SOCIAL SECURITY

Date: May 13, 2010   Refer To:

To: The Commissioner

From: Inspector General

Subject: Conversion of the Social Security Administration's Legacy File Management System
(A-14-09-19097)

The attached report presents the results of our audit. Our objectives were to
(1) evaluate the effectiveness and efficiency of the Social Security Administration's
conversion of its Master Data Access Method file management system to the DB2 Data
Base Management System and (2) provide insights as to best practices and lessons
learned for future systems conversions.

Please provide within 60 days a corrective action plan that addresses each
recommendation. If you wish to discuss the final report, please call me or have your
staff contact Steven L. Schaeffer, Assistant Inspector General for Audit, at
(410) 965-9700.

Patrick P. O'Carroll, Jr.

Attachment

OFFICE OF
THE INSPECTOR GENERAL

SOCIAL SECURITY ADMINISTRATION

CONVERSION OF THE SOCIAL SECURITY ADMINISTRATION'S LEGACY FILE MANAGEMENT SYSTEM

May 2010   **A-14-09-19097**

AUDIT REPORT

Mission

By conducting independent and objective audits, evaluations and investigations, we inspire public confidence in the integrity and security of SSA's programs and operations and protect them against fraud, waste and abuse. We provide timely, useful and reliable information and advice to Administration officials, Congress and the public.

Authority

The Inspector General Act created independent audit and investigative units, called the Office of Inspector General (OIG). The mission of the OIG, as spelled out in the Act, is to:

- Conduct and supervise independent and objective audits and investigations relating to agency programs and operations.
- Promote economy, effectiveness, and efficiency within the agency.
- Prevent and detect fraud, waste, and abuse in agency programs and operations.
- Review and make recommendations regarding existing and proposed legislation and regulations relating to agency programs and operations.
- Keep the agency head and the Congress fully and currently informed of problems in agency programs and operations.

To ensure objectivity, the IG Act empowers the IG with:

- Independence to determine what reviews to perform.
- Access to all information necessary for the reviews.
- Authority to publish findings and recommendations based on the reviews.

Vision

We strive for continual improvement in SSA's programs, operations and management by proactively seeking new ways to prevent and deter fraud, waste and abuse. We commit to integrity and excellence by supporting an environment that provides a valuable public service while encouraging employee development and retention and fostering diversity and innovation.

OBJECTIVE

Our objectives were to (1) evaluate the effectiveness and efficiency of the Social Security Administration's (SSA) conversion of its Master Data Access Method (MADAM)[1] file management system to the DB2 Data Base Management System (DBMS)[2] and (2) provide insights as to best practices and lessons learned for future systems conversions.

BACKGROUND

MADAM was developed in the early 1980s to support the storage and retrieval of SSA's major program Master Files. MADAM was written in a programming language[3] that is no longer widely used, which, when combined with the system's complexity, makes it difficult to train or recruit new programmers. Furthermore, with the increasing number of retirements among SSA's Systems personnel, there will be fewer individuals who can maintain MADAM.

Should MADAM not operate properly, it would be difficult for SSA to process the vast amount of data needed to fulfill its mission. As such, the conversion of MADAM to another DBMS is central to SSA's processing and should be managed as a major information technology (IT) investment.[4]

SSA chose to replace its MADAM file management system with DB2, a commercial DBMS that can be accessed by industry standard language. The MADAM to DB2 Conversion Project (Project) consists of three sequential phases.

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[1] MADAM is a computer system that accesses and manages SSA's major databases, known as Master Files: Master Beneficiary Record (MBR), Supplemental Security Record (SSR), Master Earnings File (MEF), and Numident/Alphident. These Files contain information used by Social Security programs, such as Retirement, Survivors, and Disability Insurance benefits administered by SSA. See Appendix C for more detailed information on SSA's Master Files.

[2] DB2 is one of a family of International Business Machines' (IBM) DBMSs. A DBMS is a set of computer programs that control the creation, maintenance, and use of a database.

[3] MADAM was written in IBM Assembler Language. Assembler is a programming language that uses symbols to represent operation codes and storage locations.

[4] Office of Management and Budget (OMB) Circular A–11, *Preparation, Submission and Execution of the Budget*, Part 7, Section 300, *Planning, Budgeting, Acquisition, and Management of Capital Assets,* page 4, states a "Major investment means a system or acquisition requiring special management attention because of its importance to the mission or function of the agency, a component of the agency, or another organization; is for financial management and obligates more than $500,000 annually; has significant program or policy implications; has high executive visibility; has high development, operating, or maintenance costs; is funded through other than direct appropriations; or is defined as major by the agency's capital planning and investment control process."

- **Phase I**: Conversion of four MADAM data files (MBR, SSR, MEF, and Numident/Alphident)[5] to a DB2 relational database.
- **Phase II**: Modification of the application programs to eliminate MADAM Interface.[6]
- **Phase III**: Modification of application programs to directly access the DB2 database.

SSA is in Phase I of the conversion and has completed two of the four conversions of the MADAM data files to DB2.

RESULTS OF REVIEW

The Project team worked with various stakeholders to implement the Project and resolved various issues encountered during the process. To date, SSA has successfully completed Phase I for the Numident/Alphident and MEF. Although the Project team performed well, we found the following.

- SSA should discuss with OMB the need to classify the Project as a major IT investment.
- SSA lacked a long-term, comprehensive strategic Project plan.
- The Project methodology resulted in a less than optimal design.
- SSA did not consider other alternatives for replacing MADAM.
- SSA needed to improve certain project management practices.

CONCLUSION AND RECOMMENDATIONS

We found that SSA had effectively implemented the Project to replace MADAM; however, the Project implementation strategy was not efficient because the strategy resulted in less than optimal database design.

Based on our review, we recommend SSA:

1. Discuss with OMB the need to classify the Project as a major IT investment.

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[5] See Appendix C for more detailed information on SSA's Master Files.

[6] The MADAM Interface directs data requests to the correct databases for processing during Phase I so SSA can keep the application program changes to a minimum. See Appendix D for the function of the MADAM Interface.

2. Establish a long-term, comprehensive strategic plan for the Project and related major IT initiatives. For the Project, SSA should establish and document a program plan to cover the full scope of the Project. The program plan should include estimated costs for all resources, a schedule for all tasks, and performance goals for the whole lifecycle of the project.

3. Ensure an Alternatives Analysis is performed for each future major IT investment.

4. Continue with its conversion, but also assess the remaining portions of the Project to determine the full scope and costs of the current MADAM conversion to DB2 strategy and document the advantages and disadvantages for delaying the application rewrite efforts and the impact on total project costs.

5. Ensure compliance with OMB and SSA project management requirements.

AGENCY COMMENTS

SSA agreed with Recommendations 1, 3 and 5, and partially agreed with Recommendations 2 and 4. The full text of SSA's comments is included in Appendix E.

OIG RESPONSE

Regarding SSA's partial agreement with Recommendations 2 and 4, we appreciate the Agency's comments but continue to believe strongly that a long-term, comprehensive strategic plan should have been established for the Project and any other related major IT initiatives. We also continue to believe SSA should assess the remaining portions of the Project as discussed in this report.

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OBJECTIVE

Our objectives were to (1) evaluate the effectiveness and efficiency of the Social Security Administration's (SSA) conversion of its Master Data Access Method[1] (MADAM) file management system to the DB2 Data Base Management System (DBMS) [2] and (2) provide insights as to best practices and lessons learned for future systems conversions.

BACKGROUND

MADAM was developed in the 1980s to support the storage and retrieval of SSA's major program Master Files.[3] These data files touch the lives of every American from birth to death. SSA also stores hundreds of millions of medical records, making it the largest repository of such records in the world. These records and the applications that use them are not merely "mission critical," they are truly "citizen critical."

