

Office of the Inspector General

Kenneth S. Apfel  
Commissioner of Social Security

Inspector General

Title II Software Redesign Is Overdue

The attached final report presents the results of our review of the Title II Software Redesign Project (A-09-97-11001). The objectives were to evaluate the plans for Social Security Administration's redesign of title II software and determine if the project is on schedule.

You may wish to comment on any further action taken or contemplated on our recommendations. If you choose to offer comments, please provide them within the next 60 days. If you wish to discuss the final report, please call me or have your staff contact Pamela J. Gardiner, Assistant Inspector General for Audit, at (410) 965-9700.

David C. Williams

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# **EXECUTIVE SUMMARY**

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## **OBJECTIVES**

The objectives of this audit were to evaluate the plans for the Social Security Administration's (SSA) redesign of title II software and to determine whether the project is on schedule.

## **BACKGROUND**

In the early 1980's, SSA's systems modernization plan recognized the need for a redesign of title II software to streamline both systems and field operations. Starting in 1985, SSA began a major effort to modernize its computer systems and software with planned objectives such as providing timely delivery of benefit payment checks and improving customer service in the field offices (FO). A series of new software programs was released to improve automation for the title II initial claims process in the FOs.

In 1994, due to staff reductions and the need for enhanced customer service, SSA initiated the Title II Software Redesign Project (Redesign) to create a single system for on-line processing of both initial claims and post-entitlement (PE) events. A cost benefit analysis (CBA) was prepared in 1996 which projected, based on planning assumptions, that full implementation of Redesign would result in 2,587 annual work year savings.

In 1997, SSA estimated that 18 percent of initial claims are processed manually and 82 percent are processed through the Modernized Claims System (MCS). The processing of PE transactions is performed by a series of 28 software programs that are considered outdated because they are stand-alone systems and are not integrated. These PE transactions also involve manual processing by several thousand employees located at SSA's seven processing centers.

The importance of Redesign was noted in SSA's Business Plan (Fiscal Years (FY) 1998-2002) which identified it as one of the Agency's five key initiatives. These key initiatives are of critical, strategic importance for SSA to achieve its business and performance objectives. The Business Plan established FY 2000 as the target date for full implementation of Redesign.

## **FINDINGS**

- REDESIGN PROJECT STATUS
- FIELD STAFF SAVINGS UNREALIZED
- REDESIGN PROGRESS IS SLOW

## **CONCLUSIONS AND RECOMMENDATIONS**

Project implementation has been delayed and restructured for a number of reasons, including lack of Medicare business knowledge and insufficient staff and resources assigned. As a result, the realization of an estimated 2,587 work years annually will be delayed, thus reducing the staff resources available to perform other needed customer services. We are recommending that SSA increase the resources assigned to Redesign in order to meet the FY 2000 target for final completion.

## **AGENCY COMMENTS**

In its written response to the draft report, SSA agreed with our findings and recommendations. To date, SSA has assigned additional resources to the project, including staff with Medicare and health insurance expertise, and obtained high-performance computers to expedite completion of the software modules. SSA also stated that it has re-evaluated the implementation schedule for the project and developed a strategy to accomplish the Redesign through incremental software releases. SSA acknowledged that Redesign will not be fully implemented by FY 2000 but has planned several releases to provide interim work years savings for FYs 1999 and 2000. (See Appendix A for the full text of the Agency's comments.)

## **OIG RESPONSE**

We agree with the corrective actions taken by the Agency.

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# INTRODUCTION

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## OBJECTIVES

The objectives of this audit were to evaluate the plans for SSA's redesign of title II software and to determine whether the project is on schedule.

## BACKGROUND

### Modernization of Mainframe Software

SSA began a major effort to modernize its computer systems in the mid-1980s with overall goals of ensuring the timely delivery of benefit payment checks and improving customer service in FIs. The systems modernization plan developed by SSA also identified potential improvements related to software development.

#### *Initial Claims*

SSA's release of new software in 1985, the title II MCS, provided automation for initial claims taken in FIs. The MCS software captured initial claims data on-line as it was entered by FI staff onto the data base. In the first release of MCS software, this data was reformatted for processing in the batch Claims Automated Processing System (CAPS). From 1985 to the present, in a series of incremental releases, SSA has used batch and on-line processing to achieve an 82 percent automation rate for processing initial claims.

