United States General Accounting Office

GAO

Report to the Chairman,
Special Committee on Aging,
U.S. Senate

September 1991

SSA COMPUTERS

Long-Range Vision Needed to Guide Future Systems Modernization Efforts

GAO/IMTEC-91-44

GAO

United States
General Accounting Office
Washington, D.C. 20548

Information Management and
Technology Division

B-243269

September 24, 1991

The Honorable David H. Pryor
Chairman, Special Committee on Aging
United States Senate

Dear Mr. Chairman:

At your request, this report discusses the Social Security Administration's (SSA) systems modernization initiatives. SSA relies heavily on its information systems in providing the services and benefit payments that affect nearly every U.S. citizen. The objective of our review was to determine the extent to which SSA's information systems are prepared to meet current and future challenges. Appendix I details our objective, scope, and methodology.

Results in Brief

After nearly 10 years of modernization activity, SSA has achieved some successes, but has yet to establish a clear long-range vision to guide its use of information technology. Basically, SSA has been automating existing practices in a piecemeal fashion. While the agency has achieved some immediate benefits by doing so, over the long term it will need to explore more fundamental improvements in its work processes if it is to meet the enormous challenges that the next century holds. Without a clear long-range plan, SSA risks being overwhelmed by the huge increases in beneficiaries that loom on the horizon.

SSA's progress in modernizing its information systems has been impeded by a lack of management continuity. Over the last decade, the agency's long-range planning efforts have suffered from a series of redirections caused by both the lack of a clear and consistent long-range vision and frequent changes in leadership. A stable guiding force—in the form of a commonly shared vision and a permanent advisory body—is needed to offer consistent direction and advice that will transcend leadership changes. This is especially needed now as SSA is about to embark on another modernization initiative.

More immediately, because SSA failed to upgrade its backup and recovery system during its recent modernization, the agency backs up only 20 percent of its current work load, down from the nearly total backup coverage the agency maintained in 1985. This decline has left

SSA open to unacceptable risks of data loss that could dramatically disrupt the daily performance of agencywide data processing and telecommunications. Such a data loss could lead to impaired service and hundreds of millions of dollars in unnecessary or excessive payments to ineligible beneficiaries and delayed payments to newly eligible beneficiaries. Short- as well as long-term solutions are available to help correct this deficiency.

Background

SSA was an early pioneer in using automated systems. During the 1960s, the agency's information systems were held out as a model for other automated data processing (ADP) users. The 1970s, however, were marked by an overall decline, as SSA failed to take advantage of advances in information technology. By 1982, the agency's systems were in serious trouble. According to SSA, its systems were faced with a "disaster of epic proportions." Certain aspects of SSA's service to the public were considered poor at best. The posting of annual wage reports was 4 years behind, and there were numerous complaints about the time it took to issue a social security card. One of the many serious consequences cited by SSA in 1982 was the risk of failing to pay social security benefits accurately and on time.

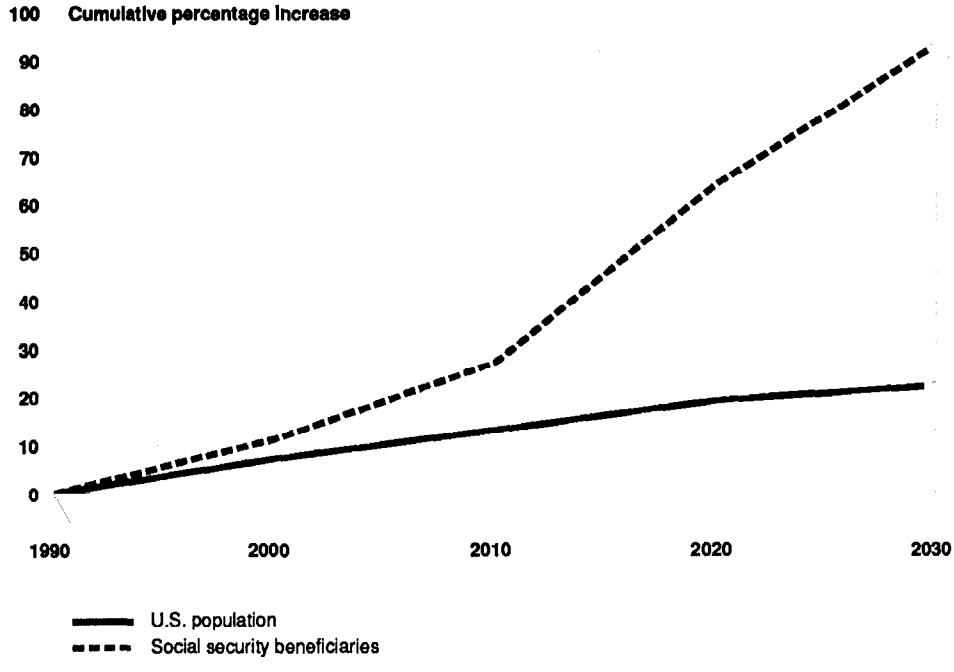
To survive this crisis and move to modern, state-of-the-art computer technology, SSA spent over $4 billion on operating and modernizing its systems from 1982 to 1990. The agency acquired significant capacity through hardware upgrades and converted much of its data stored on tape to direct access storage devices. SSA also began moving some of its outdated batch processes to an on-line system accessible to computer terminals throughout the country. Processes, such as those supporting the Old Age, Survivors, and Disability Insurance Program (Title II), were automated and nearly 40,000 computer terminals were connected directly to the National Computer Center (NCC) in Baltimore, Maryland, for processing claims and queries. In 1988, an additional computer function was created when the agency started a national toll-free number, which requires on-line access to NCC computers, for responding to public telephone queries.