MADAM was written in a programming language[4] that is no longer widely used, which combined with MADAM's complexity, makes it difficult to train or recruit new programmers. Furthermore, with the increasing retirement of SSA's Systems personnel, there are fewer individuals who can maintain MADAM. Because MADAM was written in a programming language closely tied to the operating system,[5] any changes to the operating system have to be tested to determine their impact on MADAM. There is a concern that future operating system changes may render MADAM unusable, and the technical knowledge and skills needed to timely remedy the situation may not be available. Consequently, future operating system changes could jeopardize SSA's ability to maintain MADAM and lead to prolonged outages.

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[1] MADAM is a computer system that accesses and manages SSA's major databases, known as Master Files: Master Beneficiary Record (MBR), Supplemental Security Record (SSR), Master Earnings File (MEF), and Numident/Alphident. These files contain information used by Social Security programs such as Retirement, Survivors, and Disability Insurance benefits administered by SSA. See Appendix C for more detailed information on SSA's Master Files.

[2] DB2 is one of a family of International Business Machines' (IBM) DBMS. A DBMS is a set of computer programs that control the database's creation, maintenance, and use.

[3] See Footnote 1.

[4] MADAM was written in IBM Assembler Language. Assembler is a programming language that uses symbols to represent operation codes and storage locations.

[5] Operating systems are the interface between hardware and user. An operating system is responsible for managing and coordinating activities as well as sharing the computer's resources. A DBMS accepts and instructs the operating system to transfer the data requested by other programs.

Should MADAM not operate properly, it will be difficult for SSA to process the vast amount of data needed to fulfill its mission. As such, conversion of MADAM to another DBMS is central to SSA's operations.

The conversion project changes the way SSA stores its data. This conversion is independent from SSA's planned conversion of its application programs[6] from Common Business Oriented Language (COBOL) to another programming language.[7]

Besides the need for SSA to replace MADAM to resolve the risks of system maintenance, conversion to an industry-standard and modern DBMS will provide SSA the ability to perform on-line updates to Master File data. It will also give the Agency the flexibility to use commercially available software to develop Web-based solutions to meet current and future technology needs.

MADAM Replacement Project Phases

SSA chose to replace MADAM with DB2, an industry-standard, modern DBMS. The MADAM to DB2 Conversion project (Project) consists of three sequential phases.

- **Phase I**: Conversion of MADAM data files to a DB2 relational database.
- **Phase II**: Modification of the application programs to eliminate MADAM Interface.[8]
- **Phase III**: Modification of application programs to directly access the DB2 database.

Phase I includes the conversion of four Master Files:[9] MBR, SSR, MEF, and Numident/Alphident, each estimated to take 2 years. During this Phase, SSA's strategy is to keep the modifications to its application programs that use MADAM data to a minimum. SSA started Phase I on the Numident/Alphident, in October 2005. To date, SSA has met its project milestones and completed conversion of the Numident/Alphident and MEF. After the completion of the MEF conversion, the SSR and MBR will be converted, with the expected Phase I completion date at the end of Fiscal Year 2013. At this stage, MADAM will be retired, and DB2 will become the management system for SSA's Master Files.

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[6] Application programs are a subclass of computer software that employs the capabilities of a computer directly and thoroughly to a task that the user wishes to perform. Some examples of SSA's application programs are the *Retirement, Survivors and Disability Insurance Accounting System*, *Title II System,* and *Supplemental Security Income Record Maintenance System.*

[7] COBOL is a programming language developed in the late 1950s for business applications.

[8] The MADAM Interface directs data requests to the correct databases for processing during Phase I so SSA can keep the application program changes to a minimum. See Appendix D for the function of the MADAM Interface.

[9] See Appendix C for more detailed information on SSA's Master Files.

Phases II and III, which will involve major rewrites of application programs, are necessary to convert applications that support SSA's programs[10] to a DB2-based environment. Many of these application programs were written in COBOL. However, SSA has not developed plans for these two Phases. See Appendix D for more details related to the Project.

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[10] These programs include Old-Age, Survivors and Disability Insurance and Supplemental Security Income.

We found that SSA had effectively implemented the Project to replace MADAM. However, the Project implementation strategy was not efficient because it resulted in less than optimal database design.

SSA worked with stakeholders to successfully complete Phase I for the Numident/Alphident and MEF, and resolved various issues encountered during the process. Amid this success, we found the following.

- SSA should discuss with OMB the need to classify the Project as a major Information Technology (IT) investment.

- SSA lacked a long-term, comprehensive strategic Project plan.

- The DB2 conversion methodology may result in a less than optimal design.

- SSA did not consider other alternatives for replacing MADAM.

- SSA needed to improve certain project management practices.

SSA SHOULD DISCUSS WITH OMB THE NEED TO CLASSIFY THE PROJECT AS A MAJOR IT INVESTMENT

The Office of Management and Budget (OMB) requires that agencies demonstrate sound project management for all major investments.[11] This Project meets OMB's definition of a major investment due in part to its importance to the mission or function of the Agency.[12] The Project ensures the continued availability of the Agency's major data files and therefore is critical to SSA's mission and function. The Project is also a high-risk project because delay or failure will impose unacceptable risk on SSA. SSA should have identified and managed the Project as a major IT investment.[13]

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[11] Project Management requirements are documented in OMB Circular A–11, *Preparation, Submission and Execution of the Budget*, Part 7, Section 300, *Planning, Budgeting, Acquisition, and Management of Capital Assets*, and OMB, Capital Programming Guide, V.2.0, June 2006, Supplement to OMB Circular A-11, Part 7.

[12] OMB guidance states, a "*Major investment* means a system or acquisition requiring special management attention because of its importance to the mission or function of the agency, a component of the agency, or another organization; is for financial management and obligates more than $500,000 annually; has significant program or policy implications; has high executive visibility; has high development, operating, or maintenance costs; is funded through other than direct appropriations; or is defined as major by the agency's capital planning and investment control process." OMB Circular A–11, Part 7, section 300, supra at page 4.

[13] Throughout OMB Circular A–11, *Preparation, Submission and Execution of the Budget*, Part 7, Section 300, *Planning, Budgeting, Acquisition, and Management of Capital Assets,* investment and project are interchangeable.

The Master Files are at the core of SSA's operations and, as such, are considered SSA's equivalent of "corporate jewels." SSA has been concerned about continued maintenance of MADAM because of the difficulties with obtaining and keeping programmers with specialized knowledge and skills. The Project is a major IT investment that requires a higher level of involvement from both top SSA management and OMB to ensure timely and proper resource allocation decisions to achieve the Agency's strategic goals. The Social Security Advisory Board (SSAB) expressed similar unease in certain project management areas related to the Project in a recent report.[14] The SSAB stated that it ". . . remains concerned that there are not sufficient resources being devoted to this conversion and believes that this effort should be on a more aggressive schedule."

The Computer & Communications Industry Association (CCIA)[15] pointed out that ". . . if SSA fails to modernize its mainframe database and associated application programs now, the precious citizen data it manages on behalf of the nation could be locked into obsolete formats for decades to come." CCIA also stated that SSA's obsolete database architecture would prevent the Agency from aggressively expanding its offer of on-line services to citizens to help resolve SSA's increasing workload due to baby boomers reaching retirement age.

Had SSA identified and managed the Project as a major IT investment, some of the issues discussed in our report may not have occurred. For each major investment, SSA needs to prepare and submit to OMB a capital budgeting document, the *Capital Asset Plan and Business Case Summary.*[16] Further, the Agency is required to report the results of, or verify that it performed, the required project management activities related to the major investment in this document. Additionally, all SSA major IT projects go through a review process to ensure accurate information is reported to OMB. This process not only assures the Agency's Chief Information Officer, who reports directly to the Commissioner of SSA, is directly involved in the capital planning process, it also assists OMB in deciding on the amount of resources to provide the Agency.

