



Inspector General

September 1, 2023

TO: Dr. Colleen Shogan
Archivist of the United States

FROM: Dr. Brett M. Baker
Inspector General

SUBJECT: *Audit of NARA's Electronic Records Archives (ERA) 2.0 System*
OIG Report No. 23-AUD-06

The Office of Inspector General (OIG) contracted with CliftonLarsonAllen (CLA) to conduct an independent performance audit of *NARA's ERA 2.0 System*. Attached is CLA's report titled *Electronic Records Archives 2.0 Audit*. The objective was to evaluate NARA's progress in implementing ERA 2.0 in order to accept, process, store, preserve, search and provide access to records. The report contains six recommendations to assist NARA in strengthening its implementation of program management controls during system development efforts. Agency staff indicated they had no comments for inclusion in this report.

CLA is responsible for the attached auditor's report dated August 30, 2023 and the conclusions expressed in the report. The findings and conclusions presented in the report are the responsibility of CLA. The OIG's responsibility is to provide adequate oversight of the contractor's work in accordance with Generally Accepted Government Audit Standards.

Please provide planned corrective actions and expected dates to complete the actions for each of the recommendations within 30 days of the date of this report. As with all OIG products, we determine what information is publicly posted on our website from the published report. Consistent with our responsibility under the *Inspector General Act of 1978, as amended*, we may provide copies of our report to congressional committees oversight responsibility over NARA.

We appreciate the cooperation and assistance NARA extended to us during this audit. Please contact me with any questions.

Cc:

Debra Steidel Wall, Deputy Archivist of the United States

Tasha Ford, Executive Secretariat

Micah Cheatham, Chief of Management and Administration

Sheena Burrell, Chief Information Officer

Nicole Willis, Deputy Chief Information Officer

Colleen Murphy, Chief Financial Officer

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Senate Homeland Security and Governmental Affairs Committee

United States House of Representatives Committee on Oversight and Reform

National Archives and Records Administration

Electronic Records Archives 2.0 Audit

Final Report

August 30, 2023



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Inspector General
National Archives and Records Administration

CliftonLarsonAllen LLP (CLA) was engaged by the National Archives and Records Administration (NARA) Office of Inspector General (OIG) to conduct a performance audit of NARA's Electronic Records Archives (ERA) 2.0 system. The objective of our performance audit was to evaluate NARA's progress in implementing ERA 2.0 in order to accept, process, store, preserve, search, and provide access to records.

We conducted this performance audit 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.

The audit included a review of NARA's current capabilities, progress and plans for ERA 2.0 to address required and expected technical, security, and functional capabilities and to determine whether timelines and budget expectations are on track to meet project requirements. Audit fieldwork covered NARA's Archives II located in College Park, MD and was conducted from September 29, 2022, to June 9, 2023.

We concluded that although NARA was making progress in the development and implementation of the ERA 2.0 system, the agency's deployment of ERA 2.0 related to the acceptance, processing, storage, preservation, searching, and access to records has been delayed and not adequately planned. Specifically, we noted the following weaknesses:

- NARA's System Development Life Cycle Methodology does not provide requirements for an agile process;
- An overall program management plan and schedule estimate were not developed during the planning of the system; and
- An overall program baseline budget was not developed during planning of the system.

These weaknesses may result in continued delays in timelines resulting in unexpected ongoing maintenance costs for legacy systems and hinder the ability and effectiveness of the project team to assess the nature and risks related to the system being developed in a timely manner. Therefore, we have made six recommendations to assist NARA in strengthening its implementation of program management controls during system development efforts.

We considered internal controls that were significant and relevant to our audit objective and therefore, we may not have identified all the internal control deficiencies with respect to ERA 2.0 that existed at the time of this audit. In addition, our work did not include an assessment of the sufficiency of internal control over financial reporting or other matters not specifically outlined in the enclosed report. CLA cautions that projecting the results of our performance audit to future periods is subject to the risks that conditions may materially change from their current status. The information included in this report was obtained from NARA on or before August 30, 2023. We have no obligation to update our report or to revise the information contained therein to reflect events occurring subsequent to August 30, 2023.

The purpose of this audit report is to report on our assessment of NARA's progress in implementing ERA 2.0 and is not suitable for any other purpose. Additional information on our findings and recommendations are included in the accompanying report.

CliftonLarsonAllen LLP

CliftonLarsonAllen LLP

Arlington, Virginia
August 30, 2023

Table of Contents

| | |
|---|-----------|
| EXECUTIVE SUMMARY | 1 |
| Audit Results | 2 |
| AUDIT FINDINGS..... | 4 |
| 1. NARA Needs to Strengthen their SDLC Methodology to Address Agile Development Requirements | 4 |
| 2. NARA Lacked an Overall ERA 2.0 Program Management Plan..... | 5 |
| 3. NARA Lacked an Overall ERA 2.0 Program Baseline Budget Estimate..... | 8 |
| APPENDIX I - BACKGROUND | 11 |
| APPENDIX II - OBJECTIVE, SCOPE, AND METHODOLOGY | 13 |
| APPENDIX III – AGENCY COMMENTS..... | 16 |
| APPENDIX IV – REPORT DISTRIBUTION LIST..... | 17 |

**NATIONAL ARCHIVES AND RECORDS ADMINISTRATION
ELECTRONIC RECORDS ARCHIVES 2.0 AUDIT**

EXECUTIVE SUMMARY

The National Archives and Records Administration's (NARA) Office of Inspector General (OIG) engaged CliftonLarsonAllen LLP (CLA) to conduct a performance audit of NARA's progress in implementing the Electronic Records Archives (ERA) 2.0 system. ERA 2.0 is a modernization of NARA's ERA program in use since 2008, and is intended to update the system's functionality, modular design and to provide a cloud-based architecture. ERA 2.0 is intended to provide an end-to-end lifecycle coverage for electronic records, from scheduling, obtaining approvals for transfers, uploading records into the system by the producing Federal agency, the processing of records, preservation of records, and the production of access versions for the National Archives Catalog.

