that NARA's investment review process includes adequate executive-level oversight and that ERA's requirements are being managed using a disciplined process. In commenting on a draft of this report, the Archivist generally agreed and described steps taken or planned to address GAO's recommendations.

View [GAO-10-657](#) or [key components](#). For more information, contact David A. Powner at (202) 512-9286 or [pownerd@gao.gov](mailto:pownerd@gao.gov).

# ELECTRONIC RECORDS ARCHIVE

## Status Update on the National Archives and Records Administration's Fiscal Year 2010 Expenditure Plan

### What GAO Found

NARA's fiscal year 2010 expenditure plan satisfies five of the six legislative conditions and partially satisfies one. Specifically, it partially satisfies the condition that NARA develop a process for reviewing the progress of capital investments. Best practices call for such a process to include an oversight entity to review a project's progress, take corrective actions in response to cost or schedule problems, and ensure the corrective actions are implemented. However, while NARA has conducted regular meetings with senior-level agency management to review ERA progress, there is little evidence that officials identified corrective actions or ensured the actions were implemented. As a result, it is uncertain whether ERA is receiving the necessary level of executive oversight.

NARA has fully implemented three of GAO's five prior recommendations and partially implemented two. The agency implemented recommendations to provide additional information on its plans for the remainder of fiscal year 2009, add an analysis of costs and benefits associated with the ERA component dedicated to presidential records, and develop a contingency plan for ERA in case of system failure. NARA partially implemented a recommendation to provide additional information in the fiscal year 2010 expenditure plan by adding information on ERA's cost, schedule, and performance. However, the plan lacks key information, including the total cost of one of the increments to be funded. NARA has also developed but not yet implemented a plan to implement best practices in its process for measuring program progress, as GAO recommended.

GAO has three observations on the expenditure plan and ERA acquisition:

- The estimated life-cycle cost of the ERA system has increased, and the development is behind schedule. Over the last 3 fiscal years, the estimated cost has increased by about 7 percent, from about \$531 million to about \$567 million. In addition, the planned completion dates for the two increments currently under development are about 1 year later than dates established in program planning documents.
- NARA has not detailed what system capabilities will be delivered in the final two ERA increments. While the expenditure plan identifies some high-level functions, it does not identify specific capabilities to be delivered or dates for completion.
- NARA has not effectively defined or managed ERA's requirements to ensure that the functionality delivered satisfies the objectives of the system. Although NARA established an initial set of high-level requirements, it lacks firm plans to implement about 43 percent of them. In addition, NARA has not updated its requirements document to reflect reinterpreted requirements and did not provide evidence that it always conducted reviews required by its internal policies.

Without ensuring adequate oversight and establishing specific plans to complete ERA, it is increasingly unlikely that NARA will deliver the completed ERA system by 2012 with the originally envisioned capabilities.

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## Abbreviations

EOP	Executive Office of the President
ERA	Electronic Records Archive
EVM	earned value management
FOC	full operating capability
IOC	initial operating capability
NARA	National Archives and Records Administration
OMB	Office of Management and Budget
SA-CMM	Software Acquisition-Capability Maturity Model
SEI	Software Engineering Institute

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United States Government Accountability Office  
Washington, DC 20548

June 11, 2010

The Honorable Richard J. Durbin  
Chairman  
The Honorable Susan M. Collins  
Ranking Member  
Subcommittee on Financial Services  
and General Government  
Committee on Appropriations  
United States Senate

The Honorable José E. Serrano  
Chairman  
The Honorable Jo Ann Emerson  
Ranking Member  
Subcommittee on Financial Services  
and General Government  
Committee on Appropriations  
House of Representatives

Since 2001, the National Archives and Records Administration (NARA) has been developing a modern Electronic Records Archive (ERA). This major information system is intended to preserve and provide access to massive volumes of all types and formats of electronic records, independent of their original hardware or software. NARA plans for the system to manage the entire life cycle of electronic records, from their ingestion through preservation and dissemination to customers.

The ERA system is being developed in five phases, or increments, the first of which is referred to as the “ERA base.” According to NARA, this portion of the system achieved initial operating capability (IOC) in June 2008. The second increment includes the Executive Office of the President (EOP) system or “ERA EOP,” and NARA certified that it reached IOC in December 2008. NARA plans to complete development of the remaining increments and achieve full operating capability by 2012.

As mandated by the Consolidated Appropriations Act,<sup>1</sup> NARA is required to submit an expenditure plan before obligating multi-year funds for the

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<sup>1</sup>Consolidated Appropriations Act, 2010, Pub. L. No. 111-117, div. C., title V, 123 Stat. 3034, 3193 (Dec. 16, 2009).

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ERA program. In November 2009, NARA submitted its fiscal year 2010 expenditure plan to support its request for \$85.5 million in ERA funding, which includes \$61.7 million in multi-year funds. As in the previous year, the plan must satisfy six legislative conditions, including a review by GAO. Our objectives in reviewing the plan were to (1) determine whether NARA's fiscal year 2010 expenditure plan satisfies the legislative conditions, (2) determine the extent to which NARA has implemented prior GAO recommendations, and (3) provide any other observations about the expenditure plan and the ERA acquisition.

To assess compliance with the legislative conditions, we analyzed the expenditure plan submitted by NARA in November 2009 and reviewed its budget submission to the Office of Management and Budget (OMB), along with other program documentation. To determine the extent to which NARA had implemented our prior recommendations, we obtained and reviewed agency documents, which included quarterly reports to Congress and the ERA contingency plan. To develop observations on the ERA expenditure plan and acquisition, we analyzed fiscal year 2009 and 2010 schedule information contained in the expenditure plan, the ERA requirements document, and other agency data. We also interviewed NARA officials.

To assess the reliability of the data in the expenditure plan, we obtained and reviewed NARA budget documents as well as its consolidated financial statement results for the fiscal year 2009 Performance and Accountability Report. We also interviewed NARA officials to gain an understanding of the data and discussed our use of the data.

We conducted this performance audit from January 2010 to June 2010 at NARA's College Park, Maryland, location in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

On April 6, 2010, we briefed your staffs on the results of our review. This report transmits the material we used at the briefing and provides the recommendations that we made to the Archivist of the United States. The full briefing materials, including details on our scope and methodology, are reprinted as appendix I.

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In summary, we made the following major points:

- NARA's fiscal year 2010 expenditure plan satisfies five of the six legislative conditions and partially satisfies one. Specifically, it partially satisfies the condition that NARA develop a process for reviewing the progress of capital investments. Best practices call for such a process to include an oversight entity to review a project's progress, take corrective actions in response to cost or schedule problems, and ensure the corrective actions are implemented. However, while NARA has conducted regular meetings with senior-level agency management to review ERA progress, there is little evidence that officials identified corrective actions to address performance problems or ensured the actions were implemented. As a result, it is uncertain whether ERA is receiving the necessary level of executive oversight.
- NARA has fully implemented three of our prior recommendations and partially implemented two:
  - NARA implemented our recommendations to provide additional information to Congress describing plans for the remainder of fiscal year 2009, add an analysis of the cost and benefits of using the EOP system to respond to presidential records requests, and develop an ERA contingency plan.
  - NARA has partially implemented two recommendations. First, in response to our recommendation that NARA provide additional information in the fiscal year 2010 expenditure plan on what was spent and delivered for deployed increments, NARA added information on completed increments and those planned for fiscal year 2010 with their associated costs. However, our review of the Expenditure Plan showed that it does not fully describe how NARA will expend fiscal year 2010 funds. Second, in response to our recommendation to strengthen its earned value management processes, NARA developed an action plan to implement best practices identified in GAO's *Cost Estimating Guide*;<sup>2</sup> however, this plan has not been fully implemented. We currently have work under way to evaluate NARA's earned value process and its implementation of the action plan.
- We made three observations related to the ERA program and fiscal year 2010 expenditure plan:

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<sup>2</sup>GAO, *Cost Estimating and Assessment Guide: Best Practices for Developing and Managing Capital Program Costs*, GAO-09-3SP (Washington, D.C.: March 2009).