In addition, major IT projects receive additional oversight through various reporting mechanisms and reviews. This includes quarterly reporting to the Information Technology Advisory Board (now the Strategic Information Technology Assessment and Review process), Office of Systems project reviews, and Office of the Chief Information Officer Systems Procurement Request milestone review.[17] These reviews would

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[14] SSAB, *Bridging the Gap: Improving SSA's Public Service Through Technology*, April 2009, Pre-publication Release.

[15] CCIA, *Making Social Security's Citizen Database Safe for the Future,* by Jeff Gould, Peerstone Research, November 2009.

[16] OMB Circular A-11, Part 7, *Planning, Budgeting, Acquisition, and Management of Capital Assets,* Section 300.2.

[17] *SSA, Fiscal Year 2010 Information Technology Capital Planning and Investment Control Process*, February 12, 2009, page 10.

provide higher Agency management attention to the Project should it be identified and managed as a major IT investment. We recommend that SSA discuss with OMB the need to classify the Project as a major IT investment.

SSA LACKED A LONG-TERM, COMPREHENSIVE STRATEGIC PROJECT PLAN

SSA recognized the need to convert MADAM to a commercial product in 2005. However, SSA did not develop an overall long-term, comprehensive strategic plan that covered all three Phases of this IT project. SSA only developed a high-level plan for Phase I of the conversion and short-term tactical plans for each Master File conversion as the Agency moved to covert one Master File at a time.

Planning and analysis conducted to date has been limited to Phase I of the Project. Since October 2005, SSA has converted the Numident/Alphident and MEF. As part of Phase I, SSA plans to convert the SSR and MBR. However, SSA has not developed detailed plans to convert these files. Further, SSA does not have planning documents for Phases II and III, which will involve significant application reprogramming efforts. For these Phases, SSA has not performed sufficient long-term, comprehensive strategic planning to cover the system development lifecycle of the project. See Appendix D for more details on the three Phases of the Project.

We reviewed SSA's planning documents for this Project and found they lacked critical decisionmaking information. For example, SSA stated that the critical MADAM maintenance staff will not be available over time, but it did not provide statistics to show how urgent this condition was. SSA also stated that a full rewrite of application code to support the DB2 conversion would be too resource intensive. However, no analyses or estimates were provided to determine the level of resources needed to reprogram the Agency's applications. This information is critical to assist SSA management in making timely and informed strategic resource allocation decisions. Without an overall long-term, comprehensive plan for all Phases of the Project, SSA management cannot understand the full scope, potential risks and costs and benefits of the Project. Therefore, SSA management is at risk of not making proper and timely strategic decisions to ensure the continuity of critical services and the most efficient use of Government resources.

Further, OMB requires that agencies establish a performance measurement baseline with clear cost, schedule, and performance goals for all major investments.[18] The baseline plan should cover the entire system development life cycle of a project. Agencies need to document a systematic process for program management of major investments including

- integration of program scope, schedule, and cost objectives;
- establishment of a baseline plan for accomplishing program objectives; and

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[18] OMB Memorandum M-05-23, *Improving Information Technology (IT) Project Planning and Execution*, Attachment A, August 4, 2005.

- use of program performance measurement techniques during execution of the program.[19]

Prior OIG reports[20] have concluded that SSA lacked proper long-term, strategic planning at both the Agency and project levels. These reports, as well as other sources, have indicated that the lack of proper long-range and integrated strategic planning for significant projects has resulted in delays, re-planning, and unacceptable infrastructure risks.[21, 22]

The Project was created to address the processing risks at the core of SSA's operations. The Project could impact SSA's ability to deliver the necessary future electronic services and achieve its major IT initiatives timely. SSA should have prepared a long-term, comprehensive strategic plan to ensure the Project is implemented efficiently, timely, and seamlessly without impacting other major initiatives. For example, SSA has a separate initiative to convert portions of its application programs written in COBOL to a different language capable of providing more robust Web technology. SSA should consider the possibility of integrating the COBOL conversion with Phase III[23] of the Project to ensure the most effective and efficient use of limited resources.

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[19] OMB Circular A–11, Part 7, Section 300, *Planning, Budgeting, Acquisition, and Management of Capital Assets*, page 5.

[20] *The Social Security Administration's Information Resources Management Strategic Plan* (A-14-07-27133), September 2007; Congressional Response Report: *The Social Security Administration's Information Technology Strategic Planning (*A-44-09-29120), June 2009; *The Social Security Administration's Disaster Recovery Process* (A-14-09-29139), June 2009; *Processing Capacity of the Social Security Administration's Durham Support Center* (A-14-09-19100), September 2009.

[21] One example is related to SSA's decision to build a second data center. It did not consider the second data center as a disaster recovery site during the design phase. Source: *Social Security Administration's Disaster Recovery Process (*A-14-09-29139) June 2009.

[22] Statement of Sylvester J. Schieber, Chairman, SSAB, to the Subcommittee on Social Security House Committee on Ways and Means, House of Representatives, oversight hearing on the progress made by SSA in Implementing the *American Recovery and Reinvestment Act of 2009*, April 28, 2009. Mr. Schieber indicated in his testimony that the current 30-year-old data processing center, the National Computer Center (NCC), would no longer be viable by the end of 2012. He also indicated that SSA informed the SSAB that a new NCC will take 4 to 5 years to plan, develop and build, and another 2 to 3 years would be needed to complete all systems set-up and integration activities. However, a second data center, with backup capability for the NCC is expected to have full functionality by 2013**.**

[23] See Appendix D for information about Phase III of the Project.

We recommend SSA develop a long-term, comprehensive strategic plan for the Project and related major IT initiatives. The plan should include estimated costs for all resources, schedules for all tasks, and performance goals for the Project's entire life cycle.

THE DB2 CONVERSION METHODOLOGY MAY RESULT IN A LESS THAN OPTIMAL DESIGN

According to a 2007 assessment[24] performed by the National Research Council (NRC), SSA's approach for converting to DB2 would limit the functionality of existing applications and compromise the design of the new database. The report pointed out that this approach would cause poor performance, and the NRC believed that a strategy involving a total conversion of the databases and a rewrite of the applications is likely to yield the best results in the long run. SSA considered the issues identified by the NRC and stated it also had considered the current legislative workloads and human resources required to perform full application rewrites. When all factors were considered, SSA stated that it decided on the current strategy because it is ". . . a cautious and less risky approach." In addition, SSA stated the database design under its current strategy was developed considering a balance between current scope, future efforts, and performance. SSA also indicated the database design can support SSA's current processing and can be changed to support new requirements that may be developed.

SSA's DB2 conversion efforts are based on a strategy that all MADAM conversions to DB2 should have little or no impact on existing applications. In other words, the applications would not be rewritten. According to the NRC report, this strategy has prevented SSA from taking full advantage of the more contemporary software and hardware capabilities of DB2. NRC stated this approach not only limits the functionality of those applications but compromises the design of the new database. SSA also did not fully consider large-scale, relational databases other than DB2.

Further, NRC reported that SSA's conversion approach is to turn the DB2 database into a MADAM simulator, resulting in a database design with lower than optimal performance than a DB2 database. This indicates that SSA may need to make additional changes in its database design and potentially rewrite application programs to obtain better performance and take full advantage of DB2.

We discussed our concerns with SSA staff aware of the issues and they agreed that, to address database efficiency and functionality, additional efforts and resources may be needed to correct these issues. This could include redesigning the DB2 database and rewriting applications depending on the timing of the redesign.

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[24] *Social Security Administration Electronic Service Provision: A Strategic Assessment,* published in 2007. SSA's Deputy Associate Commissioner for Electronic Services requested the NRC to examine and report on SSA's proposed e-government strategy and the underlying service delivery and IT infrastructure.