The implementation of ERA 2.0 is subject to and intended to meet various Office of Management and Budget (OMB) requirements. As an example, OMB Memorandum, *Transition to Federal Records* (OMB M-19-21),¹ issued on June 28, 2019, established several requirements to move Federal agencies to a fully electronic environment, where appropriate, and end NARA's acceptance of paper records. However, as Agencies may have been delayed in their electronic records transition process during the COVID-19 (Coronavirus Disease 2019) pandemic, OMB Memorandum, *Update to Transition to Electronic Records* (OMB M-23-07),² was issued on December 23, 2022, to reaffirm the underlying goal of the transition to electronic records and updated the target dates described in M-19-21. This memorandum also described NARA's plans to issue updated guidance, as appropriate.

The objective of our performance audit was to evaluate NARA's progress in implementing ERA 2.0 in order to accept, process, store, preserve, search, and provide access to records. The audit included a review of NARA's current capabilities, progress and plans for ERA 2.0 to address required and expected technical, security, and functional capabilities; an evaluation of NARA's preparedness to accept electronic records; and determine whether timelines and budget expectations are on track to meet project requirements.

To answer the audit objective, CLA reviewed system development business plans, schedules, policies and procedures, security assessment and authorization documentation, budget, obligation and expenditure data, and contracts with vendors. We interviewed the ERA 2.0 system developers, contracting officer's representative, program managers, project managers, and budget and finance managers in order to gain an understanding of their relevant roles and responsibilities in relation to ERA 2.0. We also reviewed agile³ development and release processes including testing a sample of changes to determine whether system changes were adequately documented, tested, and approved. In addition, we tested obligation and expenditure documentation and contracts to determine whether expenditures were in alignment with budgeted amounts and vendor contracts and were adequately controlled and managed in accordance with capital planning and investment control processes. We examined timelines both planned and actual to determine whether the status of the ERA 2.0 deployment (including the subsuming of legacy systems) was on schedule, was adequately planned to consider preparedness and capabilities to accept electronic records from agencies, and what was remaining to be completed.

¹ <https://www.archives.gov/files/records-mgmt/policy/m-19-21-transition-to-federal-records.pdf>

² https://www.whitehouse.gov/wp-content/uploads/2022/12/M_23_07-M-Memo-Electronic-Records_final.pdf

³ Agile methodology leverages developer and customer collaboration to make the development progress transparent, provide improved decision making, and deliver more timely and accurate information. In addition, Agile methodology is done in pieces (sprints), with each sprint building and improving off the lessons from the previous sprint.

NATIONAL ARCHIVES AND RECORDS ADMINISTRATION ELECTRONIC RECORDS ARCHIVES 2.0 AUDIT

We conducted this performance audit 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.

Audit Results

We concluded that although NARA was making progress in the development and implementation of the ERA 2.0 system, the agency's deployment of ERA 2.0 related to the acceptance, processing, storage, preservation, searching, and access to records has been delayed and not adequately planned. Major challenges related to the system implementation include:

- NARA's System Development Life Cycle (SDLC) Methodology does not adequately provide requirements for an agile process to deliver functionality to users quickly.
- Key program documentation, such as an overall program management plan and schedule estimates were not developed during the planning of the ERA 2.0 system.
- An overall program baseline budget estimate was not developed during the planning of the ERA 2.0 system.

In addition, NARA needs to strengthen its program management planning processes, methodology, and budgeting processes. ERA 2.0 has experienced delays, cost overruns, funding shortfalls, and technical shortcomings virtually since inception. As a result, many core requirements from initial plans have not yet been addressed, and ERA 2.0 does not have the capabilities originally envisioned. Without comprehensive program management planning controls, the ability and effectiveness of the project team to assess the nature of the system being developed and its progress is hindered. Without clearly defining tasks and work activities upon project inception, the success of the project and system implementation could be negatively affected. This increases the risks of delays in timelines, and results in unexpected ongoing maintenance costs for legacy systems which could negatively affect planned project cost savings.

These weaknesses are inconsistent with the Government Accountability Office's (GAO) *Standards for Internal Control in the Federal Government* (Green Book)⁴ which requires management to:

- Define objectives clearly to enable the identification of risks and define risk tolerances;
- Identify, analyze, and respond to risks related to achieving the defined objectives;
- Design control activities to achieve objectives and respond to risks; and
- Design the entity's information system and related control activities to achieve objectives and respond to risks.

⁴ See principles 6, 7, 10, and 11 in the Green Book.

