



NATIONAL
ARCHIVES

OFFICE *of*
INSPECTOR GENERAL

Date : July 15, 2011

Reply to

Attn of : Office of Inspector General (OIG)

Subject : Advisory Report No. 11-16, Implementation Status of the Electronic Records Archives System Requirements

To : David S. Ferriero, Archivist of the United States

As part of our ongoing effort, to provide audit coverage to the National Archives and Records Administration's (NARA's) Electronic Records Archives (ERA) program, we reviewed the status of ERA system requirements. We found that, of the 853 system requirements contained in the original ERA Requirements Document, 494 of them will either (a) not be satisfied at all, or (b) will not be implemented until after the system development phase ends on September 30, 2011.¹ Many of these requirements represent significant system components such as record descriptions, access restrictions, and redaction of assets. As a result, after six years of development and over \$378 million spent, the ERA will only remotely represent the system NARA originally envisioned. This will have an adverse impact both upon NARA programs and operations, and upon stakeholders attempting to access Federal records.

A system's requirements describe the functionality needed to meet user needs and helps ensure the system developed performs as intended in the operating environment. They should be clearly defined and managed throughout system development in a disciplined way. Two system requirement documents were developed, one in October 2005 and an updated one in July 2010. The ERA Requirements Document, an accumulation of system's requirements, originally identified 853 requirements in 33 different functional areas as noted in Table 1 on the next page.

¹ In August 2010, the Office of Management and Budget (OMB) placed the ERA Program on its high-priority list which is comprised of 26 high-risk IT projects selected from across the federal government. OMB also directed NARA to end system development on September 30, 2011. System development had been planned to extend through March 2012.

Table 1: Original ERA Functional Areas

Req. Category Number	ERA Functional Areas	No. of Original Req.	No. of Original Req. No Longer in Current Dev. Phase	Percentage of Original Req. No Longer in Current Dev. Phase
ERA1	The system shall manage the disposition of records.	99	56	57%
ERA2	The system shall provide workflow management.	49	5	10%
ERA3	The system shall provide the capability for descriptions.	42	41	98%
ERA4	The system shall manage authority sources.	13	13	100%
ERA5	The system shall provide the capability to manage lifecycle data.	9	4	44%
ERA6	The system shall provide capabilities for sample records.	10	10	100%
ERA7	The system shall provide the capability to manage templates.	39	17	44%
ERA8	The system shall provide capabilities for preserving electronic records.	57	18	32%
ERA9	The system shall provide the capability for arrangements of electronic records.	21	16	76%
ERA10	The system shall store assets.	17	9	53%
ERA11	The system shall provide automated media handling.	4	4	100%
ERA12	The system shall provide media management.	12	12	100%
ERA13	The system shall manage security for electronic records.	39	23	59%
ERA14	The system shall provide security for itself.	29	2	7%
ERA15	The system shall accept all types of electronic records.	7	1	14%
ERA16	The system shall provide the capability to transfer electronic records to ERA.	20	7	35%
ERA17	The system shall provide the capability for access review of the assets it contains.	30	30	100%
ERA18	The system shall provide the capability for redaction of the assets it contains.	20	20	100%
ERA19	The system shall provide the capability to search the assets it contains.	80	40	50%
ERA20	The system shall provide access to the assets it contains.	33	21	64%
ERA21	The system shall provide a user interface.	15	8	53%
ERA22	The system shall provide the capability for user registration.	26	12	46%
ERA23	The system shall provide user assistance.	15	3	20%
ERA24	The system shall provide the capability for communications with users.	29	20	69%
ERA25	The system shall maintain an event log.	13	13	100%
ERA26	The system shall provide reporting capability.	24	17	71%
ERA27	The system shall provide systems administration capabilities.	32	20	63%
ERA28	The system shall provide logistics management capabilities.	18	12	67%
ERA29	The system shall manage user subscriptions to services.	18	18	100%
ERA30	The system shall provide service management.	23	12	52%
ERA31	The system shall meet or exceed specified performance requirements.	5	5	100%
ERA32	The system shall meet or exceed specified availability requirements.	3	3	100%
ERA33	The system shall be designed in the context of NARA's Enterprise Architecture.	2	2	100%
	Total Original Requirements	853	494	58%*

*Note: 58% represents the percentage of original requirements that are no longer in the current development phase.

The ERA contract states the ERA System must support NARA’s end-to-end archival processes for appraisal and scheduling, transfer, accessioning, description, maintenance, and access to records. However, as noted in Table 1, 494 (58 percent) of the original requirements are no longer planned to be included in the system by the end of the development phase on September 30, 2011. The ERA fiscal year (FY) 2010 Expenditure Plan states that, as technical challenges have been encountered during the development of the system, there has been a tendency to reinterpret some of the requirements stated in the original ERA Requirements Document. The Requirements Document itself has remained the same, as has the scope of the system. A system designed and built without clear understanding of the Requirements Document, and strict adherence to its intent, may not meet NARA’s needs and user expectations. Further, ERA’s FY 2011 Expenditure Plan states the ERA must be built in strict conformance to both the letter and/or intent of the Requirements Document, to ensure the level of flexibility and scalability intended for the system. The concerns raised in the previous Expenditure Plans regarding the systems requirements are now becoming a reality with less than three months to go in the development phase. In our opinion, the ERA will not meet user expectations and will lack the flexibility and scalability that was originally intended.