These initiatives have resulted in improvements in service, such as reducing the time to issue a social security card from 42 days to 10 days, improving the error rate on retirement payments by 60 percent, eliminating the wage posting backlog, and reducing the time needed for cost of living allowance calculations from as long as 3 weeks to about 24 hours.

Long-Range Corporate Vision Is Needed

While SSA's modernization initiatives have resulted in service improvements, these efforts have not prepared SSA to meet the challenges of the 21st century. SSA has made only incremental, piecemeal changes. Many of its operations continue to be labor-intensive and paper-driven. This approach—with no overarching, guiding vision—will not be able to meet the agency's future challenges. SSA's ability to respond to the needs of our nation will almost certainly be tested by the unprecedented growth in beneficiaries over the next 40 years (see fig. 1).

Figure 1: Increase in U.S. Population and Social Security Beneficiaries, 1990-2030 (projected)



Population projections by Bureau of the Census; social security beneficiary projections by Social Security Administration

The coming increase in beneficiaries will far outpace the increase in total population. Beginning in 1996, "Baby Boomers"—those born between 1946 and 1964—will begin entering their fifties. Statistics show that disability claims begin increasing at this time, putting a greater strain on the predominantly manual processing of these claims. Beginning in 2008, this population will reach retirement age, producing even more social security beneficiaries. This will add to the task of processing monthly social security checks and maintaining and updating

beneficiary data files. In addition, the growth of the labor force is expected to slow in the coming years. This will make it difficult for SSA to recruit and retain a highly skilled workforce.

Meeting this challenge will require that SSA adopt an enlightened, forward-thinking approach to managing information technology based upon a clear vision or long-range plan for achieving the agency's business goals. These goals should include providing the level of service the public has come to expect from the more responsive elements of the private sector. In an age of automated bank teller machines and telephone shopping, the public has a right to expect that government employees serving them will be as responsive to their needs as are good private-sector companies.

This means going beyond automating existing processes. Leading organizations in industry and government today are using information technology to reengineer their business practices to streamline operations and provide better service. With the growth in its client base expected in the next several decades, SSA can afford to do no less.

Reengineering for Customer Service and Cost Savings

One opportunity for reengineering SSA's business practices involves the agency's centralized computer system design. Under this design, all system users must communicate, often over great distances, with the NCC computers in Baltimore before they can perform basic functions or respond to clients' needs. Other designs may offer greater efficiency and lower costs. The current system costs more than $400 million a year to operate and maintain.[1] One of the largest annual expenditures for this system, second only to personnel costs, is telecommunications, which amounted to about $122 million in 1990. About $58 million—or nearly half—of this expense was for on-line data transmission and toll-free telephone service. Each time an employee in one of SSA's nearly 1,350 field locations performs a function on the computer terminal, a series of telecommunications transactions must be made between the terminal and the NCC computers in Baltimore, Maryland. These transactions, which according to SSA average over 11 million per day, place a significant demand on both NCC computers and the telecommunications network. These same computers are vital links in responding to toll-free telephone calls between SSA field representatives and citizens.

[1]Includes personnel; commercial services; capital investments; and equipment, space, and other operating costs.

SSA needs to consider reengineering this system in light of the opportunities provided by information technology. Such opportunities could include distributing the current NCC computing work load among some of SSA's major field locations to minimize telecommunications costs and reduce dependence on NCC. This could be done by using one of many different schemes for segmenting SSA's massive data bases (such as by active versus inactive files, or by geographic location of beneficiary), and distributing these data bases to the field offices. These offices, in turn, would have the computing power (using personal computers, for example) to provide services to their clientele without having to fully rely on NCC.

In April 1991, SSA provided us with its recently completed Information Systems Plan, which is intended to serve as a guide for the agency's computer systems through the nineties. The plan calls for moving SSA toward a system connecting personal computers in the field offices to NCC and several regional processing locations and for integrating voice, data, and video communications. A total of 23 initiatives are set forth in the plan to create this environment. The plan contains no cost estimates. Consequently, we obtained from SSA cost data for four of the 23 ISP initiatives. The capital costs for these four initiatives are estimated to be nearly $1 billion alone.

While the plan offers opportunities to begin addressing some of our concerns, SSA continues to rely on the piecemeal automation of existing processes, giving little recognition to business objectives. Without a long-range vision linking its business objectives and its information technology plans, it is doubtful that SSA's information systems will meet the needs of the agency, beneficiaries, or taxpayers in the coming years. To assess progress in implementing the vision, SSA will need to establish performance measures or standards, such as customer response times and cost per transaction statistics.

Labor-Intensive SSA Operations Remain to Be Automated

Within the context of an overall vision, opportunities also exist to upgrade current field processes through automation. These changes could include the addition of scanning machines and further automation of Title II and Supplemental Security Income program (Title XVI) processes.

SSA received 19 million applications for new or replacement social security cards during fiscal year 1990. During our field work, we observed that processing these applications involves several steps,

including manually recording information about applicants, accumulating these applications until a significant number are received, and then keying in the information and sending it to NCC.

The social security card application process offers SSA the potential for the introduction of technological innovation. One option could be using scanning machines (located at program service centers, for example) to capture information from applications and transmit it directly to NCC. The social security card application is a one-page form that closely resembles the Internal Revenue Service's (IRS) 1040 EZ tax form. With slight modification, SSA's form might well be made machine-readable; the information contained could then be scanned and transmitted to NCC using equipment similar to that successfully used by IRS to scan the 1040 EZ form. Although SSA headquarters officials said they had studied and rejected as impractical the possible use of scanning machines in 1984, advances have been made in scanning technology since then that may warrant a second evaluation.