**NATIONAL ARCHIVES AND RECORDS ADMINISTRATION
ELECTRONIC RECORDS ARCHIVES 2.0 AUDIT**

Without addressing these weaknesses, NARA may experience the following:

- Additional delays in timelines resulting in unexpected ongoing maintenance costs for legacy systems;
- Impacts to the ability and effectiveness of the project team to assess costs and risks related to the system being developed and implemented in a timely manner; and
- Inadequate development of new systems, which may result in technology that does not meet the needs of the agency.

Therefore, we have made six recommendations to assist NARA in strengthening its implementation of program management controls during system development efforts.

The following section provides a detailed discussion of the audit findings. Appendix I provides background information on NARA, Appendix II describes the audit objective, scope, and methodology, Appendix III documents responses received from the agency, and Appendix IV provides a report distribution listing.

AUDIT FINDINGS

1. NARA Needs to Strengthen their SDLC Methodology to Address Agile Development Requirements

NARA has stated that ERA 2.0 was developed in line with an agile system development methodology. However, based on inspection of NARA's SDLC Methodology, we noted that this methodology does not adequately provide requirements for an agile process to deliver functionality to users quickly. Specifically, NARA's SDLC Methodology was not reviewed and updated on an annual basis (last updated on November 27, 2013), thus may not keep up with changing trends and improvements in tools used for agile system development.

In addition, the methodology described processes which were more like the waterfall approach than agile approach of system development and did not address multiple iterations of SDLC methodology activities for agile projects within diagrams and in implementation. As reference, each phase within the agile development cycle is depicted in the GAO *Agile Assessment Guide – Best Practices for Agile Adoption and Implementation* as a loop, where the process of requirements, design and development produces working software for a user to test and provide feedback. Then that feedback is incorporated into the next cycle of requirements, design, and development.

Further, we noted that the methodology was not updated to address the following suggestion made in a prior audit report⁵ to “modify NARA's SDLC methodology to align it better for agile projects.”

The ERA 2.0 program managers indicated that NARA's SDLC methodology is being reviewed and updated to provide more guidance on agile system development practices. However, those efforts are still ongoing. Changes in NARA personnel and a familiarity with the outdated SDLC methodology may have also contributed to this issue.

Per the *NARA ERA 2.0 System Security Plan*, SDLC methodology policies and procedures should be reviewed and updated by NARA on an annual basis.

National Institute of Standards and Technology (NIST) Special Publication (SP) 800-160, Volume 1, Revision 1, *Engineering Trustworthy Secure Systems - Appendix G: System Life Cycle Processes Overview*, states, “Tailoring the system life cycle processes allows the engineering team to ... Facilitate the application of the processes to conform with a variety of system development methodologies, processes, and models (e.g., agile, spiral, waterfall) that could be used on a single engineering effort.”

In addition, Appendix H.2.2. Security Outcomes, states, “Required characteristics and context for the secure use of capabilities for system life cycle concepts in system life cycle stages are defined.” This means that the system development life cycle documentation should be detailed enough to provide guidance on every aspect/stage of the agency's system development.

⁵ OIG Audit Report No. 17-AUD-15, *NARA's Electronic Records Archive 2.0 Project*, issued August 16, 2017 <https://www.archives.gov/files/oig/reports/audit-report-17-AUD-15.pdf>

NATIONAL ARCHIVES AND RECORDS ADMINISTRATION ELECTRONIC RECORDS ARCHIVES 2.0 AUDIT

Without a current SDLC methodology in place that depicts an agile system development process, new systems may be developed inappropriately, which may result in technology that does not meet the needs of the agency. In addition, the system may be developed at a significant cost and incur unnecessary delays. Furthermore, outdated policies and procedures may:

- Fail to comply with new laws and regulations;
- Not address new systems or technology;
- Create inconsistent practices; and
- Provide stale and/or incorrect direction and detailed steps.

Recommendation 1:

We noted that in OIG Audit Report No. 17-AUD-15,⁶ a suggestion was made to “modify NARA’s SDLC methodology to align it better for agile projects” that has not been addressed.

In addition to resolving this issue, we recommend NARA’s Information Services review and update the SDLC Methodology to ensure it reflects current NARA practices related to system development methodologies utilized at the agency. NARA should modify the description of their SDLC methodology processes to be more agile, by adopting the cyclical approach described in GAO’s *Agile Assessment Guide – Best Practices for Agile Adoption and Implementation*. The system development process should be focused on producing working software for users to test after each agile iteration, and for the software to be updated with user feedback after each cycle.

Recommendation 2:

We recommend NARA’s Information Services institute a process to complete an annual review and update of the SDLC methodology.

2. NARA Lacked an Overall ERA 2.0 Program Management Plan

We noted that although project plans and schedules for individual projects (e.g., program components of ERA 2.0 such as Access to Archival Database (AAD), Agile Development and Integration Services (ADIS), Business Object Module (BOM), etc.) were developed starting in 2017, an overall program management plan which describes when ERA 2.0 would reach a targeted steady state for production and roll out for agency use was not developed.

The following describes areas identified for improvement related to project plans and schedule estimates for ERA 2.0.

Project Plans

The ERA 2.0 project management team utilized roadmaps throughout the system development process to illustrate milestone information about in-progress and recently completed projects, and funding status for various project streams and paths. Although these documents are used to brief executive management and stakeholders on future projects for planning and budgeting purposes, these documents were not intended and do not accurately portray task and project completion dates. In addition, there is an inconsistent description of ERA 2.0. For example, although ERA 2.0 is defined as a system within the System Security Plan, individual subcomponents are referred to as Projects, and ERA 2.0 is also known as a Program.