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- The cost of ERA is rising, and the development of several system components is behind schedule. Specifically, over the last 3 fiscal years, the estimated life-cycle cost has increased by about 7 percent, from about \$531 million to about \$567 million. NARA attributed the change to increases in the complexity of the system being developed. In addition, NARA plans to complete Increment 3 in June 2010 and Increment 4 in mid-2011, both of which are about 1 year later than the milestones established in program planning documents. NARA officials stated that the delivery date is consistent with the current project schedule, which was not documented because they determined it was not cost effective to do so.
  - NARA has not detailed what capabilities will be delivered by the final two ERA phases, or increments. For example, the expenditure plan indicates that NARA will begin implementing ERA's preservation framework in Increment 4 but does not contain specific dates for completion or identify the associated capabilities that are to be delivered. Without including detailed plans for the final two increments, including specific dates for completion and associated functionality to be delivered, Congress will have limited insight to evaluate NARA's ongoing progress.
  - NARA has not effectively defined or managed requirements for the ERA system. Among other things, requirements should be documented at a high level and traceable throughout the system's life cycle to ensure that functionality satisfies the objectives of the system. Further, any changes to the program's scope should be reflected by updating the requirements in a structured way. Although NARA established an initial set of high-level requirements to guide the system's development, these requirements are not traceable to work in later phases, or increments, of the system. Specifically, about 43 percent of the requirements have not been allocated to the remaining two increments, and NARA officials stated that it is uncertain whether they will be implemented at all. Consequently, it is unclear whether system development work performed during the last two phases of the system's development will result in functionality that satisfies the intended objectives. Further, NARA has not updated its ERA requirements document to reflect reinterpreted requirements. These weaknesses can be attributed to the fact that NARA did not manage requirements by conducting and documenting requirement reviews near the beginning of each increment, as called for in its guidance. NARA officials stated that requirements reviews for Increment 3 were conducted throughout the increment's development but not specifically documented. They added that a requirements review for Increment 4 would be conducted during

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the week of March 29th. Without better defined and managed requirements, NARA will have little assurance that the ongoing system development will meet its needs.

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## Conclusions

While NARA's fiscal year 2010 expenditure plan met five of the six legislative conditions, the lack of documentation demonstrating the appropriate level of senior management review, approval, and oversight limits NARA's ability to ensure that the project makes expected progress. In addition, the lack of a documented current baseline schedule leaves NARA with limited ability to identify significant delays. The lack of key oversight documentation limits NARA's assurance that schedule delays and cost increases will not continue during ERA's development.

In addition, without specific plans for completing the final two increments, NARA lacks assurance that the remaining increments will adequately fulfill its mission needs. Specifically, NARA's failure to follow its own guidance on requirements management has resulted in a set of requirements that is incomplete and out of date, which could lead to the system being completed without addressing all necessary requirements or the development of functionality to meet requirements that are no longer valid. Addressing these weaknesses is becoming even more critical as the projected completion of the project approaches; if they continue, it will be increasingly unlikely that NARA will be able to deliver the ERA system by 2012 with the capabilities originally envisioned or to effectively use the system to meet the needs of its users in support of NARA's mission of preserving and providing access to the nation's electronic records.

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## Recommendations for Executive Action

To enhance NARA's ability to complete the development of ERA within reasonable funding and time constraints, we are recommending that the Archivist of the United States take the following two actions:

- Ensure that NARA's investment review process has adequate executive-level oversight by maintaining documentation of the results of reviews, including changes to the program's cost and schedule baseline and any other corrective actions taken as a result of changes in ERA cost, schedule, and performance.
- Ensure that ERA's requirements are managed using a disciplined process that results in requirements that are traceable throughout the project's life cycle and are kept current.



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## Agency Comments

In written comments on a draft of this report, which are reprinted in appendix II, the Archivist of the United States generally agreed with our recommendations and summarized NARA actions taken or planned to address them. Specifically, he stated that NARA is now documenting the minutes and actions of Senior Staff meetings where ERA is discussed and has recently begun an intensive effort to review ERA requirements within the context of new technologies and changing business needs. The Archivist also stated that NARA managers recently met to determine top ERA functional priorities to be completed by the end of the contract. Finally, he added that the ERA Requirements Manager is mapping these functional priorities to their underlying contract requirements and plans to update the ERA requirements document.

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We are sending copies of this report to the Archivist of the United States. The report will also be available at no charge on the GAO Web site at <http://www.gao.gov>.

If you or your staffs have any questions concerning this report, please contact me at (202) 512-9286 or by e-mail at [pownerd@gao.gov](mailto:pownerd@gao.gov). Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made major contributions to this report are listed in appendix III.



David A. Powner  
Director, Information Technology  
Management Issues

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# Appendix I: Briefing to Staff of Congressional Committees on NARA's Fiscal Year 2010 Expenditure Plan

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## Review of the National Archives and Records Administration's Fiscal Year 2010 Electronic Records Archive Expenditure Plan

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Briefing for Staff Members of the Subcommittee on Financial Services and General Government, Committee on Appropriations, U.S. Senate

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the Subcommittee on Financial Services and General Government, Committee on Appropriations, House of Representatives

April 6, 2010

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Agency Comments and Our Evaluation

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1. Comments from the Archivist of the United States



## Introduction

Since 2001, the National Archives and Records Administration (NARA) has been working to develop a modern Electronic Records Archive (ERA). This major information system is estimated to cost more than \$567 million and is intended to preserve and provide access to massive volumes of all types and formats of electronic records, independent of their original hardware or software. NARA plans for the system to manage the entire life cycle of electronic records, from their ingestion through preservation and dissemination to customers. It is to consist of

- infrastructure elements, including hardware and operating systems;
- business applications that will support the transfer, preservation, dissemination, and management of all types of records; and
- a means for public access via the Internet.

Because of the system's complexity, NARA awarded a contract to Lockheed Martin to develop ERA in five phases, or increments, the first of which is referred to as the "ERA base." According to NARA, this system achieved initial operating capability (IOC) in June 2008. The second increment includes the Executive Office of the President (EOP) system or "ERA EOP," and NARA certified that it reached IOC in December 2008. NARA plans to complete development of the remaining increments and achieve full operating capability (FOC) by 2012.



## Introduction

As mandated by the Consolidated Appropriations Act,<sup>1</sup> NARA is required to submit an expenditure plan before obligating multi-year funds for the ERA program. As in the previous year, the plan must satisfy the following legislative conditions:

- meet the capital planning and investment control review requirements established by the Office of Management and Budget (OMB), including Circular A-11;
- comply with the agency's enterprise architecture;
- conform to the agency's enterprise life-cycle methodology;
- comply with the acquisition rules, requirements, guidelines, and system acquisition management practices of the federal government;
- be approved by the agency and OMB; and
- be reviewed by GAO.

In November 2009, the agency submitted its fiscal year 2010 expenditure plan to the relevant House and Senate appropriations committees to support its request for \$85.5 million in ERA funding. Of this amount, \$61.7 million is multi-year funds allocated to ERA. As of March 2010, the committees had released \$23.7 million of the \$61.7 million multi-year funds.