Even greater potential for benefits lies in further automating certain disability aspects of Title II, and the majority of Title XVI programs. During our field office visits, we noted that the processing of disability applications is still manual and paper-driven. It includes completion of form letters to doctors authorizing release of certain medical information and to states asking for disability determinations. These letters are completed on typewriters using, for the most part, the same information (i.e., name, address, age, date of birth, social security number, etc.) that the representative previously keyed in on the computer as part of preparing the application itself.

The Title XVI work load is even less automated. SSA representatives must manually prepare not only letters to doctors and to states asking for information, but also several multi-page application forms containing information provided by the applicant. After this, the representative must prepare another form, capturing key information from the application and these other documents. This form is then keyed and transmitted to NCC using a computer terminal. This final step is the only one involving any interaction with SSA computers. This process could benefit significantly from even rudimentary automation to eliminate retyping and duplicative data entry.

SSA's Changing Leadership Poses Barrier

For the modernization to be successful, management continuity is essential. SSA endured numerous changes in leadership over the last few years. Since 1973, SSA has had ten commissioners, serving for an average of 2-3 years each. Four of these commissioners were in acting capacities for a total of 47 months. In a March 1987 report, we pointed out that instability in top leadership was resulting in inadequate control over SSA's computer systems modernization: "SSA's slow progress in dealing with its most urgent and critical problem—difficulties in modernizing its computer systems—is largely attributable to instability of leadership and the accompanying changes in direction since 1975."[2]

Along with the new ideas and policies that accompany a new commissioner, one frequently sees organizational changes and restructuring, such as those that occurred at SSA in 1975, 1979, 1983, 1986, and 1990. Such organizational disruptions often lead to changes of direction, diminished accountability, and poor long-term planning. For example, the agency's long-range information technology plans have frequently changed direction. The first such plan was known as the Systems Modernization Plan. It was revised four times in the 5 years following its issuance in 1982. In 1988 the plan was merged into a new plan known as SSA 2000: A Strategic Plan. The current Information Systems Plan is only 5 months old. None of these plans were in place long enough to fully complete their objectives.

With a consistent corporate vision, the disruptions caused by such changes can be minimized. To reinforce this continuity, it is essential that SSA work with the Congress to reach agreement on a shared vision. It should also work with executive agencies that have oversight responsibilities, such as the Office of Management and Budget for budget matters, and the General Services Administration for procurement matters. In addition the agency should have at its disposal a panel of acknowledged experts to provide the Department of Health and Human Services (HHS) and SSA with advice, guidance, and direction. SSA has from time to time contracted with the National Academy of Sciences[3] to advise and consult the agency on systems modernization.

[2]Social Security Administration: Stable Leadership and Better Management Needed to Improve Effectiveness (GAO/HRD-87-39, Mar. 18, 1987).

[3]The actual work performed under these contracts was performed by the National Research Council, which was created as part of the National Academy of Sciences in 1916.

Inadequate Systems Backup and Recovery Put Social Security Services and Benefit Payments at Risk

Large-scale system changes and further automation of field processes, such as those discussed above, are examples of areas SSA must address once it has established a vision for the future. However, because of the risk to services and benefit payments, SSA's inadequate backup and recovery is a problem that must be addressed immediately.

Prior to 1985, SSA operated mostly in a batch processing[4] environment. Beginning in 1985, this work load became almost completely backed up. During the ensuing years, however, the agency made two significant changes. First, it shifted about 80 percent of NCC's work load to on-line processing. Second, SSA instituted toll-free telephone communications, the effectiveness of which rests almost entirely on NCC computers and on-line terminals. Neither of these changes is covered by the agency's backup and recovery provisions for NCC. As a result, SSA backs up only its batch processing, which is about 20 percent of its current work load.

Recent history provides examples of the importance of viable backup and recovery plans to government agencies and private-sector firms. In 1990, a fire in an electrical transformer knocked out power to the financial district of New York City, affecting institutions such as the Federal Reserve Bank of New York and the American Stock Exchange. In response, the Federal Reserve was able to shift to backup arrangements and continue processing vital interbank funds transfers. The American Stock Exchange, on the other hand, without immediate backup capacity, had to curtail processing of stock transactions.

SSA stores a copy of its critical data bases and computer programs—consisting of 29,000 reels of magnetic tape—underground, in western Pennsylvania. If a disaster shut down NCC, these tapes would be trucked to COMDISCO, a commercial computer center in north-central New Jersey, under contract to SSA.[5] However, because the entire system is dependent upon telecommunications with NCC, delays in updating beneficiary files would occur. For example, changes affecting the status of beneficiaries would be recorded manually in field offices and then sent to program service and data operations centers to be entered onto magnetic tape. These tapes would then be forwarded to COMDISCO, where key NCC computer staff, using COMDISCO facilities, would use the tapes to update beneficiary files.

[4]For SSA, batch processing means that each day's transactions are accumulated in a batch and processed centrally at NCC during evening hours.

[5]Fees charged to SSA under the contract for maintaining and testing this service capability amounted to $208,000 during calendar year 1990.

In the meantime, SSA would ask Treasury to issue the next month's beneficiary checks for the same amounts as the preceding month's checks. This would be continued until SSA could give Treasury updated data. Until these data were updated, newly added beneficiaries would not receive their checks, while those no longer eligible would continue to receive benefits. According to a January 1991, study done for SSA by Martin-Marietta Systems Information Group, $391 million in overpayments would occur in the first month alone, and a 3-month shutdown would result in more than $1.5 billion in overpayments.