The Government must effectively manage capital investments to ensure scarce public resources are wisely invested. As a Federal agency, SSA needs to take a system development life-cycle approach for the conversion of MADAM to DB2 when considering its implementation strategy.[25] As such, we recommend SSA continue with its conversion but also assess the remaining portions of the Project to determine the full scope and costs of the current strategy and document the advantages and disadvantages of delaying the application rewrite effort as well as the impact on total Agency resources.

SSA DID NOT CONSIDER OTHER ALTERNATIVES FOR REPLACING MADAM

SSA did not perform an Alternatives Analysis for replacing MADAM.[26] The Project planning documents were developed based on an Agency decision that DB2 would be the DBMS to house the Agency's Master Files. The conversion was targeted for DB2 because SSA's general direction was to use DB2 for mainframe applications. SSA did not consider any other alternatives. SSA also stated its general plan was to use DB2 for mainframe applications. According to Agency staff, SSA is an IBM shop in which the vast majority of its processing occurs on the mainframe. It had begun migration to IBM's DB2 platform before the Project.

Since no Alternatives Analysis was completed, SSA management did not consider other alternatives or the potential advantages and disadvantages of DB2 as compared to other DBMSs. Moreover, SSA management did not know whether DB2 was the most cost-effective alternative. For example, different DBMS alternatives may have significantly different license fees, maintenance fees, programming and administrative costs, and hardware costs. They may differ in programmability and administration needs. All these factors should have been considered in making the major capital investment decision.

To promote efficient resource allocation through well-informed decisionmaking by the Government, OMB requires that agencies conduct Alternatives Analyses for major capital investments.[27] A prior OIG audit reported that SSA did not properly perform

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[25] OMB guidance ". . . stresses the importance of all phases in the capital asset lifecycle. By linking planning and budgeting to procurement to the management of capital assets, the resulting all encompassing roadmap encourages agencies to develop an Agency Capital Plan that provides for the long-range planning of the capital asset portfolio in order to meet the goals and objectives in the strategic and annual plan." OMB, *Capital Programming Guide*, V 2.0, supra at page 5.

[26] OMB Circular A–11, Part 7, Section 300.4, refers to Alternatives Analysis as an analysis of alternative approaches to addressing the performance objectives of an investment, performed before the initial decision to make an investment, and updated periodically as appropriate to capture changes in the context for an investment decision. This section also indicates that alternatives analysis details should be available upon request.

[27] OMB *Capital Programming Guide*, V 2.0, section I.5.3, pages 17-18.

Alternatives Analyses for some of its other major IT capital projects.[28] Adequately prepared Alternatives Analyses are crucial for both SSA and OMB to make sound IT investment decisions. Although the decision has already been made to use DB2, SSA needs to ensure an Alternatives Analysis is performed for future major IT capital investment projects.

SSA NEEDED TO IMPROVE CERTAIN PROJECT MANAGEMENT PRACTICES

We also found other project planning and management areas that SSA needed to improve.

Cost-Benefit Analysis

A Cost-Benefit Analysis (CBA) provides critical information for SSA's IT resources allocation decisionmaking process. Federal guidance recommends, and SSA guidance requires, comprehensive analysis of all project costs and benefits.[29] We found that the CBA prepared for the Project was missing important information or contained inaccuracies that could render the results of the analysis unreliable.

- The CBA conducted for the Project did not include all cost and benefit elements related to the Project. The only Project benefit included was the cost avoidance for a potential outage. The CBA did not include any costs for maintaining MADAM. The costs for maintaining and administering MADAM, as well as the hardware costs and all other relevant costs, should have been included. The excluded cost elements may have a significant impact on CBA results. For example, MADAM requires the use of a particularly expensive piece of hardware that should have been included in the CBA. DB2 requires more storage and processing capacity.

- SSA accurately included cost avoidance as one of the Project benefits because the Project will prevent the potential outage of SSA's program database. However, the estimated level of cost avoidance is based on a standard formula SSA developed for a system outage, which did not consider all impacted components or the length and frequency of the potential outage based on the decreased MADAM maintenance staff level. This formula should have been tailored to reasonably reflect the expected impact of a MADAM outage on SSA as a whole. In addition, SSA could not provide sufficient support for the assumptions underlying the formula. For the Project, SSA also should have considered "social" costs of not replacing MADAM,[30]

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[28] *Reliability and Accuracy of the Social Security Administration's Exhibit 300 Submissions to the Office of Management and Budget (*A-14-08-18018), September 2008.

[29] OMB Circular A-94, *Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs*, October 29, 1992, section 5.a.1, page 4 and SSA, *Cost Benefit Analysis Guidance Fiscal Years 08/09 & Beyond, S*ection III.G, page 7.

[30] OMB Circular A-94, section 6, page 6, indicates, in part, that CBAs should include comprehensive estimates of the expected benefits and costs to society.

such as the impact on Social Security beneficiaries if a benefit payment is not received or a Social Security number request to obtain employment is not processed.

Since SSA uses the CBA results in its IT planning process, a properly developed CBA would help SSA allocate and manage Agency resources for its IT projects. We recommend SSA ensure compliance with Federal and Agency guidance on the development and implementation of a CBA.

Risk Management

OMB requires that Federal agencies have a disciplined capital programming process that addresses, among other things, risk management.[31] "Risk management is the systematic process of identifying, analyzing, and responding to project risk. It is an ongoing process that requires continuous risk identification, assessment, planning, monitoring, and response."[32] "Failure to analyze and manage the inherent risk in all capital asset acquisitions may contribute to cost overruns, schedule shortfalls, and acquisitions that fail to perform as expected."[33] Without the knowledge of the risks involved, managers cannot make the best decisions for allocating resources among competing investments.[34]

SSA included some of the Project risks in its planning documents—Proof of Concept[35] and Project Scope Agreement.[36] However, it did not fully document the risks involved with its current DB2 implementation strategy.[37] For example, some risk areas that should have been documented and discussed in more depth include the

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[31] OMB guidance explicitly provides that "Agencies must have a disciplined capital programming process that addresses project prioritization between new assets and maintenance of existing assets, risk management and cost estimating to improve the accuracy of cost, schedule and performance provided to management, and the other difficult challenges proposed by asset management and acquisition." OMB *Capital Programming Guide*, page 1.

[32] OMB, *Capital Programming Guide*, supra, Appendix 5, *Risk Management*, page 77.

[33] OMB, *Capital Programming Guide*, supra, Appendix 6, *Principles of Budgeting for Capital Asset Acquisitions*, page 85.

[34] OMB, *Capital Programming Guide*, supra, page 2.

[35] Proof of Concept is a synopsis of a certain method or idea(s) to demonstrate its feasibility.

[36] A Project Scope Agreement defines the boundaries of the project and clearly describes the project teams and customers' understanding of the scope of the proposed project.

[37] OMB, *Capital Programming Guide*, supra, Section I.5.5, page 19, states, in part, that "An effective Risk Management Plan addresses the following risk areas: schedule risk; cost risk; technical feasibility; risk of technical obsolescence; dependencies between a new project and other projects or systems; procurement and contract risk, and resources risks."

- additional cost of potential database redesign in the future to improve performance, efficiency, and functionality that may be required under the conversion strategy;

- security risk associated with moving from a proprietary to a commercial DBMS; and

- anticipated impact of increased processing time after conversion.

For example, SSA experienced unexpected longer processing time after its conversion of the Numident/Alphident. SSA made some adjustments to the Numident/Alphident update process to address the performance issues. As of August 2009, the processing time for the Numident/Alphident using DB2 was still two to three times longer than under MADAM. According to SSA staff, the additional processing time for the Numident/Alphident did not have a significant impact on SSA's overall program production data processing. As of the end of this audit, SSA had not conducted a Performance Impact Analysis that would help assess the total performance impact on SSA's users after all Master Files are converted. We plan to continue to monitor the Project and the potential performance issues that may occur. If warranted, we will conduct additional audits as part of our efforts to assess SSA's future processing capabilities.