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<sup>1</sup>Consolidated Appropriations Act, 2010, Pub. L. No. 111-117, div. C, title V, 123 Stat. 3034, 3193 (Dec. 16, 2009).



## **Objectives, Scope, and Methodology**

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Our objectives were to

- determine whether NARA's fiscal year 2010 expenditure plan satisfies the legislative conditions;
- determine the extent to which NARA has implemented prior GAO recommendations; and
- provide any other observations about the expenditure plan and the ERA acquisition.



## Objectives, Scope, and Methodology

To assess compliance with the legislative conditions, we

- reviewed NARA's briefings to senior management and OMB, minutes of Information Technology Executive Committee meetings, and the fiscal year 2010 exhibit 300 submission<sup>2</sup> to OMB to determine the extent to which the agency has complied with OMB's capital planning and investment control requirements;
- obtained and reviewed data on NARA's enterprise architecture to determine the status of the agency's enterprise architecture efforts;
- reviewed NARA's ERA system life-cycle processes, which include processes for managing system investments, configuration management, and managing risks, and reviewed related agency documentation describing how these processes were implemented for the ERA project, such as minutes of oversight boards and the risk management plan;
- obtained and reviewed NARA's internal assessment of ERA compliance with federal requirements for agencies information technology acquisitions;
- obtained and reviewed OMB's approval of the expenditure plan; and
- reviewed and analyzed the fiscal year 2010 expenditure plan submitted by the agency in November 2009.

<sup>2</sup> Agencies develop an exhibit 300, also known as the Capital Asset Plan and Business Case Summary, to justify each request for a major information technology investment. OMB sets forth requirements for the exhibit 300 in Circular A-11, Part 7, Planning, Budgeting, Acquisition, and Management of Capital Assets.



## Objectives, Scope, and Methodology

To determine the extent to which NARA has implemented our prior recommendations, we obtained and reviewed agency documents, which include quarterly reports to Congress, the ERA contingency plan, and NARA's earned value management (EVM) action plan.

To develop observations on the ERA expenditure plan and acquisition, we analyzed fiscal year 2009 and 2010 schedule information contained in the expenditure plan, ERA briefings, and congressional status reports. We reviewed and analyzed agency documents such as the ERA Requirements Document, Online Public Access Search Functionality, and plans for the ERA preservation prototype. We also interviewed NARA officials.

To assess the reliability of the data in the expenditure plan, we interviewed NARA officials in order to gain an understanding of the data and discussed our use of the data in this briefing. In addition, we obtained and reviewed NARA budget documents as well as its consolidated financial statement results for the fiscal year 2009 Performance and Accountability Report. We did not, however, assess the accuracy and reliability of the information in these documents.

We conducted this performance audit from January 2010 to April 2010 at NARA's College Park, Maryland, location in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.





## **Results in Brief**

NARA's fiscal year 2010 expenditure plan satisfies five of the six legislative conditions contained in the 2010 Consolidated Appropriations Act and partially satisfies one. Specifically, it partially satisfies the condition that it develop capital planning and investment control review processes designed to help ensure that projects are being implemented at an acceptable cost and within reasonable and expected time frames. NARA has conducted regular meetings with senior-level agency management to review ERA progress and regularly assesses risks, but there is little evidence that this process addresses other key investment management practices, including identifying corrective actions and ensuring that they are taken and being tracked to closure. As a result, it is uncertain whether ERA is receiving the necessary level of executive oversight to ensure that it is being implemented at an acceptable cost and within reasonable and expected time frames.



## Results in Brief

NARA fully implemented three of our prior recommendations and partially implemented two:

- NARA implemented our recommendations to provide additional information to Congress describing plans for the remainder of fiscal year 2009, add an analysis of the cost and benefits of using the EOP system to respond to presidential records requests, and develop an ERA contingency plan.
- NARA has partially implemented two recommendations. First, in response to our recommendation that NARA provide additional information in the fiscal year 2010 expenditure plan on what was spent and delivered for deployed increments, NARA added information on completed increments and those planned for fiscal year 2010 with their associated costs. However, our review of the Expenditure Plan showed that it does not fully describe how NARA will expend fiscal year 2010 funds. Second, in response to our recommendation to strengthen its earned value management processes, NARA developed an action plan to implement best practices identified in GAO's Cost Estimating Guide;<sup>3</sup> however, this plan has not been fully implemented. We currently have work under way to evaluate NARA's earned value process and its implementation of the action plan.

<sup>3</sup> GAO, *Cost Estimating and Assessment Guide: Best Practices for Developing and Managing Capital Program Costs*, GAO-09-3SP (Washington, D.C.: March 2009).



## Results in Brief

We have three observations related to the ERA program and fiscal year 2010 expenditure plan:

- The cost of ERA is rising and the development of several system components is behind schedule. Specifically, over the last 3 fiscal years, the estimated life-cycle cost has increased by about 7 percent, from about \$531 million to more than \$567 million. NARA attributed the change to increases in the complexity of the system being developed. In addition, NARA plans to complete Increment 3 in June 2010, and Increment 4 in mid-2011, both of which are about 1 year later than the milestones established in program planning documents. NARA officials stated that the delivery date is consistent with the current project schedule, which was not documented because they determined it was not cost effective.
- NARA has not detailed what capabilities will be delivered by the final two ERA phases, or increments. For example, the expenditure plan indicates that NARA will begin implementing ERA's preservation framework in Increment 4 but does not contain specific dates for completion or identify the associated capabilities that are to be delivered. Without including detailed plans for the final two increments, including specific dates for completion and associated functionality to be delivered, Congress will have limited insight to evaluate NARA's ongoing progress.



## Results in Brief

- NARA has not effectively defined or managed requirements for the ERA system. Among other things, requirements should be documented at a high level and traceable throughout the system's life cycle to ensure that functionality satisfies the objectives of the system. Further, any changes to the program's scope should be reflected by updating the requirements in a structured way. Although NARA established an initial set of high-level requirements to guide the system's development, these requirements are not traceable to work in later phases, or increments, of the system. Specifically, about 43 percent of the requirements have not been allocated to the remaining two increments, and NARA officials stated that it is uncertain whether they will be implemented at all. Consequently, it is unclear whether system development work performed during the last two phases of the system's development will result in functionality that satisfies the intended objectives. Further, NARA has not updated its ERA requirements document to reflect reinterpreted requirements. These weaknesses can be attributed to the fact that NARA did not manage requirements by conducting and documenting requirement reviews near the beginning of each increment, as called for in its guidance. NARA officials stated that requirements reviews for Increment 3 were conducted throughout the increment's development but not specifically documented. They added that a requirements review for Increment 4 would be conducted during the week of March 29<sup>th</sup>. Without better defined and managed requirements, NARA will have little assurance that the ongoing system development will meet its needs.



## Results in Brief

The identified deficiencies in NARA's management of the ERA project leave it with little assurance that ERA will be able to avoid additional cost increases and schedule delays. As a result, it is increasingly unlikely that NARA will be able to deliver the ERA system by the planned date of 2012 with the capabilities originally envisioned or to effectively use the system to meet the needs of its users in support of NARA's mission.

To enhance NARA's ability to complete the development of ERA within reasonable funding and time constraints, we are recommending that the Archivist of the United States take the following two actions:

- Ensure that NARA's investment review process has adequate executive-level oversight by maintaining documentation of the results of reviews, including changes to the program's cost and schedule baseline and any other corrective actions taken as a result of changes in ERA cost, schedule, and performance.
- Ensure that ERA's requirements are managed using a disciplined process that results in requirements that are traceable throughout the project's life cycle and are kept current.