The initial claims process begins at an FI when an applicant files a claim. The claims are keyed by claims representatives through the MCS system. The MCS data collection software performs surface, relationship, and other edits. About 72 percent of initial claims are processed in an on-line, interactive mode in which earnings, entitlement, and benefits are computed. About 10 percent are processed in the CAPS automated system and 18 percent must be forwarded to a processing center for manual processing.

#### *Postentitlement Actions*

Any event after the initial filing of a claim for benefits is considered a PE event. These events can be reported by the beneficiary via a network of FIs and telephone centers, initiated by date triggers or other data already on file, or originated by other automated systems in the National Computer Center. The

current system for processing PE transactions is a collection of 28 programs that independently perform various functions to adjust payments and update client information. The functioning of these 28 software programs is inefficient and sometimes redundant because they are stand-alone programs and not integrated. As a result, the PE transactions involve manual processing by several thousand employees located at SSA's seven processing centers.

As an example of these inefficiencies, consider an event involving the receipt of a retroactive title II benefit by an individual who also receives Supplemental Security Income (SSI) benefits. SSA must process a "windfall offset" action to reduce the retroactive payment by an amount that reduces the SSI payments to equal what should have been paid had the title II benefits been received when due. Currently, this action involves three transactions requiring manual processing. Under Redesign, software integration will eliminate the manual processing of an exception action at the processing centers. SSA estimates that Redesign would have eliminated 177,000 exceptions during FY 1996 related to this event alone.

### **Automation of Processing Exceptions and Limitations**

In the early 1990's, due to staff reductions and growing needs for direct customer contact, SSA's managers requested the Office of Systems (OS) to provide work load relief by automating beneficiary transactions that the MCS and PE systems could not complete automatically. In response, OS conducted a study that identified 400 types of exceptions in the title II systems. These exceptions required an estimated 2,000 work years of manual processing annually in FOs and processing centers.

### **SSA Redesign Initiative**

SSA noted that all of the title II software programs required changes if the Agency were to save 2,000 work years annually by automating the processing of exceptions and limitations. SSA recognized that many of the same changes were needed in different programs, leading to the recommendation that SSA develop a common code for use in title II processing. In late 1994, SSA formally approved the redesign project. The long-term purposes of Redesign are to: 1) eliminate the manual processing of exceptions and alerts, 2) make additional information available on-line, and 3) consolidate title II computer programs.

The reengineered software under Redesign will consist of 13 common business functions in over 700 process modules that serve all initial claims and PE transactions. The process of developing Redesign software consists of combining the modified existing code with newly developed code into the redesigned system. This effort is a multi-step process that begins with defining data needs and developing processing specifications, and ends with rigorous validation against

thousands of sample test cases depicting a wide variety of event processing scenarios.

OS estimated that 1,470 work years over a 7-year period (FY 1996 through FY 2002) are needed to complete Redesign and to further improve MCS. During the same period, this effort will result in estimated savings of over 9,800 work years, of which 5,810 work years are specifically related to Redesign. The remaining 3,990 work years relate to MCS initiatives. The anticipated work year savings from Redesign by FY is shown in the following table.

**Table 1. Schedule of Redesign Work Year Savings**

<u>FYs</u>	<u>Release 1</u>	<u>Release 2</u>	<u>Total Savings (IN WORKYEARS)</u>
1996	0	0	0
1997	0	0	0
1998	0	0	0
1999	318	0	318
2000	318	0	318
2001	318	2,269	2,587
2002	318	2,269	2,587
<b>Totals</b>	<b><u>1,272</u></b>	<b><u>4,538</u></b>	<b><u>5,810</u></b>

## Bases for Savings

### *Integrated Client Data*

Redesign software will support a separate client update process prior to processing a transaction through the title II business system. Because SSA currently stores client data in seven data bases, there is significant redundancy in the storage of data. SSA has already begun to establish a single client-specific data base that contains information about a person that is not program specific.

The main benefit from integrating client data is increased efficiency by eliminating the need to key data more than once. Other benefits include improved service by eliminating the need for employees to ask customers for the same information more than once in multiple claims situations and by alerting employees when critical client data has changed in another system.

Eventually, all SSA systems will access information about a person from the client data base. A new process function to be developed after the completion of Redesign will determine if a transaction input for one system also requires processing by another entitlement system (title II, title XVI, Railroad Retirement, or

Black Lung). This new process will automatically send the transaction to any other programs that apply.