COMDISCO does provide complete backup services to other customers. However, company officials told us SSA has never requested such services. Both COMDISCO and SSA officials acknowledge that with additional backup, SSA could restore an acceptable level of on-line and teleprocessing capability on an interim basis, within 60 days. This could be arranged by amending the existing contract.

One of the 23 initiatives included in its March 1991 information systems plan was an initiative for backup and recovery. However, the plan only commits SSA to completing an analysis of options by the end of fiscal year 1991, and is silent about specific remedial steps to be taken beyond that. Since this condition has existed for several years, it is time to take more immediate steps.

SSA's lack of a comprehensive backup and recovery capability is a deficiency that must be reported under the Federal Managers' Financial Integrity Act. Under this act, agencies must establish a system of internal controls to ensure that their mission and related activities are carried out, and all assets are safeguarded against waste, loss, unauthorized use, and misappropriation. This includes annually reviewing their internal controls and reporting any weaknesses identified in these controls along with the status of corrective actions. In its most recent Federal Managers' Financial Integrity Act report, HHS reported no such weakness at SSA.

Conclusions

SSA has invested considerable time and resources over the past 10 years in attempting to modernize its immense computer network. Despite this investment, SSA finds itself facing several serious challenges. In light of the massive demographic changes that loom on the horizon, the agency must consider reengineering the way it does business to take full advantage of automation. Unless it does so, SSA's overall operations may not be able to provide timely and efficient services to SSA's millions of retired

and disabled clients in the future. The content of this reengineering ought to include both improvements to its current centralized systems design and reduction of its labor-intensive, paper-driven processes. At the same time, SSA needs to maintain daily operations at a high level and provide for adequate systems backup and recovery, the loss of which would impair client services and create millions of dollars in erroneous payments.

SSA's recently issued information systems plan shows some signs of addressing these concerns. However, because the plan does not articulate a clear long-range vision, considerable doubt remains that SSA will be able to adapt its information systems to accommodate coming demographic changes. In our view, SSA must work with both HHS and the Congress to create a shared vision of how it will conduct its business in the future. The agency would also benefit by seeking advice from external advisers that have successfully developed similar high-volume on-line transaction processing systems. These partnerships could help SSA reengineer its information systems to better serve the public in the coming years.

Recommendations

In order to achieve a stable information resources management environment at SSA, we recommend that the Secretary of Health and Human Services direct SSA to take the following actions:

- Articulate a clear, consistent vision of how it intends to use information technology to do business in the future. This vision should go beyond automating current processes; instead, it should be based on a fundamental reconsideration of the agency's organization and business processes in light of the opportunities offered by current technology. This vision should be focused on providing the best possible service to the public, streamlining operations, and reducing costs through the use of labor-saving technology—such as scanning devices—that would simplify and enhance data input, retrieval, and output for field personnel.
- Provide the continuity needed to achieve the modernization by (1) creating a shared vision with its congressional oversight and appropriations committees, HHS, the Office of Management and Budget, and the General Services Administration; and (2) continue with a permanent panel of acknowledged experts to provide HHS and SSA with continuing advice, guidance, and direction over the course of the modernization.
- Take immediate steps to provide for enhanced backup and recovery of NCC computers to ensure continued operation of on-line terminals and the effectiveness of SSA's customer service telephone system. These

steps should include (1) contracting for short-term backup and recovery as soon as possible, and (2) developing a long-term solution to SSA's backup and recovery needs within a year. At the end of this period, the agency should report on its progress in resolving this critical issue to its congressional oversight committee. Until this issue is resolved, SSA should also report backup and recovery as a material weakness in its Federal Managers' Financial Integrity Act reports.

Agency Comments and Our Evaluation

On August 13, 1991, HHS provided us with written comments on a draft of this report. HHS generally agreed with our recommendations and disclosed a number of corrective actions that had already been completed, are underway, or planned. However, HHS felt that our assessment of SSA's systems modernization initiatives did not recognize the agency's careful planning. The comments pointed out that these initiatives have been based on a strategic corporate vision and a plan that began nearly a decade ago. They noted that the major objectives of the plan were achieved and that the agency's vision has since been updated by its "just-completed" Agency Strategic Plan—a focal point product of SSA's Unified Planning Process. On the tactical planning level, HHS pointed out that its March 31, 1991, Information Systems Plan provides long-range planning for important systems decisions and will be a primary management and budgeting tool.

We disagree with HHS' assessment of SSA's systems planning process. Since the early years of SSA's systems modernization, we have produced reports and congressional testimony criticizing the agency's overall planning, generally noting that the agency failed to adequately plan for the modernization, and the plans it did have were neither vision-based nor were they always implemented.

As part of this current review, we tried repeatedly over the past 15 months to obtain a copy of the Agency Strategic Plan and learn from it what SSA's vision is. We were told initially that the Commissioner, in late 1989, directed her staff to prepare the agency's vision and this was to have been incorporated in the new Agency Strategic Plan to be issued in late September 1990. Several delays have since occurred and SSA was unable to furnish us with a copy of the plan during our review. On August 13, 1991, we again requested SSA's Agency Strategic Plan but we were told it was under review by the Secretary of HHS, had yet to be printed, and would not be available for our review for at least another couple of weeks.