## **Results in Brief**

In a letter commenting on a draft of this briefing, the Archivist of the United States stated that he would take steps to address our recommendations and identified several of the ERA program's recent accomplishments. However, he also stated that the briefing did not accurately describe the program's current state, including strengthened management oversight, adherence to a revised schedule, and that the program's history of success does not support our conclusion that ERA is unlikely to be completed as planned by 2012. We disagree. First, our briefing discusses delays in the current increments based on ERA's program management plan and information from last year's expenditure plan. NARA did not provide any evidence to demonstrate the existence of the rebaselined schedule described by the Archivist. Second, the lack of documentation, limited time remaining to complete development, and the lack of adequate controls in several key areas indicate critical weaknesses, rather than strong oversight. Because of the lack of adequate controls and the limited time remaining to complete ERA by its original deadline, we believe that on-time completion of ERA that meets all of its original requirements is increasingly unlikely.

The Archivist's full comments are included as attachment 1.



## Background

The ability to find, organize, use, share, appropriately dispose of, and save records—the essence of records management—is vital for the effective functioning of the federal government. In the wake of the transition from paper-based to electronic processes, records are increasingly electronic, and the volumes of electronic records produced by federal agencies are vast and rapidly growing, providing challenges to NARA as the nation's record keeper and archivist.

Besides sheer volume, other factors contributing to the challenge of electronic records include their complexity and their dependence on software and hardware. Specifically, the computer operating systems and the hardware and software that are used to create electronic documents can become obsolete. If they do, they may leave behind records that cannot be read without the original hardware and software. Further, the storage media for these records are affected by both obsolescence and decay. Media may be fragile, have limited shelf life, and become obsolete in a few years. For example, few computers today have disk drives that can read information stored on 8- or 5¼-inch diskettes, even if the diskettes themselves remain readable.

Another challenge is the growth in electronic presidential records. The Presidential Records Act gives the Archivist of the United States responsibility for the custody, control, and preservation of presidential records upon the conclusion of a President's term of office.<sup>4</sup> The act states that the Archivist has an affirmative duty to make such records available to the public as rapidly and completely as possible consistent with the provisions of the act.

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<sup>4</sup> 44 U.S.C. § 2203(f)(1).



## Background

In response to these widely recognized challenges, the Archives began a research and development program to develop a modern archive for electronic records. In 2001, NARA hired a contractor to develop policies and plans to guide the overall acquisition of an electronic records system. In December 2003, the agency released a request for proposals for the design of ERA. In August 2004, NARA awarded two firm-fixed-price<sup>5</sup> contracts for the design phase, totaling about \$20 million—one to Harris Corporation and the other to Lockheed Martin Corporation. On September 8, 2005, NARA announced the selection of Lockheed Martin Corporation to build the ERA system. The total value of the contract with Lockheed through 2012 is about \$317 million, which includes provisions for award fees based on how well the contractor meets technical, program management, and cost-control criteria. As of fiscal year 2009, NARA has paid Lockheed \$156.0 million, including \$144.2 million for development and \$11.8 million for operations and maintenance.

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<sup>5</sup> According to the Federal Acquisition Regulation, a firm-fixed-price contract provides for a price that is not subject to any adjustment on the basis of the contractor's cost experience in performing the contract. This type of contract places on the contractor maximum risk and full responsibility for costs and resulting profit or loss. 48 C.F.R. § 16.202-1.





## Background

As currently planned, the ERA system is to consist of six key functions:

- *Ingest* enables the transfer of electronic records from federal agencies.
- *Archival Storage* enables stored records to be managed in a way that guarantees their integrity and availability.
- *Records Management* supports scheduling,<sup>6</sup> appraisal,<sup>7</sup> description, and requests to transfer custody of all types of records, as well as ingesting and managing electronic records, including the capture of selected records data (such as origination date, format, and disposition).
- *Preservation* enables secure and reliable storage of files in formats in which they were received, as well as creating backup copies for off-site storage.
- *Local Services and Control* regulates how the ERA components communicate with each other, manages internal security, and enables telecommunications and system network management.
- *Dissemination* enables users to search descriptions and business data about all types of records, and to search the content of electronic records and retrieve them.

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<sup>6</sup> A record schedule is a document that describes agency records, establishes a period for their retention by the agency, and provides mandatory instructions for what to do with them when they are no longer needed for current government business.

<sup>7</sup> Records appraisal is the process of determining the value and the final disposition of records, making them either temporary or permanent.



## Background

NARA currently plans to deliver these components in five separate increments. Each increment involves multiple releases that are to deliver specific functionality. Below is a summary of the specific releases delivered or planned for delivery in each increment:

- Increment 1 was deployed in two releases. Release 1 established the ERA base system—the hardware, software, and communications needed to deploy the system. Release 2 enabled functional archives with the ability to preserve electronic data in their original format, enable disposition agreements and scheduling, and receive unclassified and sensitive data from four federal agencies; according to NARA officials, this increment was certified as complete in June 2008. However, additional enhancements were made to Increment 1, release 2, and were completed in March 2010.
- Increment 2 includes the EOP system, which was designed to handle records from the Executive Office of the President. This increment was to include the content searching and management for special access requests.<sup>8</sup> The EOP system was certified for initial operating capability (IOC) in December 2008. However, NARA did not finish ingesting the presidential records it received until September 2009, 9 months after IOC.

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<sup>8</sup> These are requests NARA receives from the current and former administrations, the Congress, and the courts for access to presidential records. The priorities are determined by NARA's Office of Presidential Libraries based on experience with the records of previous administrations.



## Background

- Increment 3 is expected to include the following:
  - Storage and access capabilities for electronic records of the Congress and Supreme Court. NARA deployed the first release of Increment 3—the congressional component—in January 2010.
  - Upgrades to the ERA base system to, among other things, search, view, and print records.
  - Public access to provide the public with tools needed to search and access electronic records. NARA plans to launch a test version of public access capabilities for NARA staff use in April 2010, and public use of the system is to begin in December 2010.
  - Planning for preservation to include development of a preservation framework prototype. The prototype is to include the capability to plan, execute, and monitor preservation activities.
  - By June 2010, NARA plans to implement the remaining two releases of Increment 3.
- Increment 4 is planned to build upon the base architecture delivered as part of Increment 3, and NARA plans to insert newly available technology, particularly for preservation capabilities. NARA plans to begin work on this increment in 2010 and complete it in fiscal year 2011.
- Increment 5 is expected to expand on system capabilities implemented in the prior increments.



## **Background**

NARA plans for the ERA system to reach full operational capability (FOC) in 2012. As of February 2010, the life-cycle cost for ERA through March 2012 was estimated at more than \$567 million, which includes not only the development contract costs, but also program management, research and development, and program office support, among other things.



**Background**

Table 1 shows reported spending from the program's inception to the end of fiscal year 2009.

**Table 1: Summary of ERA Spending from Fiscal Year 2002 through Fiscal Year 2009 (Dollars in millions)**

<b>Project category</b>	<b>Spending</b>
Development Contract—Lockheed Martin	\$156.0
System Analysis and Design Contracts—Lockheed Martin and Harris Corporation	40.8
Program Management	39.2
Program Office Support Team	28.0
Research and Development	22.6
Integrated Deployment and Support	13.3
Independent Verification and Validation	7.2
Security	0.2
End of Year Balance	0.3
Adjustments	-1.9 <sup>a</sup>
<b>Total</b>	<b>\$305.6<sup>b</sup></b>

Source: GAO analysis of NARA data.