⁶ <https://www.archives.gov/files/oig/reports/audit-report-17-AUD-15.pdf>

NATIONAL ARCHIVES AND RECORDS ADMINISTRATION ELECTRONIC RECORDS ARCHIVES 2.0 AUDIT

Additionally, an SDLC methodology tailoring plan⁷ was not developed during planning of the ERA 2.0 system by the project manager and the lead systems engineer and approved by the Architecture Review Board (ARB) to exit the concept stage of the life cycle. Based upon NARA's SDLC Methodology, the tailoring plan enables the project manager and lead system engineer to assess the nature of the system being developed and the overall complexity of the project to encompass ERA 2.0's three major components – a digital processing environment (DPE), the digital object repository (DOR), and forms/workflows to support the scheduling of Federal records as well as the transfer of permanent records into NARA's custody.

Per the NARA SDLC Methodology, section 4.1 Tailoring Plan, "Because the tailoring plan identifies the work activities that must be performed, developing the tailoring plan is a prerequisite for establishing a project work breakdown structure (WBS) and schedule - and for performing a project cost analysis. It is also a prerequisite for understanding and managing risk."

In lieu of an initial tailoring plan, and to assess the nature and complexity of the Optimized Ingest Framework (OIF)⁸/ERA 2.0 system and its components, NARA created the "Vision for an Optimized Ingest Framework" document (created in May 2014) which introduced the concept of a modular approach with multiple, loosely coupled system components to reduce the overall complexity of the solution. Additionally, NARA noted that from September 2013 thru May 2014 with vendor support, they developed an OIF Concept of Operations, and a DPE Statement of Work (August 2014) which included stakeholder requirements, use cases, and a basic technical design.

Although we determined SDLC methodology tailoring plans and associated project plans were developed for subsequent ERA 2.0 subprojects such as (AAD, ADIS, BOM, Prod Release Schedule, Data Migration Schedule, and Migration Implementation Phase 2), the development of these tailoring plans for ERA 2.0 were not initiated until 2017. Tailoring plans however have been required by NARA for all projects (per NARA's SDLC Methodology) and approved by the ARB to exit the concept stage of the life cycle, since 2013.

NARA provided project plan schedules for individual subprojects/components which identify required deliverables and outcomes to be delivered by the project vendors. NARA indicated that these schedules were developed jointly by the vendor with input from key project stakeholders (Project Management, Quality Assurance, Systems Engineering, Security, Configuration Management, etc.). However, the project plan schedules do not indicate whether those respective deliverables were completed, when they were completed, and whether they were accepted by NARA's stage gate reviewer prior to progressing to succeeding stages in the tailoring plan.

Schedule Estimates

Without the development of an overall program management plan to track progress of ERA 2.0 system components and major tasks, there is an increased risk of schedule delays. Specifically, while ERA 2.0 was scheduled to replace and enhance the legacy ERA base system in April of 2023, deficiencies were noted in NARA's schedule for ERA 2.0 to replace and incorporate remaining legacy systems based upon targeted decommissioning dates within the road map briefings. As a result of these noted delays, maintenance costs for those respective legacy

⁷ Per NARA's SDLC Methodology, section 4.1, "All projects are required to develop a tailoring plan." The tailoring plan is used to vet the proposed approach to system implementation and project management with all agency stakeholders.

⁸ ERA 2.0 reflects a re-branding of the legacy name OIF.

**NATIONAL ARCHIVES AND RECORDS ADMINISTRATION
ELECTRONIC RECORDS ARCHIVES 2.0 AUDIT**

systems still in operation will continue, which could affect anticipated cost savings related to ERA 2.0.

We identified several ERA 2.0 subprojects/components with schedule delays. Either actual completion dates were later than originally projected, were still ongoing, or had not yet started. The reasons for these delays varied. As an example, in some instances, initial approaches to subsume functionality into ERA 2.0 were changed or functionality had not yet been completely subsumed, integration work had not yet been funded, predecessor or dependent projects were not yet completed, or projects were terminated then restarted as the technical approach for developing and executing the migration of data (such as for ERA Base) had changed. Thus, delays in planned completion dates were due to various reasons such as funding constraints, changes in planned approaches, or were affected by other project/system dependencies.

In addition, NARA policies or procedures did not outline documentation requirements and records retention for delivery and acceptance of contract deliverables by the Contracting Officer's Representative (COR) and project team/stage gate reviewers which allows stage gate approvals to occur without sufficient support. NARA was unable to provide complete and accurate documentation to support timely receipt and acceptance of contract deliverables for completed subprojects we tested.

NIST SP 800-160, Volume 1, Revision 1, *Engineering Trustworthy Secure Systems* - Appendix G: System Life Cycle Processes Overview, states, "Tailoring the system life cycle processes allows the engineering team to ... Facilitate the application of the processes to conform with a variety of system development methodologies, processes, and models (e.g., agile, spiral, waterfall) that could be used on a single engineering effort."

In addition, Appendix H.2.2. Security Outcomes, states, "required characteristics and context for the secure use of capabilities for system life cycle concepts in system life cycle stages are defined." This means that the system development life cycle documentation should be detailed enough to provide guidance on every aspect/stage of the agency's system development.