With respect to the Information Systems Plan, we have two concerns. First, the plan does not flow from a corporate vision for SSA and the Agency Strategic Plan. In this connection, the Information Systems Plan precedes the Agency Strategic Plan by at least 5 months. Second, as mentioned in the report, it contains no cost estimates for the 23 initiatives comprising the agency's future systems modernization; thus its value as a "budgeting tool" is questionable.

HHS also had a number of additional comments relative to our recommendations and other matters that it felt needed clarification. The full text of HHS' written comments and our additional responses are contained in appendix II.

As agreed with your office, unless you publicly announce this report's contents earlier, we plan no further distribution until 30 days from the date of this letter. At that time we will send copies to the Chairmen, House and Senate Committees on Appropriations; Chairman, House Committee on Government Operations; Chairman, Senate Committee on Governmental Affairs; and the Director, Office of Management and Budget. We will also send copies to the Secretary of Health and Human Services, and will make copies available to other interested parties upon request.

This report was prepared under the direction of Frank W. Reilly, Director, Human Resources Information Systems, who can be reached at (202) 275-4659. Other major contributors are listed in appendix III.

Sincerely yours,

Ralph V. Carlone

Ralph V. Carlone
Assistant Comptroller General

Contents

Abbreviations

ADP	automated data processing
AT&T	American Telephone and Telegraph Co.
GAO	General Accounting Office
HHS	Department of Health and Human Services
HRD	Human Resources Division
IMTEC	Information Management and Technology Division
IRS	Internal Revenue Service
ISP	Information Systems Plan
NCC	National Computer Center
SSA	Social Security Administration

Objective, Scope, and Methodology

The objective of our review was to determine the extent to which the agency's systems are ready to meet current and future challenges. To meet this objective, we met with agency officials responsible for systems planning activities and other ADP operations. We reviewed our past reports on systems modernization at SSA, and those of the Department of Health and Human Services' Office of the Inspector General, the Office of Technology Assessment, the National Academy of Sciences, Systems Research Associates, and Computer Technology Associates. We reviewed systems modernization planning documents and other SSA plans for modernization. We interviewed industry personnel, such as American Telephone and Telegraph (AT&T), to assess possible solutions to SSA systems needs. We visited SSA district offices, a program service center, a teleservice center, a data operations center, a records storage center, and COMDISCO—SSA's backup facility—to observe the interaction between these offices and NCC, and determine the impact of the agency's computer systems on operations.

To develop an estimate of the growth of the Title II and Title XVI beneficiary population, we utilized several sources of information. For Title II beneficiary population growth, we used figures for 1990 to 2030 contained in Communication from the Board of Trustees, Old-Age and Survivors Insurance and Disability Insurance Trust Funds, 1990. To develop an estimate of Title XVI beneficiaries, we utilized figures provided by SSA's Office of the Actuary and Office of Budget for the period 1990-1996 (the only period SSA provided Title XVI beneficiary growth estimates). We developed a growth pattern for Title XVI beneficiaries based on the percentage of Title XVI beneficiaries in relation to the Title II beneficiary population growth 1990 to 1996, and applied this percentage growth factor to Title II beneficiary growth statistics for the period 2000 to 2030. This yielded a total Title II/Title XVI beneficiary population estimate for the period 1990 to 2030.

Our audit work was conducted between May 1990 and August 1991, in accordance with generally accepted government auditing standards. Interviews and research were conducted at SSA headquarters in Baltimore, Maryland; Health and Human Services headquarters in Washington, D.C.; district offices and service centers in Atlanta, Georgia, and Birmingham, Alabama; data operations center and records storage facility in Pennsylvania; COMDISCO in North Bergen, New Jersey; and at several private companies in the Baltimore-Washington metropolitan area.

Comments From the Department of Health and Human Services

Note: GAO comments supplementing those in the report text appear at the end of this appendix.

DEPARTMENT OF HEALTH & HUMAN SERVICES Office of Inspector General

Washington, D.C. 20201

AUG 13 1991

Mr. Ralph V. Carlone
Assistant Comptroller General
United States General
Accounting Office
Washington, D.C. 20548

Dear Mr. Carlone:

Enclosed are the Department's comments on your draft report, "SSA Computers: Long Range Vision Needed to Guide Future Systems Modernization Efforts." The comments represent the tentative position of the Department and are subject to reevaluation when the final version of this report is received.

The Department appreciates the opportunity to comment on this draft report before its publication.

Sincerely yours,

For Richard P. Kusserow
Inspector General

Enclosure

COMMENTS OF THE DEPARTMENT OF HEALTH AND HUMAN SERVICES
ON THE GENERAL ACCOUNTING OFFICE'S DRAFT REPORT,
"SSA COMPUTERS: LONG RANGE VISION NEEDED TO GUIDE
FUTURE SYSTEMS MODERNIZATION EFFORTS" (IMTEC-91-44)

General

The report focuses on long-term information systems planning at the Social Security Administration (SSA), and indicates that SSA "has yet to establish a clear long-range vision to guide its use of information technology." We believe this assessment does not recognize careful SSA systems modernization planning that began nearly a decade ago. SSA's systems modernization process is evolutionary and based on a strategic vision. SSA modernization progress has followed a plan which began in 1982, the Systems Modernization Plan (SMP). The many significant hardware and software improvements which have taken place at SSA since 1982 have been guided by the SMP and the Business Systems Planning Process.