<sup>a</sup>Recoveries of prior year funds, adjustments to obligations incurred, obligations against prior years, and carryover funds expiring at the end of fiscal year 2009.

<sup>b</sup>Total number may not equal the sum of individual items due to rounding.

NARA's estimated ERA obligations for fiscal year 2010, including both single-year and multi-year funds, are \$85.6 million. Table 2 shows how NARA planned to distribute funds across the ERA program in fiscal year 2010.



Background

**Table 2: Summary of NARA's Fiscal Year 2010 Estimated Obligations for ERA (Dollars in millions)**

Project Category	Description	Estimated obligations
Development Contract	Activities performed under the ERA system acquisition contract with Lockheed Martin (includes EOP)	\$59.2
Program Management	Salaries and benefits, supplies, equipment, and telecommunications	10.0
Research and Development	Research performed with other agencies	4.7
Program Office Support Team	Labor, contracts, and materials to support ERA program management	5.2
Integrated Deployment and Support	Interagency agreements for ERA facilities <sup>a</sup>	2.0
Independent Verification and Validation <sup>b</sup>	Verification and validation activities	1.8
Program Execution	Contractor program and engineering management	2.7
<b>Total</b>		<b>\$85.6<sup>c</sup></b>

Source: GAO analysis of NARA data.

<sup>a</sup>ERA facilities include Allegany Ballistics Lab at Rocket Center, West Virginia, and the Naval Meteorology and Oceanography Command at Stennis, Mississippi.

<sup>b</sup>NARA contracted with Northrop Grumman to perform independent verification and validation on policies and plans produced by the ERA program and contract deliverables produced by Lockheed Martin.

<sup>c</sup>Total may not equal the sum of individual items due to rounding. Totals include appropriated funds only.

Note: NARA obligated \$30,000 towards security, but this is not shown in the table because the amount is equal to zero when converted into millions and rounded to one decimal place.



**Background**  
Prior GAO Work

We have issued several reports on ERA and its development.<sup>9</sup> In November 2009,<sup>10</sup> we testified that NARA had completed two of its five planned increments, but experienced delays and cost overruns, and several functions planned for the system's initial release were deferred. We further testified that although NARA initially planned for the system to be capable of ingesting federal and presidential records in September 2007, the two system increments to support those records did not achieve initial operating capability until June 2008 and December 2008, respectively. In addition, NARA reportedly spent about \$80 million on the base increment, compared to its planned cost of about \$60 million.

<sup>9</sup> GAO, *Information Management: Challenges in Managing and Preserving Electronic Records*, GAO-02-586 (Washington, D.C.: June 17, 2002); *Records Management: Planning for the Electronic Records Archives Has Improved*, GAO-04-927 (Washington, D.C.: Sept. 23, 2004); *Information Management: Acquisition of the Electronic Records Archives Is Progressing*, GAO-05-802 (Washington, D.C.; July 15, 2005); *Electronic Records Archives: The National Archives and Records Administration's Fiscal Year 2006 Expenditure Plan*, GAO-06-906 (Washington, D.C.: Aug. 18, 2006); *Information Management: The National Archives and Records Administration's Fiscal Year 2007 Expenditure Plan*, GAO-07-987 (Washington, D.C.: July 27, 2007); and *Information Management: Challenges in Implementing an Electronic Records Archive*, GAO-08-738T (Washington, D.C.: May 14, 2008).

<sup>10</sup> GAO, *National Archives: Progress and Risks in Implementing its Electronic Records Archive Initiative*, GAO-10-222T (Washington, D.C.: Nov. 5, 2009).



**Background**  
Prior GAO Work

In our review<sup>11</sup> of NARA's fiscal year 2009 expenditure plan, we made four observations about the expenditure plan and ERA acquisition:

- The fiscal year 2009 expenditure plan did not specifically identify whether completed system increments included all planned functionality or what functionality would be included in future increments, including the outcomes NARA expected from the remainder of its fiscal year 2009 funding.
- The expenditure plan stated that it relied on earned value management (EVM) for project management, which is intended to provide objective reports on program status. However, NARA did not fully implement practices necessary to make effective use of EVM, limiting the reliability of its progress reports.
- Although NARA certified IOC for the EOP system in December 2008, less than 3 percent of the electronic records from the Bush administration had been ingested into the system at the time of our review, and NARA did not expect the remainder to be ingested until October 2009.
- NARA lacked a contingency plan for the ERA system in the event of a failure or disruption.

Accordingly, we made recommendations to NARA to improve the expenditure plan and ERA acquisition.

<sup>11</sup> GAO, *Electronic Records Archive: The National Archives and Records Administration's Fiscal Year 2009 Expenditure Plan*, GAO-09-733 (Washington, D.C.: July 24, 2009).





**Objective 1: NARA's expenditure plan satisfies five of the fiscal year 2010 legislative conditions and partially satisfies one.**

**Table 3: Fiscal Year 2010 Expenditure Plan Provisions for Satisfying Legislative Conditions**

<b>Legislative condition</b>	<b>Status</b>	<b>Expenditure plan provisions</b>
1. Meets OMB capital planning and investment control review requirements	Partially satisfied	OMB requires agencies to develop capital planning and investment control review processes that help ensure that projects are being implemented at acceptable cost and within reasonable and expected time frames and that they are contributing to observable improvements in mission performance. In order to do this, agencies should establish an oversight entity that periodically reviews capital assets (e.g., the ERA system) to determine how mission requirements might have changed and whether the asset continues to fulfill mission requirements and deliver intended benefits to the agency and customers. Further, agencies should indicate (i.e., document) that the investment has been reviewed and approved by the responsible oversight entity. Additionally, best practices such as our IT investment management framework call for oversight boards to take corrective actions at the first sign of cost, schedule, and performance problems. They also call for oversight boards to ensure that corrective actions and related efforts are executed by the project management team and tracked until the desired outcomes occur. NARA partially meets this condition; it has established groups to oversee ERA's progress and provided them with regular briefings. However, NARA does not document the results of briefings to its senior management oversight group and thus there is little evidence that this body has reviewed and approved the progress of the ERA system. There is also little evidence that the group identified or took appropriate corrective actions or ensured that the actions were taken and tracked to closure. Without adequate oversight that evaluates ERA progress, including documenting feedback and action items from senior management, NARA will not be able to ensure that the system is being implemented at acceptable cost and within reasonable and expected time frames.