Further, SSA did not identify and manage all project risks in a single risk management plan. SSA should develop a Project Risk Management Plan. The Risk Management Plan should identify and track risks associated with this Project. Moreover, the Plan should discuss how the Agency intends to resolve and monitor any potential risks throughout the Project's lifecycle. We recommend SSA comply with OMB[38] and SSA's Project Management requirements[39] to ensure effective, efficient, and integrated management of its IT capital investments.

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[38] OMB, *Capital Programming Guide*, supra and OMB Circular A–11, Part 7, Section 300, supra.

[39] SSA's project management requirements are documented or referenced in its electronic Project Resource Guide.

Conclusion and Recommendations

We found that SSA had effectively implemented the Project to replace MADAM; however, the Project implementation strategy was not efficient because it resulted in less than optimal database design. SSA had successfully completed the conversion of the Numident/Alphident and MEF. The Project team had been working with various stakeholders in executing the Project and resolving issues encountered during the process.

Although the project team had performed well in executing the Project, we found that SSA could improve some of its project life cycle strategic planning practices to ensure efficient and effective IT investment and resources allocation decisionmaking. Specifically, we found (1) SSA had not classified the Project as a major IT investment with OMB; (2) SSA lacked a long-term, comprehensive strategic Project plan; (3) the Project methodology resulted in a less than optimal design; (4) SSA did not consider other alternatives for replacing MADAM; and (5) SSA needed to improve certain project management practices.

To properly plan for future major strategic initiatives,[40] SSA needs to perform sufficient long-range, comprehensive planning to ensure the continuity of critical services and most efficient use of government resources.

RECOMMENDATIONS

Based on our review, we recommend that SSA:

1. Discuss with OMB the need to classify the Project as a major IT investment.

2. Establish a long-term, comprehensive strategic plan for the Project and related major IT initiatives. For the Project, SSA should establish and document a program plan to cover the full scope of the Project. The program plan should include estimated costs for all resources, a schedule for all tasks, and performance goals for the whole lifecycle of the project.

3. Ensure an Alternatives Analysis is performed for each future major IT investment.

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[40] For example, the new NCC and the new disability case processing system.

4. Continue with its conversion but also assess the remaining portions of the Project to determine the full scope and costs of the current MADAM conversion to DB2 strategy and document the advantages and disadvantages for delaying the application rewrite efforts and the impact on total project costs.

5. Ensure compliance with OMB and SSA's project management requirements.

AGENCY COMMENTS

SSA agreed with Recommendations 1, 3 and 5, and partially agreed with Recommendations 2 and 4.

With regard to Recommendation 2, the Agency responded that it believes "…that describing the long-term objectives of the MADAM conversion has value in developing a long-term vision for IT that includes the capacity of a modern relational database management system."

However, SSA disagreed with the recommendation in the context of the report and stated that "The authors propose a comprehensive strategic plan that would extend through all phases. We believe that the extended duration of the project makes a plan as proposed infeasible. We have developed sufficiently detailed plans for near term activities, and we have developed conceptual plans for those activities that we will be undertaking several years from now." Moreover, the Agency quoted OMB Circular A-130, which states, "Structure major information systems into useful segments with a narrow scope and brief duration. This should reduce risk, promote flexibility and interoperability, increase accountability, and better match mission need with current technology and market conditions" (Section 8, b. (4) (b)).

With regard to Recommendation 4, the Agency stated that it had "…considered alternate conversion plans by considering the advantage and disadvantages for the application rewrite efforts." However, the Agency stated it "…will not be interrupting the initial conversion process to determine the full scope and cost. Once the initial conversion is completed (scheduled for 2013), we will separately implement any other Master File related efforts, including application rewrites. These efforts will also include a separate cost benefit, resource allocation, and feasibility analysis." The full text of SSA's comments is included in Appendix E.

OIG RESPONSE

Regarding SSA's partial agreement with Recommendation 2, we appreciate the Agency's comments. However, we reiterate that a long-term, comprehensive strategic plan should have been established for the Project and any other related major IT initiatives. Also, SSA should have established and documented a program plan to cover the full scope of the Project. The program plan should have included estimated costs for all resources, a schedule for all tasks, and performance goals for the whole life cycle of the project.

We reviewed OMB Circular A-130 Section 8, b. (4) (b) and found this section refers to how agencies will acquire IT, the acquisition stage of the investment process. OMB Exhibit 300 Part I, Section B, specifically requires that agencies provide full life-cycle cost estimates of a major project.[41] The OMB *Capital Programming Guide* also stresses the importance of the life-cycle approach in capital planning.[42]

As discussed in this report, there are recent examples of inadequate long-term and integrated strategic planning that resulted in unacceptable risks, project delays, and budget overruns for the Agency. Insufficient planning also prevented SSA management from making informed and timely strategic decisions. We believe the development of a long-term comprehensive strategic plan would assist the Agency in better managing this critical Project.

Regarding SSA's partial agreement with Recommendation 4, we reiterate that SSA should **continue with its conversion** but also assess the remaining portions of the Project to determine the full scope and costs of the current MADAM conversion to DB2 strategy and document the advantages and disadvantages for delaying the application rewrite efforts and the impact on total project costs. We believe an assessment will assist the Agency to better manage this critical project.

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[41] OMB Circular A–11, Part 7, Section 300, *Planning, Budgeting, Acquisition, and Management of Capital Assets*, page 13.

[42] OMB, *Capital Programming Guide*, supra, Section I, page 5.

Appendices

Acronyms

API	Application Programming Interface
CBA	Cost-Benefit Analysis
CCIA	Computer & Communications Industry Association
COBOL	Common Business Oriented Language
DBMS	Data Base Management System
GAO	Government Accountability Office
IBM	International Business Machines
IT	Information Technology
MADAM	Master Data Access Method
MBR	Master Beneficiary Record
MEF	Master Earnings File
NCC	National Computer Center
NRC	National Research Council
OIG	Office of the Inspector General
OMB	Office of Management and Budget
Project	MADAM to DB2 Conversion Project
SSA	Social Security Administration
SSAB	Social Security Advisory Board
SSI	Supplemental Security Income
SSN	Social Security Number
SSR	Supplemental Security Record

Scope and Methodology

Our objectives were to (1) evaluate the effectiveness and efficiency of the Social Security Administration's (SSA) conversion of its Master Data Access Method[1] (MADAM) file management system to the DB2 Data Base Management System (DBMS) [2] and (2) provide insights as to best practices and lessons learned for future system conversions.

To achieve our objectives, we reviewed various planning documents and testing data related to the MADAM-DB2 Conversion project; interviewed or contacted the project manager and other relevant SSA staff; participated in the monthly DB2 conversion project meetings and reviewed meeting minutes; conducted research on topics related to the Project; and performed other audit steps, as appropriate.

We reviewed the following criteria.

- Office of Management and Budget (OMB) Circular A-11, part 7, section 300: *Planning, Budgeting, Acquisition and Management of Capital Assets*, November 2009
- OMB *Capital Programming Guide Version 2.0*, June 2006
- OMB Circular A-94, Revised, *Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs,* October 29, 1992
- OMB Memorandum M-05-23, *Improving Information Technology (IT) Project Planning and Execution,* August 4, 2005
- OMB Circular A-130, *Management of Federal Information Resources,* November 2000
- SSA *Cost Benefit Analysis Guidance Fiscal Year 08/09 & Beyond*

We interviewed or contacted SSA staff from the Offices of

- Systems, Office of Enterprise Support, Architecture and Engineering; and
- the Chief Information Officer, Office of Information Technology Investment Management.