To obtain expert advice on its modernization efforts, SSA in 1989 initiated establishment of a National Academy of Sciences (NAS) panel. In its 1990 report, Systems Modernization and the Strategic Plans of the Social Security Administration, NAS concluded that "the major goals of the Systems Modernization Plan have been successfully achieved." Now that the major SMP objectives have been accomplished, the Commissioner has directed that SSA update the Agency corporate vision by pursuing a Unified Planning Process, which will drive SSA's plans for the 1990's and beyond. The focal point of this process is the Agency Strategic Plan (ASP). The ASP articulates SSA's service goals and objectives and describes in general terms how it will achieve them. It also describes how SSA will position itself to handle the workload increases that will develop over the next 15 years. The ASP includes a description of the future population SSA will be serving, information on required resources, consideration of application of technological advances, and information about the possible impact of a variety of changes on SSA's business processes. The use of advanced technology is key in all of the Agency priorities outlined in the ASP. Beginning to turn SSA into a paperless agency and establishing a cooperative systems architecture are prominent features of the plan and address major concerns presented in this GAO report.

On the tactical level, SSA has developed a long-range plan for managing information systems in the 1990s. Derived from the ASP, the Information Systems Plan (ISP) documents important systems planning decisions, and will be a primary management and budgeting tool. The ISP is essentially complete and has been effectively incorporated into the Agency's systems decision-

making process. However, adjustments to the plan are occurring as a result of the fiscal year (FY) 1993 budget process and as a result of the just-completed ASP. The ISP will be updated and reissued annually. Versions of the ISP have been shared with the Office of Inspector General (OIG), the General Services Administration (GSA), and NAS. The ISP has been well received and given a very positive reaction.

As noted above, SSA, like most major business and government organizations, has taken an evolutionary approach to modernization. This does not mean that progress is piecemeal and unplanned. The accomplishments made under the SMP have dramatically improved SSA's business process in recent years. SSA employees and other authorized users have quick access to SSA client data bases, and SSA is able to effectively process about 13 million transactions daily through use of modernized hardware and software. The Agency can now quickly issue Social Security number cards, process and track claims applications, and make changes to client records. SSA systems users, primarily in field locations, access the modernized systems about 400 times per second throughout the day. SSA now has a nationwide 800 number telephone service to better serve the public, and SSA has implemented new debt management capabilities. These improvements ensure SSA provision of timely and accurate responses and payments to millions of clients.

There is, however, more modernization work that remains to be done. Two major areas remaining to be modernized are Supplemental Security Income program processing and SSA's earnings records systems. Modernization projects in these areas are underway. Other significant initiatives underway at SSA, and included within the ISP, include conversion to FTS 2000 and consideration of distributed processing using intelligent work stations and local area networks. SSA is also beginning to pilot test use of optical disk technology for possible use in automating manual and paper driven processes such as the medical determination part of the disability claims process (medical evidence preparation, storage, and retrieval).

We agree that any major government agency must plan to meet the challenges that accompany changes in executive leadership. Like other agencies, SSA has experienced turnover in its executive leadership, but we know that turnover is the reality. We believe the Unified Planning Process described above, which produces the ASP and gives strategic direction to tactical plans such as the ISP, helps minimize any disruption resulting from executive turnover.

SSA systems are built on an architecture that will support new technologies. As data processing capabilities evolve, SSA will continually evaluate new technologies and incorporate those that are in the best interests of SSA clients and appropriate for SSA's business process.

General Accounting Office (GAO) Recommendation

Articulate a clear, consistent vision of how it (SSA) intends to use information technology to do business in the future. This vision should go beyond automating current processes; instead, it should be based on a fundamental reconsideration of the agency's organization and business processes in light of the opportunities offered by current technology. This vision should be focused on providing the best possible service to the public, streamlining operations, and reducing the costs through the use of labor-saving technology--such as scanning devices--that would simplify and enhance data input, retrieval and output for field personnel.

See comment 1.

Department of Health and Human Services (HHS) Comment

We agree and have already taken action to implement this recommendation. SSA's Unified Planning Process (including production of the just-completed ASP and its derivative tactical plans described above) addresses the points made in this recommendation.

GAO Recommendation

Provide the continuity needed to achieve the modernization by (1) creating a shared vision with its (SSA's) congressional oversight and appropriations committees, HHS, the Office of Management and Budget (OMB), and the GSA and (2) establishing a permanent, independent panel of acknowledged experts to provide DHHS and SSA with continuing advice, guidance and direction over the course of the modernization.

See comment 2.

HHS Comment

We agree. The products of the SSA Unified Planning Process (ASP, ISP, Information Resources Management Plan and budget submission) were developed to help SSA meet Federal information resources management requirements and provide SSA with a vehicle with which to share its systems modernization vision with the parties mentioned in the first part of the recommendation. SSA has made presentations concerning the ASP and ISP to some of the organizations cited in the first part of this recommendation, and plans to continue doing so as systems planning further evolves. SSA welcomes the recommendations of GAO, GSA, OMB, and OIG, and will work with them to develop ways of improving SSA's systems.

See comment 3.

With regard to the second part of the recommendation, SSA has had a contract with the NAS for 3 years. SSA entered this contract to enable it to seek independent advice, guidance and direction concerning long-range planning for systems modernization. The NAS panel is composed of large private sector corporation and academic experts. The NAS contract meets SSA's needs and SSA will continue to seek NAS guidance.

GAO Recommendation

Take immediate steps to provide for backup and recovery of SSA's on-line terminals and customer service telephone system. These steps should include (1) contracting for short-term backup and recovery as soon as possible, and (2) developing a long-term solution to SSA's backup and recovery needs within a year. At the end of this period, the agency should report on its progress in resolving this critical issue to its congressional oversight committee. Until this issue is resolved, SSA should also report backup and recovery as a material weakness in its Federal Managers' Financial Integrity Act (FMFIA) reports.