**Results**  
Legislative Conditions

Legislative condition	Status	Expenditure plan provisions
2. Complies with NARA's enterprise architecture	Satisfied	<p>OMB requires NARA to include ERA in its agency-level enterprise architecture, which is updated on a yearly basis. NARA has developed an agencywide enterprise architecture that includes ERA. The current agency enterprise architecture—version 5.5 updated in May 2009—includes ERA and consists of several component architectures, including business, data, systems, application, operations, and information technology security architectures.</p> <p>In addition, OMB requires that any major IT investment be mapped to and support the Federal Enterprise Architecture. The business case for the investment must also demonstrate the relationship between the investment and the business, performance, data, services, application, and technology layers of the agency's architecture. NARA's budget submission business case for the ERA system certifies compliance with these requirements and was approved by OMB.</p>
3. Conforms with NARA's enterprise life-cycle methodology	Satisfied	<p>The ERA project conforms to NARA's life-cycle methodology. For example, the expenditure plan includes descriptions of the incremental approach the agency has adopted for acquiring ERA and its management of program risks. In particular, the risk management methodology calls for the agency to identify and categorize risks, qualify the probabilities and consequences of the risks, specify a strategy to mitigate each risk, communicate risk status, and formulate actions needed to mitigate the risk.</p> <p>NARA manages risks using an agency-level risk review board, a program-level risk review board, and a technical risk review team. In addition, the ERA program office produces monthly reports that include top identified risks and specify associated mitigation strategies. The office also generates reports of pending or active risks from its risk management database that specify the probability and consequences of identified risks. Further, risk status is communicated to senior NARA management and OMB on a monthly basis and Congress on a quarterly basis. The quarterly reports also identify executive actions needed to mitigate risks.</p>



**Results**  
**Legislative Conditions**

Legislative condition	Status	Expenditure plan provisions
4. Complies with the acquisition rules, requirements, guidelines, and systems acquisition management practices of the federal government <sup>a</sup>	Satisfied	NARA satisfied this provision by implementing key processes that reflect best practices for acquiring software-intensive systems, like ERA. The quality of software is governed largely by the quality of the processes involved in developing or acquiring it and maintaining it. Carnegie Mellon University's Software Engineering Institute (SEI), <sup>b</sup> recognized for its expertise in software processes, has developed models and methods that define and determine organizations' software process maturity. NARA conducted internal assessments in 2002 and 2004 that used the institute's SA-CMM <sup>c</sup> methods to determine the maturity of ERA's system policies, processes, and practices and implemented a process to address the assessment's recommendations. In addition, NARA's Chief Information Officer certified that the ERA program continues to be in compliance with the Clinger Cohen Act on November 19, 2009. <sup>d</sup>
5. Approved by NARA and OMB	Satisfied	<ul style="list-style-type: none"> <li>• NARA—October 2009</li> <li>• OMB—October 2009</li> </ul>
6. Reviewed by GAO	Satisfied	GAO—April 6, 2010, briefing to congressional appropriations subcommittees

Sources: GAO analysis of NARA data and the Consolidated Appropriations Act, 2010.

<sup>a</sup>We did not review the program's compliance with the Federal Acquisition Regulation or other federal requirements beyond those encompassed by the Software Engineering Institute's Capability Maturity Model.

<sup>b</sup>SEI is a federally funded research and development center operated by Carnegie Mellon University and sponsored by the Department of Defense. Its objective is to provide leadership in software engineering and in the transition of new software engineering technology into practice.

<sup>c</sup>The Software Acquisition-Capability Maturity Model (SA-CMM) identifies key process areas that are essential to effectively managing software-intensive system acquisitions.

<sup>d</sup>Among other things, the Clinger-Cohen Act of 1996 required OMB to establish processes to analyze, track, and evaluate the risks and results of major capital investments in IT systems made by executive agencies. As such, OMB developed policy and issued guidance for the planning, budgeting, acquisition, and management of federal capital assets.



**Objective 2: NARA has partially implemented our previous recommendations**

In May 2009, we made five recommendations to NARA to help improve the expenditure plan and ERA acquisition. NARA has implemented three of our recommendations and partially implemented two.

**Table 4: Status of NARA's Progress in Implementing Prior GAO Recommendations**

Prior GAO recommendations	Implementation status	Status as of fiscal year 2010 plan
Report to Congress on the specific outcomes to be achieved by ERA program funding for the remainder of fiscal year 2009.	Implemented	NARA provided quarterly reports to Congress that identified outcomes to be achieved with the remainder of ERA program funding for fiscal year 2009. These reports covered reporting periods March-June 2009 and July-September 2009. The reports include information on program costs, schedule, and performance.
Include in NARA's next expenditure plan an analysis of the costs and benefits of using the EOP system to respond to presidential records requests compared to other existing systems currently being used to respond to such requests.	Implemented	NARA's 2010 expenditure plan includes a detailed explanation of alternatives considered, disadvantages of these alternatives, advantages, and the cost of using the EOP system to respond to presidential records requests compared to that of other existing systems.
Develop and implement an ERA contingency plan that follows contingency guidance for federal systems.	Implemented	NARA developed and tested an ERA contingency plan. Testing was completed on August 5, 2009, and the plan was finalized on September 16, 2009.



**Results**  
Prior Recommendation Status

Prior GAO recommendations	Implementation status	Status as of fiscal year 2010 plan
Provide detailed information in future expenditure plans on what was spent and delivered for deployed increments of the ERA system and cost and functional delivery plans for future increments.	Partially implemented	NARA's fiscal year 2010 expenditure plan includes additional information on ERA cost, schedule, and performance. For example, NARA's 2010 plan discusses the amount it planned to spend on Increment 2, as reported in the fiscal year 2009 plan (\$11.1 million), and the actual amount spent (\$10.4 million). It also compares planned and actual delivery dates (both December 2008). In addition, the plan identifies the overall cost for Increment 3 (\$25.6 million for fiscal year 2009 and \$16.6 million for fiscal year 2010, for a total of \$42.2 million) and the planned completion date for the increment (fourth quarter of fiscal year 2010). The plan also includes a high-level discussion of Increment 4 plans and associated costs for fiscal year 2010. However, it does not fully discuss other key information. For example, although it estimates the funding needed for Increment 4 in 2010, it does not address the estimated total cost of the increment. In addition, the plan does not fully describe how NARA will use 2010 funds for public access and preservation capabilities, because it does not describe which records (by type, volume, or source) will be made available or preserved with 2010 funding. Finally, the plan does not discuss ERA's estimated life-cycle cost estimate or the reasons for increases in the estimate. Without this key information, the plan is of limited value for overseeing program progress.



**Results**  
Prior Recommendation Status

Prior GAO recommendations	Implementation status	Status as of fiscal year 2010 plan
<p>Strengthen the earned value process so that it follows practices described in GAO's cost estimating guide and more reliable cost, schedule, and performance information can be included in future expenditure plans and monthly reports.</p>	<p>Partially implemented</p>	<p>In response to our recommendation, NARA developed but has not fully implemented an action plan to improve its earned value processes to follow 13 best practices described in GAO's Cost Estimating Guide.<sup>a</sup> For 2 of the best practices we assessed as not met, NARA plans to conduct a risk assessment analysis as part of Increment 3. Other actions are planned but not yet implemented to address the 6 practices we assessed as partially met. For example, the ERA program office is developing a program management tool to establish a joint performance measurement baseline between contractor and government activities. We have ongoing work to evaluate the adequacy of NARA's EVM processes and implementation of its action plan.</p>

Source: GAO analysis of NARA data.

<sup>a</sup>GAO, *Cost Estimating and Assessment Guide: Best Practices for Developing and Managing Capital Program Costs*, GAO-09-3SP (Washington, D.C.: March 2009).



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**Objective 3: Observations about NARA's ERA Expenditure Plan and Acquisition**

*Observation 1: The ERA system is experiencing expected cost increases and schedule delays.*

According to NARA officials, between fiscal years 2008 and 2009, the ERA estimated life-cycle cost increased by about \$20 million, from about \$531 million to \$551.4 million.<sup>12</sup> From fiscal year 2009 to 2010, the estimated life-cycle cost increased by an additional \$16 million, from \$551.4 million to \$567.4 million. This represents a cumulative increase of 7 percent over the last three fiscal years. NARA attributed the cost increase of \$16 million to the increasing complexity of the system being developed as determined by both NARA and contractor subject matter experts, such as system engineers.

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<sup>12</sup> During a previous review, NARA officials told us that the estimated life-cycle cost in 2008 was \$453 million. However, after reviewing information being used to develop this briefing, NARA officials told us that the figure they provided previously did not include costs for 2012, which account for approximately \$78 million in additional costs. NARA did not document its life-cycle cost estimates in expenditure plans for fiscal years 2008 through 2010.