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[1] MADAM is a computer system that accesses and manages SSA's major databases known as Master Files: Master Beneficiary Record (MBR), Supplemental Security Record (SSR), Master Earnings File (MEF), and Numident/Alphident. These files contain information used by Social Security programs such as Retirement, Survivors, and Disability Insurance benefits administered by SSA. See Appendix C for more detailed information on SSA's Master Files.

[2] DB2 is one of a family of International Business Machines' (IBM) DBMSs. A DBMS is a set of computer programs that controls the creation, maintenance, and use of the database.

We reviewed the following documents.

- SSA's Master File Management Strategy Conversion to DB2
- General Project Scope Agreement
- Project Scope Agreements
- Supplemental Security Record Proof of Concept
- *SSA MADAM Alternatives Evaluation*, January 22, 2003[3]
- National Research Council*, Social Security Administration Electronic Service Provision: A Strategic Assessment,* 2007
- Social Security Advisory Board, *Bridging the Gap: Improving SSA's Public Service Through Technology*, April 2009, Pre-publication Release

We conducted this 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 the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives. We conducted our audit at SSA Headquarters in Baltimore, Maryland, from December 2008 through November 2009.

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[3] Although this evaluation is named "Alternatives Evaluation," it is not an Alternatives Analysis as described by OMB. This Alternatives Evaluation discusses various methods of implementing the DB2 conversion project, instead of different alternatives for replacing MADAM.

The Social Security Administration's Master Files

The Social Security Administration's (SSA) Master Data Files contain a large number of records that are updated weekly, monthly, or quarterly. They are divided into segments, which are usually divided into smaller, more manageable divisions called subsegments.

Master Beneficiary Record (MBR): The MBR is used by a broad range of SSA employees for responding to inquiries, generating follow-ups on beneficiary reporting events, computer exception processing, statistical studies, conversion of benefits, and generating records for the Department of the Treasury to pay the correct benefit amount. All Social Security beneficiaries who are, or were, entitled to receive Retirement and Survivors Insurance, or Disability Insurance benefits, are included in this database. The system also contains short references to records for persons entitled to Supplemental Security Income (SSI) payments, Black Lung benefits or Railroad Retirement Board benefits.

Supplemental Security Record (SSR): The SSR contains a record for each individual who has applied for SSI payments, including individuals who have requested an advance payment; SSI recipients who have been overpaid; and ineligible persons associated with an SSI recipient. This file also contains those individuals who have applied for and who are entitled to Special Veterans Benefits under Title VIII of the *Social Security Act*.

Master Earnings File (MEF): The MEF contains all earnings data reported by employers and self-employed individuals. The MEF is used to establish, correct, and maintain SSA's major earnings files. SSA uses MEF data to determine eligibility for, and the amount of, Social Security benefits.

Alphident: The Alphident is used to locate an individual's Social Security number (SSN) when only the name and date of birth are known.

Numident: The Numident contains the SSN and identity data for all persons issued an SSN, including the date of birth, citizenship of the claimant, and any death information.
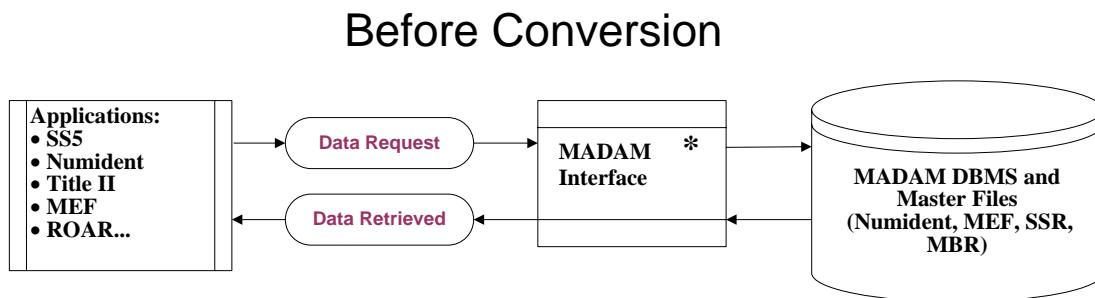
The Social Security Administration's DB2 Conversion Project Phases

SSA's Master Data Access Method (MADAM) to DB2 Conversion project (Project) consists of three phases.

- Phase I: Conversion of MADAM data files to DB2 relational database.

- Phase II: Modification of the application programs to eliminate MADAM interface.[1]

- Phase III: Modification of application programs to directly access the DB2 database.

During Phase I, there will be a minimum number of changes to SSA's application programs. This Phase focuses on converting SSA's Master File databases to DB2 while achieving acceptable performance. According to the Project staff, in Phase II, the level of software application program rewrite will not be a major effort. However, in Phase III, software application program rewrites will be a major undertaking. SSA stated it will conduct a complete assessment before implementing Phase III. The impacted programs will depend on the specific software programming language originally used to develop the applications. Significant portions of these applications were written in Common Business Oriented Language (COBOL).

Following are descriptions of the three phases and high level conceptual diagrams that depict the changes to SSA's programmatic data infrastructure. The first diagram depicts SSA's data flows before the Project.