To illustrate, one-third (11 of 33) of the ERA functional areas have had all of the original requirements associated with these areas removed, or deferred to post-Increment 5² (see Table 2 below).

Table 2

ERA Functions Having No Original ERA Requirements Included in the Current Development Phase
1. The system shall manage authority sources.
2. The system shall provide capabilities for sample records.
3. The system shall provide automated media handling.
4. The system shall provide media management.
5. The system shall provide the capability for access review of the assets it contains.
6. The system shall provide the capability for redaction of the assets it contains.
7. The system shall maintain an event log.
8. The system shall manage user subscriptions to services.
9. The system shall meet or exceed specified performance requirements.
10. The system shall meet or exceed specified availability requirements.
11. The system shall be designed in the context of NARA’s Enterprise Architecture.

² The ERA System is being developed in five increments. See Attachment A for a description of the increments.

In addition, 36 requirements related to the capability of providing descriptions of the records are now allocated to the Archival Research Catalog (ARC) Description Tool, which is part of the ARC System. ARC is a legacy system that according to ERA's 2007 Exhibit 300, Capital Asset Plan and Business Case Summary³, was planned to be retired in September 2010. However, ARC is currently being enhanced and a contract valued at over \$7.9 million was issued in September 2010 for the development and support of the ARC Authority and Description Tools.

Other ERA requirements related to the following areas have also been removed or deferred:

Other ERA Requirements Removed or Deferred
Access review of the assets (determining what records or parts of records have access restrictions)
Redaction of the assets
Management of Freedom of Information Act (FOIA) requests
Capabilities for appraisals (the process of determining the value and thus the disposition of records)
Disposition of records (manage when records get destroyed)
Log all system events (audit trails)
No single point of failure (having redundancy so that if part of the system fails, it will not stop the entire system from working)
System administration capabilities such as providing tools for system level testing; providing consolidated application error logging; balancing system loads; and monitoring the performance of all its storage systems

Senior NARA officials stated that by removing/deferring these system requirements, many of the functions the ERA was to have automated will now have to continue to be performed in a labor intensive, time consuming, and less efficient manner. They added that until the functionality is implemented into ERA or another system, they would continue to perform their jobs the same way, while also looking at more robust alternatives or interim solutions. They also acknowledged there will be additional costs associated with implementing these requirements in the future.

During the summer of 2010, NARA officials revised the Requirements Document, decomposing the 853 original requirements to a level such that each requirement could only be allocated to one increment. This action resulted in a revised set of 1,577 requirements that were (a) allocated to Increments 1 through 5, (b) deferred to post-Increment 5, or (c) removed from the scope of the ERA program.

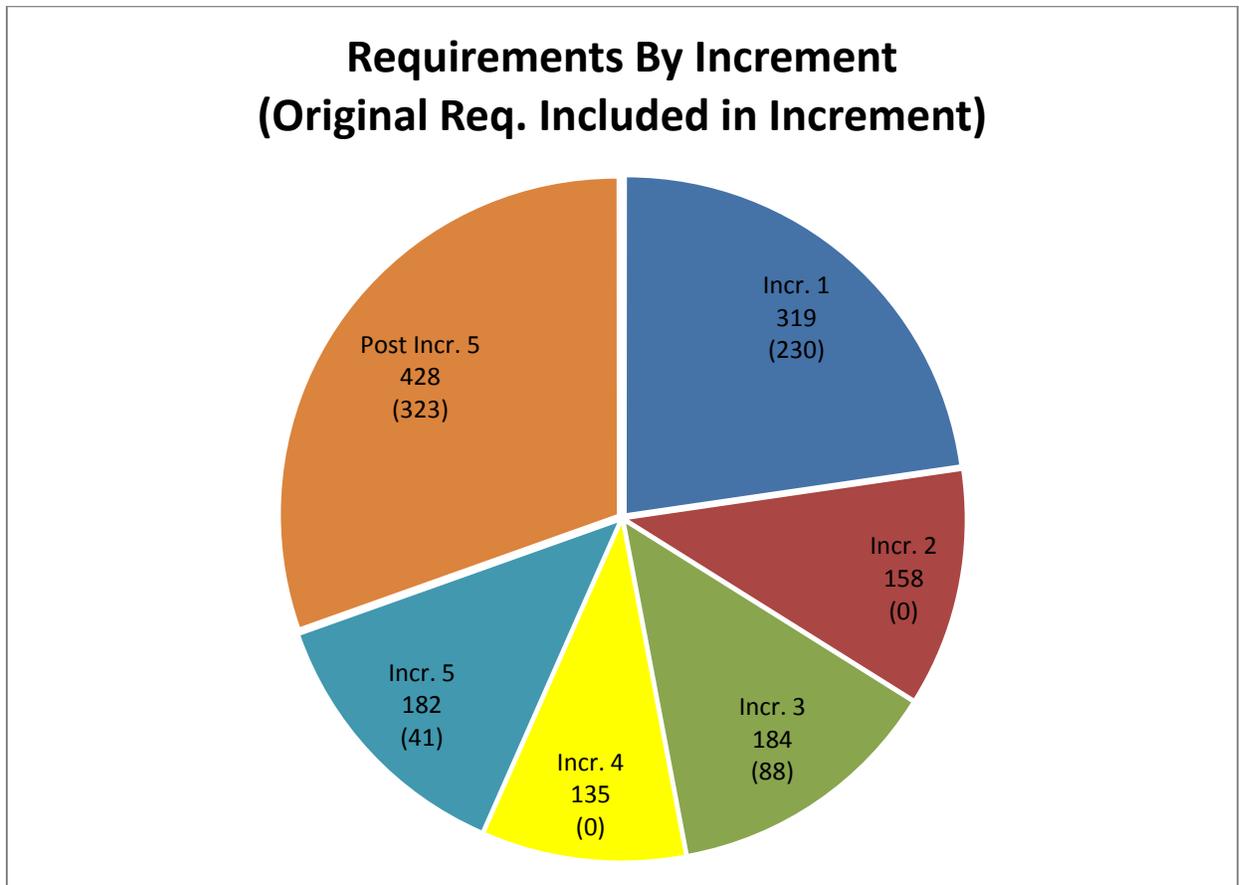
³ Agencies develop an Exhibit 300 to justify each request for a major information technology investment.