The Project Management Institute's *The Standard for Project Management and A Guide to the Project Management Body of Knowledge* states that: "The purpose of planning is to proactively develop an approach to create the project deliverables. The project deliverables drive the outcomes of the project was undertaken to achieve. High level planning may begin prior to project authorization. The project team progressively elaborates initial project documents, such as vision statement, project charter, business case or similar documents to identify or define a coordinated path to achieve the desired outcomes." "Large projects may combine planning artifacts into an integrated project management plan. For smaller projects, a detailed project management plan will be inefficient. Regardless of the timing, frequency and degree of planning, the various aspects of the project need to remain aligned and integrated."

GAO's *Agile Assessment Guide – Best Practices for Agile Adoption and Implementation*, states: "Effective program management can help programs achieve strategic goals and increases the likelihood that a program will deliver promised capabilities on time and within budget."

Without the development and maintenance of a program management plan, the ability and effectiveness of the project team to assess the nature of the system being developed and its progress is hindered. Specifically, the lack of a clear definition of tasks and work activities upon project inception, which must be performed and are appropriate and necessary for successful

**NATIONAL ARCHIVES AND RECORDS ADMINISTRATION
ELECTRONIC RECORDS ARCHIVES 2.0 AUDIT**

project performance and system implementation, increases the risks of delays in timelines, and result in unexpected ongoing maintenance costs for legacy systems which could negatively affect planned project cost savings. Additionally, this plan is a prerequisite for establishing a project WBS and schedule, and for performing an overall program cost analysis.

The lack of clear policies or procedures for delivery and acceptance of contract deliverables supporting each stage gate requirement resulted in stage gate reviewers signing off on tailoring plans at the end of each subproject through 2021 instead of when each stage was completed as required under the SDLC methodology.

Recommendation 3:

We recommend NARA’s Information Services, for ERA 2.0 and future system development projects, require the development and maintenance of a program management plan which describes how these subprojects are expected to reach a targeted steady state for production and roll out for agency use. This plan should consider current and future risks which could threaten the achievement of planned milestones and deliverables on the overall project. This plan should also demonstrate how to validate participation and adoption of the system under development to reduce reliance on legacy systems or components and related decommissioning processes.

Recommendation 4:

We recommend NARA’s Information Services enhance policy or procedures which outline documentation requirements and records retention for delivery and acceptance of contract deliverables by the COR and project team/stage gate reviewers within tailoring plans. Additionally, for projects with multiple releases, ensure that these policies or procedures provide clear guidance on how to document deliverable acceptance within the tailoring plans.

3. NARA Lacked an Overall ERA 2.0 Program Baseline Budget Estimate

Based upon discussions with ERA 2.0 project management personnel, and examination of documentation, we noted that an overall program baseline budget estimate which incorporates the cost estimate for each individual subproject/component and considers cost, schedule, and technical risk was not developed for the ERA 2.0 system.

A summary of obligations/costs incurred related to ERA 2.0 segregated into costs capitalized and expensed for fiscal years 2015 to 2022 is presented below (amounts in thousands).⁹

| | FY15 | FY16 | FY17 | FY18 | FY19 | FY20 | FY21 | FY22 | Total |
|--------------------|----------------|----------------|-----------------|----------------|----------------|----------------|--------------|----------------|-----------------|
| Operating Expenses | \$0 | \$1,098 | \$2,564 | \$5,846 | \$10,242 | \$3,602 | \$11,653 | \$10,414 | \$45,509 |
| Capitalized Costs | <u>\$8,285</u> | <u>\$8,241</u> | <u>\$11,403</u> | <u>\$5,574</u> | <u>\$4,158</u> | <u>\$6,694</u> | <u>\$783</u> | <u>\$3,930</u> | <u>\$49,068</u> |
| | \$8,285 | \$9,339 | \$14,057 | \$11,420 | \$14,400 | \$10,196 | \$12,436 | \$14,344 | \$94,577 |

Section 1.5.2 of the *Capital Programming Guide* in OMB Circular A-11, states the importance of developing a program baseline that is integrated with risk management, termed a Program Risk-Adjusted Budget (PRB). Specifically, it states that “Significant investments require a clearly understood process for ensuring that the program budget, expected outcomes, and cost/schedule performance measurements are integrated with risk management. Risk management begins with

⁹ Amounts accumulated per general ledger transaction detail by vendor contract, budget object class (BOC), and CAM1 (an accounting field used to track obligations/expenditures to a particular system or activity), adjusted for CAM1’s, amounts, and Electronic Records Initiative (ERI) funding unrelated to ERA 2.0, and reclassification of amounts between costs capitalized or expensed per supporting documentation provided.

NATIONAL ARCHIVES AND RECORDS ADMINISTRATION ELECTRONIC RECORDS ARCHIVES 2.0 AUDIT

evaluating the WBS for cost, schedule, and technical risk.” It also states that “Risk identification involves analyzing program areas and critical technical elements to identify and document the associated risk. Assumptions and constraints also need to be identified and analyzed for cost impact.”

While NARA Information Services has documented cost estimates and tracked performance within the annual Spend Plan for individual subprojects/components of ERA 2.0, the lack of an initial program PRB has affected NARA’s ability to manage risk and evaluate the impact of events such as schedule delays or scope changes on the ERA 2.0 program overall. In addition, NARA has other mechanisms to track overall performance such as roadmaps and the Federal IT Dashboard. However, as noted below, these mechanisms were not sufficient or fully implemented.