Before Conversion


```
Applications:        Data Request        MADAM        *        MADAM DBMS and
• SS5                                     Interface              Master Files
• Numident                                                      (Numident, MEF, SSR,
• Title II           Data Retrieved                                    MBR)
• MEF
• ROAR...
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[1] The MADAM Interface directs data requests to the correct databases for processing during Phase I so SSA can keep the application program changes to a minimum. See sections below for the function of the MADAM Interface.
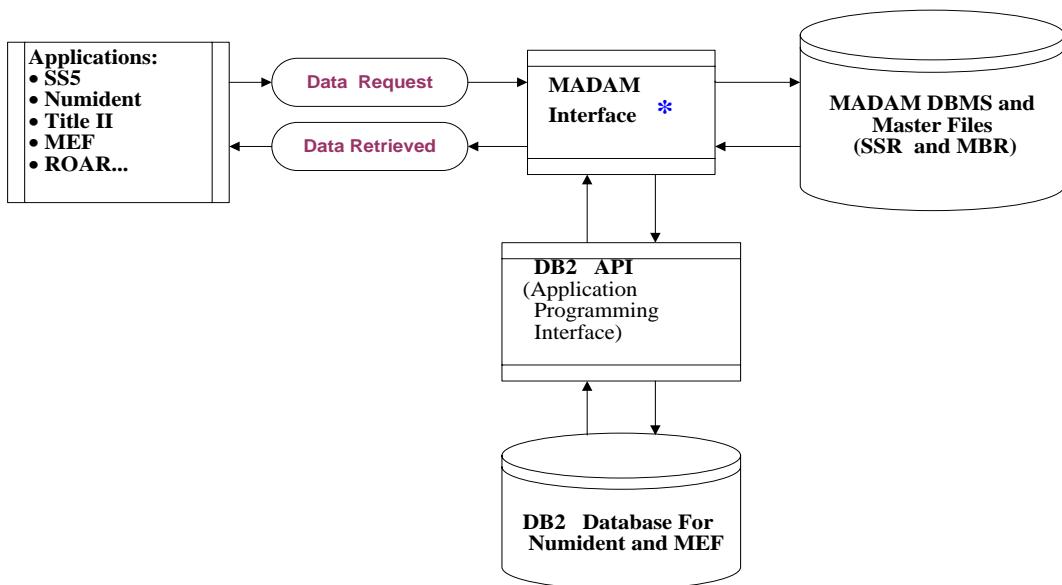
Project Phase I: Conversion of MADAM Data Files to DB2 Relational Database

During Phase I, SSA plans to restructure and convert all its major program Master Files supported by the MADAM file management system to the DB2 Data Base Management System (DBMS). Phase I includes four consecutive subprojects to convert the Alphident/Numident, Master Earnings File (MEF), Supplemental Security Record (SSR) and Master Beneficiary Record (MBR), respectively.

During this Phase, SSA's strategy is to keep the changes to application programs that use MADAM data to a minimum. That is, applications will still make the same data requests, also known as calls, as they did under MADAM. To achieve this goal, SSA modified its existing MADAM interface to direct data flows either to access MADAM or DB2 depending on whether the application uses MADAM or DB2 data. SSA also developed a DB2 Application Programming Interface (API) to convert the MADAM data calls to DB2 for application programs that use DB2 databases.[2]

To date, SSA has completed the Alphident/Numident and MEF conversions. As of November 2009, the Alphident/Numident and MEF were converted and stored in a DB2 database, whereas the SSR and MBR were still stored under MADAM. See data flows of current process below.
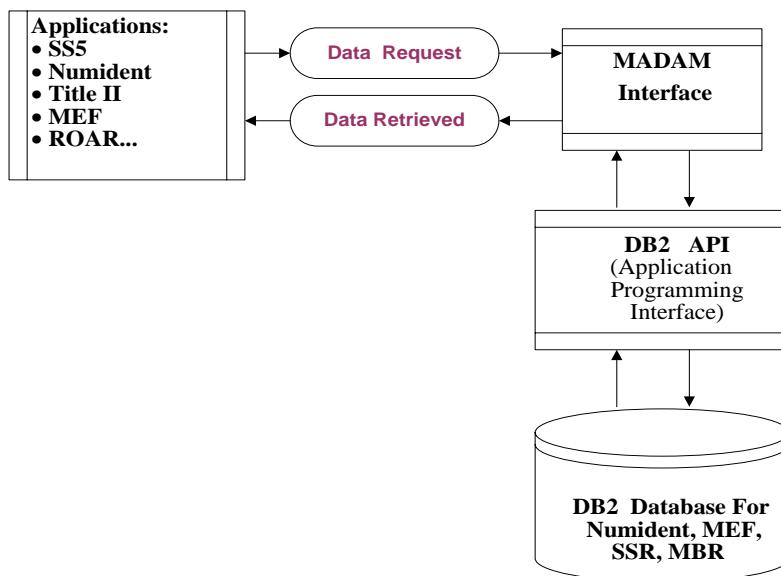
Current Process

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[2] API defines the ways by which an application program may request services from libraries and/or operating systems. Interfaces are the languages and codes that the applications use to communicate with each other and with the hardware.

SSA plans to complete the SSR and MBR conversions by the end of Fiscal Years 2011 and 2013, respectively. After the conversion of the last two Master Files, MADAM will be replaced by DB2 as SSA's programmatic data store and DBMS. MADAM will be retired after the completion of Phase I. At this stage, the MADAM Interface will still exist because the application programs will still need to make the same data calls as they did under MADAM. The MADAM Interface directs the data calls to the DB2 API to create alternative calls to a DB2 database. See diagram below:
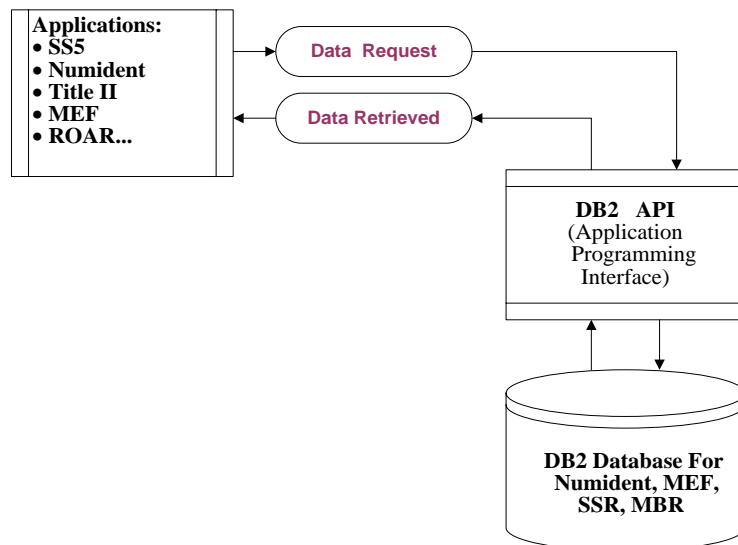
After Phase 1

Project Phase II: Modification of the Application Programs to Eliminate MADAM Interface

During Phase II, SSA will modify its application programs to call the API directly, thus eliminating the call to the MADAM interface. As stated above, after Phase I is completed, program applications will still make the same data calls they did under MADAM. SSA needs to complete Phase II because MADAM holds compressed data, whereas DB2 stores uncompressed data. Some program applications built around MADAM use compressed data. Therefore, program applications will have to be modified to eliminate the processing of compressed data.

SSA plans to implement this Phase differently than Phases I and III. SSA plans to implement Phase II application by application during their normal program release cycles, instead of executing an all-inclusive project. Application owners will incorporate the implementation of Phase II to their applications' during the next program releases.

After completion of Phase II, the MADAM API will be retired, see below diagram.
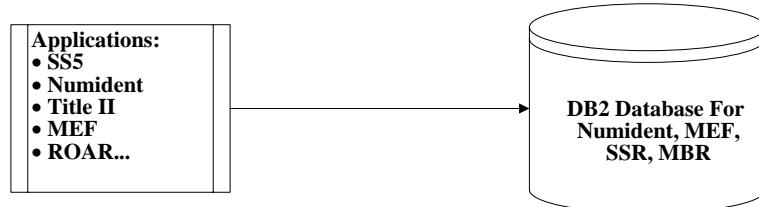
After Phase 2

```
Applications:
• SS5
• Numident
• Title II
• MEF
• ROAR...
```

Data Request

Data Retrieved

DB2   API
(Application
Programming
Interface)

DB2 Database For
Numident, MEF,
SSR, MBR

Conversion Project Phase III: Modification of Applications to Directly Access the DB2 Database

The remaining portion of the MADAM environment will be completely eliminated after Phase II; however, application programs will still not have access to DB2 databases directly. During Phase III, SSA will rewrite all application programs to call DB2 data directly. After this Phase is completed, SSA's program data infrastructure will be completely converted to a DB2 environment.

SSA stated it needs to conduct additional analysis on the scope, timing, and resources needed before implementing Phase III. SSA considers Phase III a separate effort from Phases I and II. See diagram below after completion of Phase III.

After Phase 3