See comment 4.

HHS Comment

We agree that SSA's current backup and recovery system needs improvement. SSA has given backup and recovery a high priority--it is one of the Commissioner's Key Change Initiatives for the Agency.

During FY 1990, SSA sought the assistance and the advice of NAS on the subject of systems backup and recovery. The NAS panel formed a subcommittee to study the SSA business process and provided guidance on how to proceed. The subcommittee recommended that SSA develop a backup and recovery plan for processing the critical SSA workloads.

SSA began a backup and recovery improvement program by evaluating normal workloads and determining those which represent critical workloads in the event that normal processing at SSA's National Computer Center was interrupted for an extended period of time. Based on this evaluation, SSA determined that it would need to have about 20 percent of the computer terminals online to support the critical workloads.

Working with a contractor, SSA developed and determined the costs and benefits associated with several backup and recovery options. SSA has chosen what it considers to be the best method for backup and recovery after reviewing the alternatives with GAO, OIG, and NAS, and has started the procurement process for improving its backup and recovery capability. This procurement will provide the backup and recovery capability to allow processing of critical workloads by FY 1993.

SSA's public service telephone system has been supported by a contractor and, as mandated, will be supported by a second contractor under FTS 2000 beginning in September 1991. Backup and recovery is provided by the two contractors through their procedures and network design.

We are considering whether backup and recovery should be reported as a material weakness or, alternatively, as a significant management concern in its 1991 Annual Report under the FMFIA.

Other Matters

See comment 5.

The draft report states (page 1) that SSA systems modernization to date results from "using primarily hardware solutions." We disagree with this emphasis on hardware solutions. While SSA has, in fact, significantly enhanced its operations from the standpoint of modernizing its systems hardware, SSA has also implemented significant amounts of new software which give SSA's users immediate access to information needed to efficiently serve its clients. Modernized software developed at SSA in recent years consists of over 7 million lines of new code.

Now p. 2
See comment 6.

The report indicates (page 3) that "SSA spent over $4 billion on its systems from 1982 to 1990." We believe this statement may be misleading by implying that SSA has spent $4 billion on modernization, when, in fact, ongoing salary costs and day-to-day operations costs account for well over $3 billion of the $4 billion.

Now p. 5
See comment 7.

The report correctly notes on page 7 that the $400 million a year cost to operate and maintain systems includes personnel; commercial services; capital investments; and equipment, rental space and other operating costs. We believe that it would be useful to show that the portion of the money used annually for systems modernization (about $50 million annually, using this year's plan cost as a base) has been a small portion of that amount.

Now p. 5
See comment 8.

The draft report states on page 8 that SSA's annual telecommunications expenditure "amounted to about $122 million in 1990." We believe the report should note that this figure includes SSA telephone costs. In fact, only about one-third of total telecommunications costs, in FY 1990 was spent for the telecommunication costs (includes both line usage and required equipment costs) associated with SSA's data processing operations.

Now p. 5
See comment 9.

The report states (page 9) that "SSA officials agreed that more than $7 billion may be needed to carry out these (ISP) initiatives." As indicated above, the vast majority of the

information technology systems costs is for ongoing maintenance and operation of SSA systems. As part of the supporting efforts of the ASP, the Agency is continuing to develop the cost of the ISP and has not arrived at a final projection. Therefore, we do not agree with the inclusion of $7 billion as the cost of ISP activities. We believe this is an exaggerated estimate.

Now p. 4

With regard to the suggestion on page 7 that SSA consider other systems architectures than its current centralized computer system design, we agree and SSA has addressed this in the ISP. Moving into a distributed processing environment is a complicated issue which requires much study and planning. To ensure that proper planning for SSA's environment takes place, SSA has pilot projects underway designed to determine the optimum systems architecture.

Now p. 5
See comment 10.

The report gives the impression (page 8) that SSA telecommunication costs could be significantly reduced if data communication distances were shortened. This may not be the case. SSA has used FTS 2000 modeling capabilities to run a telecommunications model that would reduce distance. The model has shown that FTS 2000 costs are not primarily driven by distance and the model would cost more than the current SSA network. Also, discussions with the NAS indicate that telecommunications service providers may not base charges on distance in the future.

Now p. 5
See comment 11.

The report states (page 8) that the computers which control SSA's data communication network also control all toll-free telephone calls between SSA field representatives and their clients. Toll-free telephone calls (i.e., the national 800 number service) are not controlled by SSA computers.

Now p. 7
See comment 12.

The report implies on page 11 that only processing of retirement applications is automated. In addition to retirement applications, all types of title II claims applications (including auxiliary, survivors, disability, end-stage renal, and foreign claims) are filed and processed electronically via modernized software.

Now p. 6
See comment 13.

On page 10, the report indicates that the Social Security card application process "could benefit from using centrally-located scanning machines (at program service centers, for example) to capture information from applications.... The Social Security card application...closely resembles the Internal Revenue Service's (IRS) 1040 EZ tax form." The report also states on page 10 that Social Security card applications (form SS-5) are accumulated "until a significant number are received" before inputting the SS-5 information. These statements do not recognize SSA capabilities with regard to processing these applications and overstate the simplicity and effect of using

scanning technology in the process. First, there are significant differences between the processing of the SS-5 and the IRS 1040 EZ form. The 1040 EZ contains primarily numbers which are much more suitable to optical character recognition technology than the alpha character based SS-5. And the information on the 1040 EZ is not subject to evidentiary requirement verification prior to processing as is SS-5 information. Also, the report does not recognize that SSA's modernized Social Security card enumeration system allows for online entry of SS-5 applications. The SS-5s do not accumulate until there is a significant number prior to data entry. Finally, forwarding SS-5s to a centralized location for scanning would result in at least a 2 to 3 day delay in processing time, mailing costs, and clerical support costs. However, as stated earlier, SSA is investigating optical technology for application in a variety of areas.