- The ERA 2.0 project management team utilized roadmaps throughout the system development process to illustrate milestone information about in progress and recently completed projects. The program manager has indicated that the primary purpose is to brief executive management and stakeholders on potential future projects for planning and budgeting purposes. These roadmaps also include the funding status (i.e., funded or unfunded) for various project streams and paths and some cost estimates. However, cost estimates were not included for all project streams, changes in estimates were not tracked on the roadmaps, and updates were not intended to reflect actual costs for completed projects. Further, based on a review of ERA 2.0 roadmaps, we identified several ERA 2.0 subprojects/components with schedule delays. Either actual completion dates were later than originally projected, were still ongoing, or had not yet started. Delays may occur for various reasons, such as funding constraints, planned approaches may change, or due to other project/system dependencies.
- In accordance with Section 55–*Information Technology Investments* in OMB Circular A-11, NARA has assessed ERA 2.0 as a major IT investment and therefore, included this program on the Federal IT Dashboard as required. Under the *Project Details* section, NARA has included an overall ERA 2.0 entry and entries for the three major ongoing ERA 2.0 subprojects. However, information for the following metrics is not reported: Project Life Cycle Cost, Cost Variance (%), Start Date, End Date, and Schedule Variance (%).

Further, *NARA Interim Guidance 400-5, Capitalization Policy for NARA Assets*, states that “For internally developed software, capitalize the full costs (direct and indirect) incurred during the software development stage. This includes costs of salaries for programmers, analysts, project managers, and administrative personnel; associated employee benefits; outside consultant fees; rent; supplies; and documentation manuals.” NARA has outsourced the programming and/or development effort for ERA 2.0 to outside vendors and is currently capitalizing these external contractor costs. However, no relevant internal costs are being capitalized in accordance with this policy. Per this policy, the capitalization of costs is required for individual items that exceed \$50,000 or more and for software development projects with a total cost of \$250,000 or more. NARA financial management personnel informed us that internal costs are not being capitalized due to the immateriality to the multiple subprojects/components for ERA 2.0. However, no supporting documentation of this assessment and rationale was provided. Having an overall PRB could assist in supporting this determination.

**NATIONAL ARCHIVES AND RECORDS ADMINISTRATION
ELECTRONIC RECORDS ARCHIVES 2.0 AUDIT**

NARA Information Services personnel did not develop and maintain a PRB for ERA 2.0 since they determined it was not necessary, as project costs were already being tracked at the individual subproject level. Further, there is a lack of clarity in NARA's policy, *Interim Guidance 400-5, Capitalization Policy for NARA Assets*, which outlines two options for software development projects – commercial off the shelf (COTS) software or internally developed software. The policy does not specifically address the hybrid nature of the ERA 2.0 program which is a combination of internal software and the outsourcing of programming and development functions to external contractors.

Section 55.3 of OMB Circular A-11 *Preparation, Submission, and Execution of the Budget* states "For each major IT investment, agencies are required to provide OMB with a supporting business case analysis. That business case analysis must document, at a minimum: Project-level planned, projected, and actual costs, as well as start and end dates of projected life-cycle costs, including development, modernization, and enhancement costs, as well as operations and maintenance costs (Note: Activity-level cost and schedule reporting is no longer required);"

Revised OMB Circular A-130, *Managing Information as a Strategic Resource*, in Section 5, paragraph 5a. *Planning and Budgeting*, and in Section 3, paragraph 3c *Planning, Programming, and Budgeting* states "The agency head, in consultation with the [Chief Financial Officer] CFO, [Chief Acquisition Officer] CAO, [Chief Information Officer] CIO, and program leadership, shall define the processes by which program leadership works with the CIO to plan an overall portfolio of IT resources that achieve program and business objectives efficiently and effectively by:" and then in Subsection ii further states "Identifying gaps between planned and actual cost, schedule, and performance goals for IT investments and developing a corrective action plan to close such gaps;"

Without the development and maintenance of a PRB, the ability and effectiveness of the project team to assess and manage risk and evaluate the cost impact of events such as schedule delays or scope changes on the overall ERA 2.0 program is hindered. Specifically, the project team has no benchmark against which they can measure performance.

The lack of a PRB also hindered NARA financial management's ability to quantify internal costs during the software development stage and to evaluate whether they were material for capitalization.

Recommendation 5:

We recommend NARA's Information Services, for ERA 2.0 and future system development projects, require the development of a program baseline budget that encompasses costs and schedule, and the measurement of performance against this budget. In addition, risks related to cost, schedule, and scope should be identified, documented, and measured on an on-going basis. Assumptions and constraints should also be identified, documented, and analyzed for cost impact.

Recommendation 6:

We recommend NARA's Office of the Chief Financial Officer finalize *Interim Guidance 400-5, Capitalization Policy for NARA Assets* on capitalization of costs for Software Development Projects and enhance to address the scenario where programming and development for internal software is outsourced to external contractors. This should include the types of costs to be capitalized, materiality, and documentation requirements.

APPENDIX I - BACKGROUND

Overview

NARA is an independent agency within the executive branch of the federal government responsible for preserving, protecting, and providing access to the records of our government. NARA has a facility located in College Park, MD, other facilities in the Washington, DC area, regional archives and/or Federal record centers, and various Presidential Libraries around the country.