```
Applications:
• SS5
• Numident
• Title II
• MEF
• ROAR...
```

DB2 Database For
Numident, MEF,
SSR, MBR

Agency Comments

SOCIAL SECURITY

MEMORANDUM

Date:	April 22, 2010	Refer To:

To: Patrick P. O'Carroll, Jr.
Inspector General

From: James A. Winn /s/
Executive Counselor
to the Commissioner

Subject: Proposed Comments to the Office of the Inspector General (OIG) Draft Report, **"Conversion of the Social Security Administration's Legacy File Management System"** (A-14-09-19097)—INFORMATION

Thank you for the opportunity to review and comment on the draft report. We appreciate OIG's efforts in conducting this review. Attached is our revised response to the report recommendations.

Please let me know if we can be of further assistance. Please direct staff inquiries to Candace Skurnik, Director, Audit Management and Liaison Staff, at (410) 965-4636.

Attachment

COMMENTS ON THE OFFICE OF THE INSPECTOR GENERAL (OIG) DRAFT REPORT, "CONVERSION OF THE SOCIAL SECURITY ADMINISTRATION'S LEGACY FILE MANAGEMENT SYSTEM" (A-14-09-19097)

This OIG report recognizes the important progress the agency has made in replacing our legacy file management system, Master Data Access Method (MADAM). Since 2005, we have steadily converted some of the largest databases in the Federal Government from a 25 year-old, agency-developed file management system to a modern database management system that has the capability to operate as a relational database. Our approach has been very conservative, as our operations depend on the functioning of these very large data repositories. In the first phase, we are converting one database at a time from MADAM to DB2 without altering the fundamental data access design. This allows us to transition away from MADAM without having to rewrite major portions of our core applications and incurring additional risk. We managed to convert over half of our major databases without any significant negative impact on our operations. Future phases will enable us to utilize the full capabilities of DB2 directly.

The OIG has stated that we should have developed a long-term, comprehensive strategic project plan. We disagree. The Office of Management and Budget's (OMB) Circular A-130, which states, "Structure major information systems into useful segments with a narrow scope and brief duration. This should reduce risk, promote flexibility and interoperability, increase accountability, and better match mission need with current technology and market conditions" (Section 8, B (4) (b)). We have approached the MADAM conversion in usable segments, which has enabled us to realize benefits in the first phase while maintaining flexibility and reducing risk.

Recommendation 1

SSA should discuss with OMB the need to classify the Project as a major Information Technology (IT) investment.

Comment

We agree that we should discuss the MADAM conversion project with OMB. In fact, we have already begun these conversations. The designation of a major investment is a matter of negotiation between agency management and OMB. Our initial discussions have not indicated that the MADAM conversion project should be designated a major IT investment at this time, though later phases may rise to that level. OMB understands that we can and should oversee and manage the MADAM conversion project at the same level with or without an Exhibit 300t. Furthermore, we are currently implementing a new IT investment management process that will improve the executive oversight of all significant IT investments, regardless of whether or not they are subject to an Exhibit 300.

Recommendation 2

Establish a long-term, comprehensive strategic plan for the Project and related major IT initiatives. For the Project, SSA should establish and document a program plan to cover the full scope of the Project. The program plan should include estimated costs for all resources, schedule for all tasks, and performance goals for the whole lifecycle of the project.

Comment

We partially agree. We have developed sufficiently detailed plans for near term activities, and we have developed conceptual plans for those activities that we will be undertaking several years from now. We believe that describing the long-term objectives of the MADAM conversion has value in developing a long-term vision for IT that includes the capability of a modern relational database management system. However, we do not intend to delay progress on the tasks currently underway because doing so would increase the risk of relying on the antiquated MADAM system for many more years.

We disagree with the recommendation in the context in which it is presented in the report. The authors propose a comprehensive strategic plan that would extend through all phases. We believe that the extended duration of the project makes a plan as proposed infeasible. As we move forward, we will develop plans for future Master File efforts/phases that could involve software rewrites of certain applications to exploit the additional features of the new technology. These plans will include a level of detail that is appropriate for the time horizon being addressed. If the planning horizon is several years, the plan will necessarily include fewer details than a plan for the next year or two. We will plan for these subsequent phases as separate efforts, and we will include a separate cost benefit, resource allocation, and feasibility analysis for each phase.

Recommendation 3

Ensure an Alternatives Analysis is performed for each future major IT investment.

Comment

We agree. Alternatives analyses are required for investments classified as "major IT investments" and supported by an OMB Exhibit 300. We did not classify the Legacy File System Conversion as a major investment. We believe that an alternatives analysis is appropriate for many IT investments that do not qualify as a "major IT investment" per OMB guidance. We will develop guidance that requires alternatives analyses even for major projects that are not classified as a "major IT investment."

In regards to the Master File conversion, we are currently conducting an alternatives analysis with each upcoming phase of implementation for the MADAM project. We will continue with that approach.

Recommendation 4

Continue with its conversion but also assess the remaining portions of the Project to determine full scope and costs of the current MADAM conversion to DB2 strategy and document the advantages and disadvantages for delaying the application rewrite efforts and the impact on total project costs.

Comment

We partially agree. We will not be interrupting the initial conversion process to determine the full scope and cost. Once the initial conversion is completed (scheduled for 2013), we will separately implement any other Master File related efforts, including application rewrites. These efforts will also include a separate cost benefit, resource allocation, and feasibility analysis. Currently, we document the cost and scope of the Master File conversion in SPARS.

The initial Master File conversion effort primarily focuses on the elimination of risks associated with being reliant on the antiquated MADAM database architecture. We considered alternate conversion plans by considering the advantages and disadvantages for the application rewrite efforts. Our chosen methodology has the following advantages:

1) There is no disruption to our on-going workloads, and

2) In the most expeditious manner, we eliminate the risk of relying on MADAM.

Since the continued availability of our major data files are of the highest concern, we chose the least intrusive implementation strategy for our database conversion. Had we chosen a conversion plan that involved a "full rewrite" of our systems, we would have severely prolonged the conversion effort and increased the risk of relying on the antiquated MADAM system for too long. If we delayed the conversion timeframes, we would be vulnerable to prolonged system outages due to the programmers and analysts' lack of knowledge of the MADAM system, and this would impede field office workloads. Therefore, the risk of delay outweighs any potential costs.

Recommendation 5

Ensure compliance with OMB and SSA's project management requirements.

Comment

We agree. We currently have processes in place to ensure compliance with our and OMB's project management requirements, but we will assess the effectiveness of these processes. As we replace MADAM, we are actively working to ensure full compliance with sanctioned project governance and guidelines.

OIG Contacts and Staff Acknowledgments

OIG Contacts

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Mary Ellen Moyer, Audit Manager

Acknowledgments

In addition to those named above:

Grace Chi, Auditor-in-Charge

Alla Resman, Information Technology Specialist

Tina Nevels, Auditor

For additional copies of this report, please visit our web site at www.socialsecurity.gov/oig or contact the Office of the Inspector General's Public Affairs Staff Assistant at (410) 965-4518. Refer to Common Identification Number A-14-09-19097.

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Social Security Advisory Board

Overview of the Office of the Inspector General

The Office of the Inspector General (OIG) is comprised of an Office of Audit (OA), Office of Investigations (OI), Office of the Counsel to the Inspector General (OCIG), Office of External Relations (OER), and Office of Technology and Resource Management (OTRM). To ensure compliance with policies and procedures, internal controls, and professional standards, the OIG also has a comprehensive Professional Responsibility and Quality Assurance program.

Office of Audit

OA conducts financial and performance audits of the Social Security Administration's (SSA) programs and operations and makes recommendations to ensure program objectives are achieved effectively and efficiently. Financial audits assess whether SSA's financial statements fairly present SSA's financial position, results of operations, and cash flow. Performance audits review the economy, efficiency, and effectiveness of SSA's programs and operations. OA also conducts short-term management reviews and program evaluations on issues of concern to SSA, Congress, and the general public.

Office of Investigations

OI conducts investigations related to fraud, waste, abuse, and mismanagement in SSA programs and operations. This includes wrongdoing by applicants, beneficiaries, contractors, third parties, or SSA employees performing their official duties. This office serves as liaison to the Department of Justice on all matters relating to the investigation of SSA programs and personnel. OI also conducts joint investigations with other Federal, State, and local law enforcement agencies.

Office of the Counsel to the Inspector General

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OER manages OIG's external and public affairs programs, and serves as the principal advisor on news releases and in providing information to the various news reporting services. OER develops OIG's media and public information policies, directs OIG's external and public affairs programs, and serves as the primary contact for those seeking information about OIG. OER prepares OIG publications, speeches, and presentations to internal and external organizations, and responds to Congressional correspondence.

Office of Technology and Resource Management

OTRM supports OIG by providing information management and systems security. OTRM also coordinates OIG's budget, procurement, telecommunications, facilities, and human resources. In addition, OTRM is the focal point for OIG's strategic planning function, and the development and monitoring of performance measures. In addition, OTRM receives and assigns for action allegations of criminal and administrative violations of Social Security laws, identifies fugitives receiving benefit payments from SSA, and provides technological assistance to investigations.