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**Results  
Observations**

In addition, NARA currently plans to complete Increment 3 in June 2010, and Increment 4 in mid-2011, both of which are approximately 1 year later than the milestones established in its project management plan. The completion date for Increment 3 is also inconsistent with information in last year's plan, which included a graphic indicating that Increment 3 would be completed early in 2010. According to NARA's acquisition strategy and the project management plan, dated January 2005 and April 2006 respectively, Increment 3 was to be delivered during calendar year 2009. NARA officials stated that the June 2010 delivery date is consistent with the current project schedule, which was the result of a rebaselining in September 2006. However NARA officials told us there is no written evidence to show executive approval of this schedule change or link its current schedule to the rebaselining effort because, according to NARA officials, it revised its development methodology and determined that revising its program documents to reflect the change would not be cost effective.





## Results Observations

Further, ongoing updates to existing ERA increments have also fallen behind schedule. Although NARA certified Increments 1 and 2 as complete in 2008, it has continued to make enhancements to the functionality of both increments. Specifically, fiscal year 2009 funds provided for analysis, design, software development, integration and testing, acceptance testing, and deployment of additional software releases for Increment 1. These releases included, among other things, functionality that enhanced the system's ability to ingest large record files as well as properly displaying content in supported Internet browsers. Of the six enhancements completed since March 2009, four were delayed by between 17 and 140 days. NARA attributes these schedule delays to deficiencies identified during software testing as well as subsequent time needed to correct those deficiencies.

Continued cost increases and delays raise concerns about NARA's ability to fully develop and implement the ERA system within budget and as scheduled for full operating capability in fiscal year 2012.



## Results Observations

**Observation 2:** *NARA lacks detailed plans for completing the final two increments of ERA.*

Even though NARA plans to spend the bulk of its contract development funds for 2010 on Increment 4, it has not fully defined the functionality to be included in Increments 4 or 5. For Increment 4, NARA requested about \$37 million in fiscal year 2010 funds to implement or expand a variety of capabilities, including those related to preservation, access, ERA base, and backup and restore. About \$18 million of this amount is dedicated to developing a framework for preservation capabilities. However, while the expenditure plan provides high-level descriptions of these capabilities, NARA does not have fully defined plans, including specific dates for completion and what associated capabilities are to be delivered. According to agency officials, NARA is developing an addendum to the 2010 plan that will expand on its plans for the remainder of the fiscal year.

In addition, NARA has not established specific plans for Increment 5. While the prior year's expenditure plan provided a high-level description of functionality to be included in Increment 5, such as expanded preservation capacity and collaboration with other agencies, the fiscal year 2010 plan does not include detailed discussion of planned functionality for Increment 5. The 2010 plan's sole reference to planned functionality for Increment 5 is a single item, related to schedule resolution, in a table listing functions deferred from Increment 1. Without including detailed plans for the final two increments, including specific dates for completion and associated functionality to be delivered, Congress will have limited insight to evaluate NARA's ongoing progress. NARA intends to discuss Increment 5 in more detail in the 2011 expenditure plan.



## Results Observations

**Observation 3:** *NARA has not adequately defined or managed ERA's system requirements.*

System requirements describe the functionality needed to meet user needs and perform as intended in the operating environment and should be clearly defined and managed throughout the project in a disciplined way. Specifically:

- Well-defined requirements are documented at a high (business) level and are traceable forward and backward throughout the project's life cycle, in order to ensure that the system's functionality satisfies the intended objectives of the higher-level requirements.
- Well-managed requirements are maintained through a formal process that involves updating changes to requirements in response to modifications of project scope. As work products are developed and more is learned about the system that is being developed, information is occasionally found that requires a change to the original requirements. Therefore, projects need to manage these changes to requirements in a structured way.<sup>13</sup>

In 2003, NARA finalized a Requirements Management Plan for ERA which, among other steps, calls for system requirement reviews near the beginning of each increment.

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<sup>13</sup> GAO, *Business System Modernization: IRS Needs to Complete Recent Efforts to Develop Policies and Procedures to Guide Requirements Development and Management*, GAO-06-310 (Washington, D.C.: March 2006).



## Results Observations

Although NARA developed a set of baseline system requirements for ERA, these requirements are not fully traceable to work in later system increments. NARA developed and documented a set of high-level business requirements for ERA designed to meet the needs of a variety of users such as NARA managers, researchers, and other federal agencies. NARA's Requirements Document, which represents the system's full operating capability, identifies 853 requirements that are to be developed and fully implemented by 2012. However, our analysis of these high-level requirements determined that more than 40 percent have yet to be allocated to any portion of the system development. Specifically, we found that 489 (57.3 percent) of the high-level requirements will be implemented as part of Increments 1 through 3 by fiscal year 2010, but that the remaining 364 requirements (42.7 percent) have not been allocated to the remaining two increments. NARA officials stated that it is uncertain when they will be allocated or whether they will be implemented at all. Since these requirements have not been allocated, it is unclear whether the system development work to be performed as part of increments 4 and 5 will result in functionality that satisfies the objectives of the higher-level requirements.

Further, NARA has not updated the requirements document in response to changes as the project progressed. NARA acknowledged in its fiscal year 2010 Expenditure Plan that in response to technical challenges, it reinterpreted some of the requirements stated in the original Requirements Document but has not updated the document. NARA recognized that the lack of a current set of requirements is a significant risk, stating that a system designed and built without a clear understanding of the Requirements Document and strict adherence to its intent may not meet NARA's needs and user expectations.



## Results Observations

Failure to follow its guidance on requirements management compounded problems with NARA's requirements development for ERA. Specifically, NARA conducted and documented system requirements reviews for increments 1 and 2, as called for in its requirements management plan, but there is no documentation demonstrating that such a review was conducted at the start of Increment 3. According to NARA officials, it conducted ongoing requirements reviews with the contractor throughout Increment 3, but did not document its reviews until recently because of a change in its development approach. However, our review of the Increment 3 documentation did not reveal any evidence of a requirements review at the start of the increment. In addition, after raising the issue with agency officials, they informed us that they had scheduled a system requirements review for Increment 4 for the week of March 29<sup>th</sup>, at which they plan to assess whether business process changes have rendered some of the original requirements no longer necessary.

Without appropriately traceable and current ERA system requirements, NARA will have little assurance that ongoing development work is contributing to its mission needs. Further, NARA will lack an adequate basis for ensuring that its contractor is providing work that meets the needs of the agency and, ultimately, the system's users.



## Conclusions

While NARA's fiscal year 2010 expenditure plan met five of the six legislative conditions, the lack of documentation demonstrating the appropriate level of senior management review, approval, and oversight limits NARA's ability to ensure that the project makes expected progress. In addition, the lack of a documented current baseline schedule leaves NARA with limited ability to identify significant delays. The lack of key oversight documentation limits NARA's assurance that schedule delays and cost increases will not continue during ERA's development.

In addition, without specific plans for completing the final two increments, NARA lacks assurance that the remaining increments will adequately fulfill its mission needs. Specifically, NARA's failure to follow its own guidance on requirements management has resulted in a set of requirements that is incomplete and out of date, which could lead to the system being completed without addressing all necessary requirements or the development of functionality to meet requirements that are no longer valid. Addressing these weaknesses is becoming even more critical as the projected completion of the project approaches; if they continue, it will be increasingly unlikely that NARA will be able to deliver the ERA system by 2012 with the capabilities originally envisioned or to effectively use the system to meet the needs of its users in support of NARA's mission of preserving and providing access to the nation's electronic records.