NARA drives openness, cultivates public participation, and strengthens our nation's democracy through equitable public access to high-value government records. NARA's mission is to provide equitable public access to federal government records in our custody and control. Equitable access to government records strengthens democracy by allowing all Americans of all backgrounds to claim their rights of citizenship, hold their government accountable, and understand their history so they can participate more effectively in their government.

Electronic Records Archives 2.0

Electronic records are the future of government archiving, and NARA must become a world leader in preserving, storing, and presenting electronic records to meet its mission. NARA's plan to address this is the ERA system, which was initially billed as a solution for storing files in any format for indefinite future access. Further, stakeholders expect capabilities, such as online access and searching, that drive openness and cultivate public participation.

ERA also impacts other NARA programs. For example, the physical media that electronic and audiovisual records are stored on age and degrade every day. As computer programs become obsolete, records stored in those formats may become impossible to use. NARA cannot provide access to records unless it can preserve them for as long as needed. ERA was initially envisioned to address these preservation issues, but currently does not provide a complete solution.

Since 2008, NARA has been using the systems of their ERA program to take in and store all types of electronic records from the White House, Congress, and agencies across the Federal government. Since 2012, NARA has required all Federal agencies to use ERA to submit records schedules to NARA for approval by the Archivist. Additionally, ERA manages the transfer of all permanent records, in all formats and media, transferred to NARA through the Annual Move¹⁰ or by direct offer.

ERA 2.0 is a modernization of the existing system with updated functionality, modular design, and cloud-based architecture. ERA 2.0 will ultimately provide end-to-end lifecycle coverage for electronic records, from scheduling, obtaining approvals for transfers, uploading into the system by a producing Federal agency, processing of uploaded records, preservation of the records, to finally, production of access versions for the National Archives Catalog. As part of these efforts, the ERA 1.0 legacy components including ERA Base, Census, Congressional Records Instance

¹⁰ The Annual Move is NARA's process for transferring legal and physical custody of permanent records from agencies stored at the Federal Records Centers (FRCs) to NARA archival custodial units across the nation. It is a uniquely cross-functional activity that supports NARA's core mission of preserving the permanently valuable records of the Federal government.

**NATIONAL ARCHIVES AND RECORDS ADMINISTRATION
ELECTRONIC RECORDS ARCHIVES 2.0 AUDIT**

(CRI) and AAD are being decommissioned, other legacy systems are being integrated and subsumed into ERA 2.0, and future instances related to Classified and Executive Office of the President (EOP) records are being planned. Given the modular nature and incremental development needed for ERA 2.0, NARA determined that the agile or iterative system development approach was preferable. This approach facilitates the delivery of enhanced or new functionality to users on a more frequent basis.

The ERA 2.0 system consists of three major components – DOR, the DPE, and forms/workflows to support the scheduling of Federal records as well as the transfer of permanent Federal records into NARA's custody.

APPENDIX II - OBJECTIVE, SCOPE, AND METHODOLOGY

Objective

The objective of this audit was to assess the effectiveness of NARA's progress in implementing ERA 2.0 in order to accept, process, store, preserve, search, and provide access to records.

Scope

We conducted this performance audit 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.

The audit scope included an evaluation of NARA's current capabilities, progress and plans for ERA 2.0 to address required and expected technical, security and functional capabilities; an evaluation of NARAs preparedness to accept electronic records; and to determine whether timelines and budget expectations are on track to meet project requirements.

We also considered internal controls that were significant and relevant to our audit objective and determined the following Green Book principles¹¹ applied:

- Define objectives clearly to enable the identification of risks and define risk tolerances;
- Identify, analyze, and respond to risks related to achieving the defined objectives;
- Design control activities to achieve objectives and respond to risks; and
- Design the entity's information system and related control activities to achieve objectives and respond to risks.

Audit fieldwork covered NARA's Archives II located in College Park, MD, from September 29, 2022, to June 9, 2023.

Methodology

To evaluate NARA's progress in implementing ERA 2.0 in order to accept, process, store, preserve, search, and provide access to records, we performed the following actions:

- Assessed NARA's current status of the ERA 2.0 deployment, including what was completed and what remained to be completed.

¹¹ See principles 6, 7, 10 and 11 in the Green Book.

NATIONAL ARCHIVES AND RECORDS ADMINISTRATION ELECTRONIC RECORDS ARCHIVES 2.0 AUDIT

- Examined prior audit reports related to ERA to obtain an understanding of some inherent risks previously identified related to this system implementation, such as recommendations 4 and 8 from 19-AUD-10: *Audit of NARA's Oversight of Electronic Records Management in the Federal Government*,¹² recommendations 1 and 2 from 13-11: *Audit of the Base ERA System's Ability to Ingest Records*,¹³ and recommendation 6 from 18-AUD-06: *Audit of NARA's Legacy Systems*.¹⁴
- Assessed whether access to ERA 2.0 was adequately granted, approved, and managed.
- Tested obligations and expenditures to determine whether in alignment with budgeted amounts, were adequately controlled and managed in accordance with capital planning and investment control processes, and supported by vendor contracts.
- Mapped contracts on a test basis, to project and tailoring plans and contract deliverables.
- Assessed whether during the ERA 2.0 acquisition, security requirements were required and defined.
- Tested to determine whether Agile software development for ERA 2.0 followed Federal government best practices such as described within the GAO Agile Assessment Guide.
- Assessed whether the system development and deployment of ERA 2.0 was on schedule and agency adoption was on schedule.