GAO Comments

The following are GAO's comments on the Department of Health and Human Services letter dated August 13, 1991.

1. It is too early to tell whether the action referred to will adequately address our recommendation. SSA's Unified Planning Process has yet to go through a full implementation cycle, which calls for an Agency Strategic Plan, Information Systems Plan, tactical plans, and budgets. Also, we are concerned that the systems plan did not flow from SSA's vision and Agency Strategic Plan, as intended under the Unified Planning Process. Further, we have yet to see the Agency Strategic Plan and are therefore unable to comment on the extent to which it presents a clear, consistent vision of how SSA intends to use information technology to do business in the future.

2. HHS' comment omits any specific reference to SSA sharing its vision with the cognizant congressional committees. Obtaining a shared vision with these committees is crucial for transcending executive turnovers and resulting organization changes and assuring SSA's systems can meet the challenges of the 21st century. We urge SSA to give high priority to obtaining such a shared vision.

3. We applaud SSA's use of the National Academy of Sciences and recognize the fine work done by the Academy. Its contract to advise and consult SSA on systems modernization expires next spring. Therefore, we changed the wording of our recommendation that the permanent panel of experts should be continued beyond the spring of 1992, regardless of whether SSA extends the contract with the National Academy of Sciences, or elects to obtain such services elsewhere.

4. Our primary concern with this comment is that SSA still does not seem to appreciate the urgency of action needed. The agency has been aware of its vulnerability in this area for more than a year, yet it will be fiscal year 1993 before it plans to back up the critical portion of its work load. As noted in our report, the loss of NCC due to some catastrophic event could result in loss of service to the public and SSA's clients, and millions of dollars in overpayments.

With respect to backing up SSA's public service telephone system, we recognize that the system itself is subject to the backup and recovery practices of the system contractor. Our concern here is that without NCC and the operability of on-line terminals, the customer service telephone system would be rendered nearly useless. NCC computers and terminals are needed to respond to customer/client telephone queries, and

requests for changes to beneficiary records. We slightly modified our recommendation and related text material to clarify the action we believe is needed.

With respect to reporting backup and recovery under the provisions of the Federal Managers' Financial Integrity Act, we are concerned that SSA has yet to recognize the materiality of its deficiencies in this area. As indicated in HHS' comments on this report, NCC computers are involved in processing about 13 million transactions daily for its customers/clients and are accessed 400 times per second throughout the day by systems users, mostly at field locations. Without these computers, these services would be lost and, according to a study done for SSA, overpayments amounting to over $1.5 billion would result from a 3-month shutdown.

5. We recognize that upgrading systems hardware often entails new or upgraded software and have modified the statement in the report accordingly.

6. Throughout the course of our review, SSA was unable to provide us with a figure representing either its investment in the modernization or its total systems costs since 1982. The $4 billion figure in the report was derived by us through analysis of records maintained by HHS. Since these records did not identify which costs were for modernized systems and which were for previously existing systems, we did not state, or mean to imply, that the $4 billion represents the cost of modernization.

7. Our analysis showed that capital investments alone averaged more than $50 million annually during the past 9 years. The modernization also includes salaries and day-to-day operations costs. In our view, the $50 million a year figure mentioned in HHS' comment understates the investment made by SSA in these initiatives, and thus we have not cited it in the report.

8. We added language to the report pointing out that data transmission (about $19 million) and toll-free telephone service (about $39 million) were included in the $122 million cost figure for telecommunications.

9. We were able to estimate the capital investment costs associated with four of the 23 Information Systems Plan initiatives. These four initiatives were the only ones that contained sufficient cost estimates for our analysis. They were as follows:

Initiative	Cost (millions)
Programmatic Capacity Increases (mainframe)	$156
Direct Access Storage Capacity Increases	44
Telecommunications Network Expansion	409
Intelligent Work Stations (personal computers)	308
Total	**$917**

Because there is no way for us to determine if these four initiatives are representative of all 23, we cannot confidently project the total capital costs for the ISP at this time.

10. At the time of our review, SSA had not previously looked at any options or models that might lead to lowering costs due to shortened telecommunications distances. The one option that SSA did model was done at our prompting. But other options also need study, including decentralized and distributive designs using multiple locations for processing on both usage-based and distance-based platforms.

11. Clarifying language was made to the report in response to an earlier HHS comment (see GAO comment 4).

12. We agree that Title II claims, including " auxiliary, survivors, end-stage renal, and foreign claims" are filed and processed electronically by modernized software. However, as we discussed in our report, we found much of the processing of Title II disability applications was "still manual and paper-driven." The report was revised to clarify that our work focused on the disability process.

13. HHS disagreed with our suggestion regarding the use of scanning machines to process applications for new or replacement social security cards (SS-5s). It was not our intention in the report to suggest that this specific approach be adopted by SSA. We were trying to point out to the agency an example where innovative technological solutions could be applied to an area where we observed a labor-intensive, paper-driven process. We recognize that adoption of new technology poses difficulties. However, we also believe it is important that SSA examine innovative applications of new technology to its current processes as it prepares to meet the information system challenges of the 21st century. We have revised the language of our report to reflect this position.

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