### ***Standard Batch Data Formats***

In 1997, SSA received data in differing formats from numerous sources both internal and external to the Agency. For example, address data may be formatted differently on the "change of address" input and the "direct deposit" input. The current processing system uses about 20 different programs to edit these elements. With Redesign, one software program will be used to convert all data input in the batch system to a single format before processing begins, resulting in a consistent address description.

### ***Transaction Information and Status***

Redesign will collect and store information for each beneficiary transaction and its processing status. This new feature will provide on-line access to more comprehensive customer information, enabling employees to respond more quickly and accurately to customer inquiries and to complete more transactions in a single contact.

### ***Batch Transactions Processed On-line***

In the Redesign environment, the basic business functions will be common between batch and on-line transactions. One objective of Redesign is to increase the number of transactions processed on-line. Once Redesign is completed, SSA will begin scheduling batch transactions currently run at night, to be made available for on-line processing during idle daytime hours whenever computer processing power is available. Transactions will be processed on-line, although SSA anticipates that there will always be a need to support some batch processing.

## **SCOPE AND METHODOLOGY**

Our objectives were to evaluate the plans for Redesign and to determine whether the project is on schedule. To accomplish our objectives, we: 1) held discussions with SSA Headquarters staff, 2) reviewed the redesign project and planning documents, 3) consulted third-party system design experts, and 4) reviewed industry information on modernizing software systems. We did not review the methodology used or verify the accuracy of estimates provided by SSA which are contained in this report. The audit was conducted at Baltimore, Maryland, and San Francisco, California, from January to October 1997. Our audit was conducted in accordance with generally accepted government auditing standards.

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# **RESULTS OF REVIEW**

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In 1994, SSA initiated Redesign and has made significant progress in the initial stages of design and development. The project has a clear goal of providing a single system for automating all title II business transactions. The planning activities have been both detailed and comprehensive, and included a CBA and an implementation schedule of two software releases in September 1998 and September 2000.

However, we found that project implementation is behind schedule and the expected final completion date is now unknown. Although SSA estimated the delay for the first release from 3 to 6 months, that release only accounts for about 12 percent of the expected total annual savings related to Redesign. Thus, the estimated annual savings of 2,587 work years developed in CBA for FOs and processing centers will substantially be delayed until completion of the project, thereby preventing SSA from reallocating staff to help meet other customer service needs.

Project implementation has been delayed for a number of reasons, including lack of Medicare business knowledge and insufficient assignment of staff and resources. This occurred even though SSA's Business Plan identified Redesign as one of five critical initiatives needed for the Agency to achieve its business and performance objectives. We are recommending that SSA increase the staffing and equipment resources assigned to the project in order to accelerate the software coding and testing.

## **REDDESIGN PROJECT STATUS**

Our review of the programming effort for 9 of the 13 new business functions showed that only 20 percent of the tasks were completed. Two of the nine functions were 100 percent completed, three were just started (less than 2 percent completed), and the remaining four were less than 30 percent completed. Overall, we found that the available resources for software development are between 70 and 75 percent of the necessary resources that SSA estimated would be required to complete the project.

In March 1997, Redesign officials indicated that SSA was on schedule to meet the initial release date of September 1998. However, by September 1997, the following changes to the project schedule were reported to SSA management:

- a minimum delay of 3 to 6 months for the initial software release, and

- a proposed change to the number and timing of software releases for the project.

A second or "interim" release was proposed to provide some of the work year savings indicated in CBA. The date for the final release has not been set.

## **FIELD STAFF SAVINGS UNREALIZED**

Redesign officials stated that the first release represents a major change in the way SSA currently performs title II processing. However, the annual savings of 318 work years expected with the 1998 release represent only about 12 percent of the expected annual project savings of 2,587 work years. Each year of delay in completing Redesign will result in over 2,000 work years of field employee effort that cannot be redirected to other service needs for the Agency.

The initial annual savings scheduled for the first release (expected to be delayed at least 3 to 6 months) are related to:

- increased initial claims automation (180 work years),
- automation of title XVIII (Medicare) data collection (63 work years),
- automation of data collection for the continuing disability review program (48 work years), and
- automation of miscellaneous PE actions (28 work years).