Breakdown of ERA Requirements after Decomposition

853	Original Requirements
+724	New Decomposed Requirements
1577	Total Requirements After Decomposition
-171	Original Requirements Removed From ERA**
1406	Total Functional Requirements***

**Requirements were removed due to: no longer being valid because of NARA’s business processes or ERA’s implementation approach (81), being allocated to another system or group (57), and being structural (i.e., headings for requirement groupings, not functional requirements) (33).

***The Total Functional Requirements includes 323 original requirements that are being deferred to Post Increment 5 and are no longer part of the current development phase.



The first number in each increment section of the chart above shows the functional requirements designated for that increment while the numbers in parentheses () shows the original requirements assigned to each increment.

The Requirements Document, which is maintained throughout a system's development, should be updated when changes occur in business processes, user priorities, and budgets according to generally accepted system development life cycle principles. Because NARA officials waited so late in the development phase to revise the Requirements Document, it may be too late to achieve any substantial benefits from this exercise.

At the end of the current system development phase on September 30, 2011, with 58 percent of the original ERA requirements having been removed or deferred, the ERA will only remotely represent the system that was originally envisioned. After six years of development and over \$378 million spent, NARA will get an ERA with much-reduced functionality, with less than half of the original requirements having been achieved. Management officials have represented that a number of original requirements were no longer required based upon factors such as technological changes that evolved since program inception or efficiencies identified by the contractor Lockheed Martin Corporation. While the OIG does not take issue with the applicability of this statement to certain requirements, we note that many of the more critical requirements that have been deferred or removed do not fall within this definition or interpretation. For example, requirements related to appraisal capabilities which are the process of determining the value and thus the disposition of records.

The ERA System represents the largest information technology project ever undertaken by NARA. Because of the importance of the ERA to NARA's future, the OIG has dedicated resources to provide program oversight. This report represents our ongoing efforts in this regard. In a previous report, "OIG Monitoring of the Electronic Records Archives Program Status," dated January 6, 2009, we reported that, because of funding and other issues, it was likely that the ERA would not achieve Full Operating Capability as originally envisioned, i.e., the ERA will not have all the desired functionality when the development contract with the Lockheed Martin Corporation ends. Subsequently, in an April 16, 2009, report, "OIG Monitoring of the Electronic Records Archives Program Status," we raised concerns that additional funding would be needed to complete the program due to the shifting of critical ERA requirements to later increments even though the development contractor was reporting favorable contract cost and schedule performance.

Our review effort consisted primarily of reviewing applicable ERA documentation such as the ERA Requirements Document; ERA Exhibit 300 (Capital Asset Plan and Business Case Summary); ERA Expenditure Plan; ERA Business Case Analysis; and interviews with responsible ERA Program Office officials. 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.

If you have any questions concerning the information presented in this Advisory Report, or there are other areas of the ERA Program that you would like for us to review, please do not hesitate to contact me.



Paul Brachfeld
Inspector General

cc: NH (M. Wash)

Description of the ERA Increments

Increment 1: established the ERA Base System including the hardware, software, and communications to deploy the system. The base system provides the ability to preserve electronic data in its original format; enable disposition agreements and scheduling; and receive unclassified and sensitive data from agencies.

Increment 2: established the EOP System which is designed to handle records from the Executive Office of the President.

Increment 3: provided storage and access capabilities for electronic records of the Congress, tools for the public to search and access electronic records, and upgrades to the base system.

Increment 4: was a short duration set of tasks (3 months) that dealt with early requirements work for expected Increment 5 business functions.

Increment 5: is expected to include instances for classified and Census data.