## **Recommendations for Executive Action**

To enhance NARA's ability to complete the development of ERA within reasonable funding and time constraints, we are recommending that the Archivist of the United States take the following two actions:

- Ensure that NARA's investment review process has adequate executive-level oversight by maintaining documentation of the results of reviews, including changes to the program's cost and schedule baseline and any other corrective actions taken as a result of changes in ERA cost, schedule, and performance.
- Ensure that ERA's requirements are managed using a disciplined process that results in requirements that are traceable throughout the project's life cycle and are kept current.



## Agency Comments and Our Evaluation

In a letter commenting on a draft of this briefing, the Archivist of the United States described several of the program's recent accomplishments and stated that he would take steps to address our recommendations, including documenting management reviews and actions and ensuring adequate discipline is maintained in the definition and allocation of requirements. However, he also stated that the briefing did not accurately describe the program in its current state, adding that NARA had strengthened its management oversight of the program which has moved forward, meeting the baseline schedule established in a corrective action plan for Increment 1. In addition, he stated that the program's history of success does not support our conclusion that ERA is unlikely to be completed as planned by 2012. We disagree for several reasons. First, as discussed in our briefing, our discussion on timeliness focuses on the increments currently being developed (Increments 3 and 4) and is based on ERA's currently documented management plan and information from last year's expenditure plan. NARA did not provide any evidence to demonstrate the existence of the rebaselined schedule described by the Archivist. Second, the lack of documentation supporting key management activities we describe—including performance against the cost and schedule baseline, executive oversight, and requirements management—apparently contradict the robust oversight described by the Archivist. Finally, while NARA has made progress on several capabilities in the past year, the extent to which these capabilities are fulfilling the project's original goals cannot be determined due to NARA's lack of an adequate requirements management process. With the lack of adequate controls in several key areas and only about two years remaining to complete development, we believe that on-time completion of ERA that meets all of its original requirements is increasingly unlikely.

The Archivist's comments are attached.



Appendix I: Briefing to Staff of Congressional  
Committees on NARA's Fiscal Year 2010  
Expenditure Plan



Attachment 1

Comments from the Archivist of the United States



*National Archives and Records Administration*

8601 Adelphi Road  
College Park, Maryland 20740-6001

April 2, 2010

Government Accountability Office  
Director of Information Technology Management Issues  
Mr. David A. Powner  
441 G Street NW  
Washington, DC 20548

Dear Mr. Powner:

We thank you for the opportunity to review and comment on the advance copy of the GAO briefing, *Review of the National Archives and Records Administration's Fiscal Year 2010 Electronic Records Archive Expenditure Plan for staff members of the Subcommittees on Financial Services and General Government, Committees on Appropriations, U.S. Senate and U.S. House of Representatives.*

It has been my understanding that the GAO reports in previous years have been very useful to improve the management of the program by the ERA Program staff. However, I am concerned that this briefing does not accurately describe the program in its current state. Specifically, the briefing focuses on issues which may have been appropriate in previous years but which are no longer valid.

As you know the program experienced some delays and cost overruns in the early stages of Increment 1. Since that time, NARA has strengthened its management oversight of the program, and as a result the program has moved forward steadily meeting the baseline schedule established during the corrective action plan for Increment 1. As you noted in the briefing, ERA has stayed well within the plus/minus 10% cost threshold established by the Office of Management and Budget (OMB) for the work to date.

Our history of success, both in terms of accomplishments, schedule and cost, does not seem to support your observation regarding assurances that ERA will not be able to avoid additional cost increases and schedule delays or that it is unlikely that NARA will be able to deliver a system by the planned date of 2012 that will effectively be used to meet the needs of its users in support of NARA's mission. We are very proud of the accomplishments of the program and look forward to more success as we prepare for our next deployment, the Online Public Access (OPA) instance. Examples of our success in meeting major accomplishments include:

- Deployment of the Increment 1 Initial Operating Capability ("Base Instance") which is now in use by NARA staff and staff from four "early adopter" agencies. Twenty-one additional agencies will be added within the next few months. By the end of the year we anticipate the base instance to store over one *terabyte* of records.

- Deployment of the Executive Office of the President instance, which now stores and provides search and access capabilities for approximately **78 terabytes** of electronic records, including photographs from the George W. Bush Administration. Over 54,000 searches have been conducted since operations began.
- Deployment of the Congressional Records Instance, which on March 11, 2010 ingested two transfer groups of Homeland Security Committee electronic records from the House of Representatives, including MS-Office files, pdf files, databases, audio, video and other multimedia content. We remain ready to ingest additional files as they are provided to us.
- Design of a pilot to provide public access to NARA's electronic records, which will be deployed to the public later this year.
- Design of a prototype demonstrating a framework for preservation technologies, most of which are at an early stage of development.

While I am confident that structures now in place are adequate to ensure that the program will continue to meet its cost and schedule goals, we will take steps to address your recommendations. First, we will ensure that an adequate audit trail is maintained to document management reviews and actions. Second, we will review and adapt, as necessary, our existing requirements management process to ensure adequate discipline is maintained in the definition and allocation of requirements.

Again, I thank you for this opportunity and look forward to our future interactions as we continue the ERA acquisition process.

Sincerely,

DAVID S. FERRIERO  
Archivist of the United States

NARA's web site is <http://www.archives.gov>

# Appendix II: Comments from the National Archives and Records Administration

*National Archives at College Park*



8601 Adelphi Road College Park, Maryland 20740-6001

MAY 21 2010

Government Accountability Office  
Director of Information Technology Management Issues  
Mr. David A. Powner  
441 G Street NW  
Washington DC, 20548

Dear Mr. Powner:

We thank you for the opportunity to review and comment on the draft "Electronic Records Archives Status Update on the National Archives and Records Administration's Fiscal Year 2010 Expenditure Plan."

This letter responds to the two conclusions provided in the report. To address your conclusion regarding the level of senior management review, approval and oversight, we are now documenting the minutes and actions for Senior Staff meetings where ERA is discussed.

In response to your concern that ERA requirements have not been defined and managed, NARA has not made any changes to the original requirements documented in the 2003 Requirements Document. We have recently begun an intensive effort to review the requirements established in 2003 within the context of new technologies and changing business needs, such as the impact of the newly established National Declassification Center on ERA requirements relative to the protection of restricted information and requests for records made under the Freedom of Information Act.

Further, in April, 2010, NARA managers met to determine top ERA functional priorities to be completed by the end of the current contract. Concurrently, the ERA requirements manager is mapping those functional priorities to their underlying contract requirements and will be updating the ERA Requirements Document as appropriate. The goal of these efforts is to identify the requirements from the Requirements Document that remain to be developed by March 2012.

Again, I thank you for this opportunity and look forward to our future interactions as we continue the ERA acquisition process.

Sincerely,

A handwritten signature in black ink, appearing to read "D. S. Ferriero".

DAVID S. FERRIERO  
Archivist of the United States

*National Archives and Records Administration*

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# Appendix III: GAO Contact and Staff Acknowledgments

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## GAO Contact

David A. Powner (202) 512-9286 or [pownerd@gao.gov](mailto:pownerd@gao.gov)

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## Staff Acknowledgments

In addition to the individual named above, key contributions to this report were made by James R. Sweetman, Jr., Assistant Director; Monica Perez Anatalio; Pamlutricia Greenleaf; Kush K. Malhotra; Lee A. McCracken; and Karl W. Seifert.

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