However, the remaining 2,269 annual work year savings will not be achieved until completion of the final software release. The key factor is that the final software release is planned to replace the existing 28 programs, thereby reducing computer processing exceptions by 80 percent and virtually eliminating manual computer edits for all initial claim and PE actions.

We identified additional benefits from Redesign that were not included in CBA. These benefits consist of work year savings associated with expected productivity gains in OS. The new streamlined title II code will be easier to maintain and modify. An OS manager estimated that the number of programming staff needed to maintain and develop title II business function software will be about 25 percent of the programmers presently performing these activities. This equates to an annual savings of 9 1.5 work years based on the current staffing level.

## **REDDESIGN PROGRESS IS SLOW**

### *Lack of Medicare Expertise*

The initial software release is at least 3 to 6 months behind schedule. According to the project manager, one key reason was delays in completing development of critical software for processing Medicare enrollment data. SSA is still in the stage of developing the processing specifications for the new common business function that handles beneficiary enrollment data. Completing this task requires staff with knowledge of the Medicare program. Project officials stated that they had been unable to augment staff with the necessary background to complete this stage.

### ***Shortage of Programmers and Analysts***

Project officials stated that they have not been able to retain a sufficient number of qualified programming staff on the Redesign project. Significant other commitments which reduce staff availability include:

- maintaining existing software,
- developing new software to support legislative changes, and
- making existing programs compliant with "year 2000" changes.

In addition, Redesign needs more analysts who understand the title II business functions to expedite the testing, validating, and integrating of completed software modules. Final testing requires the completed software to process beneficiary transactions meeting a wide variety of business situations.

### ***Use of Personal Computers for Software Testing***

The project manager stated that 93 of the 117 assigned programming staff are still waiting for the necessary personal computers (PC) or PC upgrades to test the completed software code. As a result, testing is performed on the mainframe computer using an input terminal but this has been a slow process. Although no estimate of time savings was provided, OS recognizes that PCs can accelerate the testing of completed code. OS has contracted with a vendor to deliver PC software that will aid in the testing of completed code. Nonetheless, at the time of our review, the programming staff was still awaiting the arrival of the high-performance PCs.

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# **CONCLUSIONS AND RECOMMENDATIONS**

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The need for a redesigned system for title II has been recognized for about 15 years. In the early 1980's, SSA's systems modernization plan recognized the need for a redesign of title II software to streamline both systems and field operations. In 1983, SSA completed the functional requirements for the redesign of a single system of title II business software. However, it was not until the early 1990's that the Agency addressed the impact on FIs of 28 PE programs with their numerous redundant business functions and the lack of integrated data with the initial claims process.

In 1994, SSA initiated Redesign to create a single system for processing both initial claims and PE events. Although the project has been underway for nearly 3 years, SSA has had to delay the initial software release scheduled for September 1998 by 3 to 6 months. This first release will have minimal impact on work year savings in the field. A second release has been added to provide some interim benefits to the field. The date for the final release to complete the project has not been established. As a result, the realization of thousands of work year savings will be delayed which, in turn, reduces the staff resources available for reallocation to other customer service needs.

We recommend that SSA increase the resources assigned to Redesign in order to achieve its timely completion. Specifically, we recommend that SSA:

1. commit greater resources to the project, including the needed programmers and program analysts;
2. obtain necessary staff with expertise in the Medicare program to expedite the timely completion of critical software modules; and
3. prioritize delivery of high-performance PCs to OS staff to expedite the testing of completed software modules.

## **AGENCY COMMENTS**

In its written response to the draft report, SSA agreed with our findings and recommendations. To date, SSA has assigned additional resources to the project, including staff with Medicare and health insurance expertise, and obtained high-performance computers to expedite completion of the software modules. SSA also stated that it has re-evaluated the implementation schedule for the

project and developed a strategy to accomplish the Redesign through incremental software releases. SSA acknowledged that Redesign will not be fully implemented by FY 2000 but has planned several releases to provide interim work year savings for FYs 1999 and 2000. (See Appendix A for the full text of the Agency's comments.)

## **OIG RESPONSE**

We agree with the corrective actions taken by the Agency.

# **APPENDICES**

**APPENDIX A**

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**SSA COMMENTS TO THE DRAFT REPORT**

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## **MAJOR CONTRIBUTORS TO THE REPORT**

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**SSA ORGANIZATIONAL CHART**

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