In addition, we used applicable NARA policies and federal criteria to guide our work in support of the audit. The policies and criteria included, but were not limited to, the following:

- Federal Records Act (44 U.S.C. Chapters 29-33).
- 36 CFR Chapter XII, Subchapter B, Parts 1235-1237.
- OMB Memorandum M-19-21, *Transition to Electronic Records*, dated June 28, 2019.
- OMB Memorandum M-23-07, *Update to Transition to Electronic Records*, dated December 23, 2022.
- Federal Acquisition Regulations 52.234-4.
- NIST SP 800-160, Volume 1, Revision 1, *Engineering Trustworthy Secure System*.
- NIST SP 800-53 Revision 5, September 2020 (Updated 12/10/2020), *Security and Privacy Controls for Information Systems and Organizations*.
- NIST SP 800-53A, Revision 5, *Assessing Security and Privacy Controls in Information Systems and Organizations*.

¹² <https://www.archives.gov/files/oig/reports/audit-report-19-aud-10.pdf>

¹³ <https://www.archives.gov/files/oig/pdf/2013/audit-report-13-11.pdf>

¹⁴ <https://www.archives.gov/files/audit-of-naras-legacy-systems-oig-report-no-18-aud-06.pdf>

**NATIONAL ARCHIVES AND RECORDS ADMINISTRATION
ELECTRONIC RECORDS ARCHIVES 2.0 AUDIT**

- NIST Special Publication 800-53B, Revision 5, *Control Baselines for Information Systems and Organizations*.
- GAO *Government Auditing Standards*, April 2021.
- GAO *Standards for Internal Control in the Federal Government*, September 2014.
- GAO's *Agile Assessment Guide – Best Practices for Agile Adoption and Implementation* GAO-20-590G, September 2020.
- OMB Circular A-130, *Managing Information as a Strategic Resource*.
- OMB Circular A-11, *Preparation, Submission, and Execution of the Budget*.
- NARA Bulletins 2014-04, 2015-04, 2018-01, and 2020-01 at <https://www.archives.gov/records-mgmt/bulletins>.
- NARA *System Development Life Cycle Methodology*.
- NARA 101, *NARA Organization and Delegation of Authority*.
- NARA Interim Guidance 400-5, *Capitalization Policy for NARA Assets*.
- NARA 801, *Capital Planning and Investment Control*.
- The Project Management Institute's *The Standard for Project Management and A Guide to the Project Management Body of Knowledge*.

In testing the effectiveness of internal controls, we exercised professional judgment in determining the number of items we selected for testing, the period covered, and the method we used to select them. We considered relative risk and the significance or criticality of the specific items in achieving the related control objectives. In addition, we considered the severity of a deficiency related to the control activity (not the percentage of deficient items found compared to the total population available for review). In some cases, this resulted in selecting the entire population. However, in cases where we did not select the entire audit population, the results cannot be projected and, if projected, may be misleading.

APPENDIX III – AGENCY COMMENTS

Agency management reviewed the draft audit report and provided no comments to this report. Agency management stated their general agreement with the report and opted not to provide formal comments for inclusion in this report.

NATIONAL ARCHIVES AND RECORDS ADMINISTRATION
ELECTRONIC RECORDS ARCHIVES 2.0 AUDIT

APPENDIX IV – REPORT DISTRIBUTION LIST

Archivist of the United States

Deputy Archivist of the United States

Executive Secretariat

Chief of Management and Administration

Chief Information Officer

Deputy Chief Information Officer

Chief Financial Officer

Acting Chief Acquisition Officer

Director, Electronic Records Program

Chief of Staff, Information Services

Accountability

United States Senate Homeland Security and Governmental Affairs Committee

United States House Committee on Oversight and Reform

**NATIONAL ARCHIVES AND RECORDS ADMINISTRATION
ELECTRONIC RECORDS ARCHIVES 2.0 AUDIT**

OIG Hotline

The OIG Hotline provides a confidential channel for reporting fraud, waste, abuse, and mismanagement to the OIG. In addition to receiving telephone calls at a toll-free Hotline number and letters to the Hotline post office box, we also accept emails through an online referral form. Walk-ins are always welcome. Visit www.archives.gov/oig/ for more information, or contact us:

By telephone

Washington, DC, Metro area: 301- 837-3500

Toll-free: 800-786-2551

By mail

NARA OIG Hotline

P.O. Box 1821

Hyattsville, MD 20788-0821

By facsimile

301-837-3197

By online referral form

www.archives.gov/oig/referral-form/index.html

Contractor Self-Reporting Hotline

As required by the Federal Acquisition Regulation, a web-based form allows NARA contractors to notify the OIG, in writing, whenever the contractor has credible evidence a principal, employee, agent, or subcontractor of the contractor has committed a violation of the civil False Claims Act or a violation of Federal criminal law involving fraud, conflict of interest, bribery, or gratuity violations in connection with the award, performance, or closeout of a contract or any related subcontract. The form can be accessed through the OIG's home page or found directly at www.archives.gov/oig/contractor-form/index.html.