Part I
An Overview

Chapter 1 summarizes the report of information technology management in the Social Security Administration (SSA), highlighting the conclusions of the study, and the issues related to SSA'S Systems Modernization Plan and its implementation from 1982 through 1986 and beyond.

SSA and Information Technology: Conclusions, Issues, and Options

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In 1982, the Social Security Administration *(SSA)* began an effort to thoroughly modernize its data-handling systems, in order to ". . . avoid potential disruption of service through immediate improvement of critical system deficiencies, to restore integrity and public confidence, to improve productivity, and to close the technology gap"[1] that had developed over the last decade.

Projected to cost $500 million and take 5 years to carry SSA "from survival to state of the art, the SSA Systems Modernization Plan *(SMP)* was one of the most expensive civilian information projects ever undertaken. It has since become a "rolling' 5-year plan with projected costs currently estimated at nearly $1 billion. See figure 1.

This report of SSA and its SMP addresses the following questions:

- Why did SSA face "potential disruption of service' through "critical system deficiencies" in 1982?
- Why did continual congressional oversight and executive branch monitoring fail

to prevent emerging problems from becoming critical?
- How sound are the basic strategies of SSA's Systems h'modernization Plan?
- Is there evidence that the progress on SMP to date is reasonable}' satisfactory, and that it will achieve its objectives?
- How will SSA's systems modernization affect, or be affected by, several issues now before Congress such as the movement to give SSA independent agency status, the effort to reduce SSA budget and the size of its work force, or the possibility}' of changes in social security programs, benefits, or eligibility determinations'?

In addition, the report seeks to explore several broader questions that are addressed throughout the report:
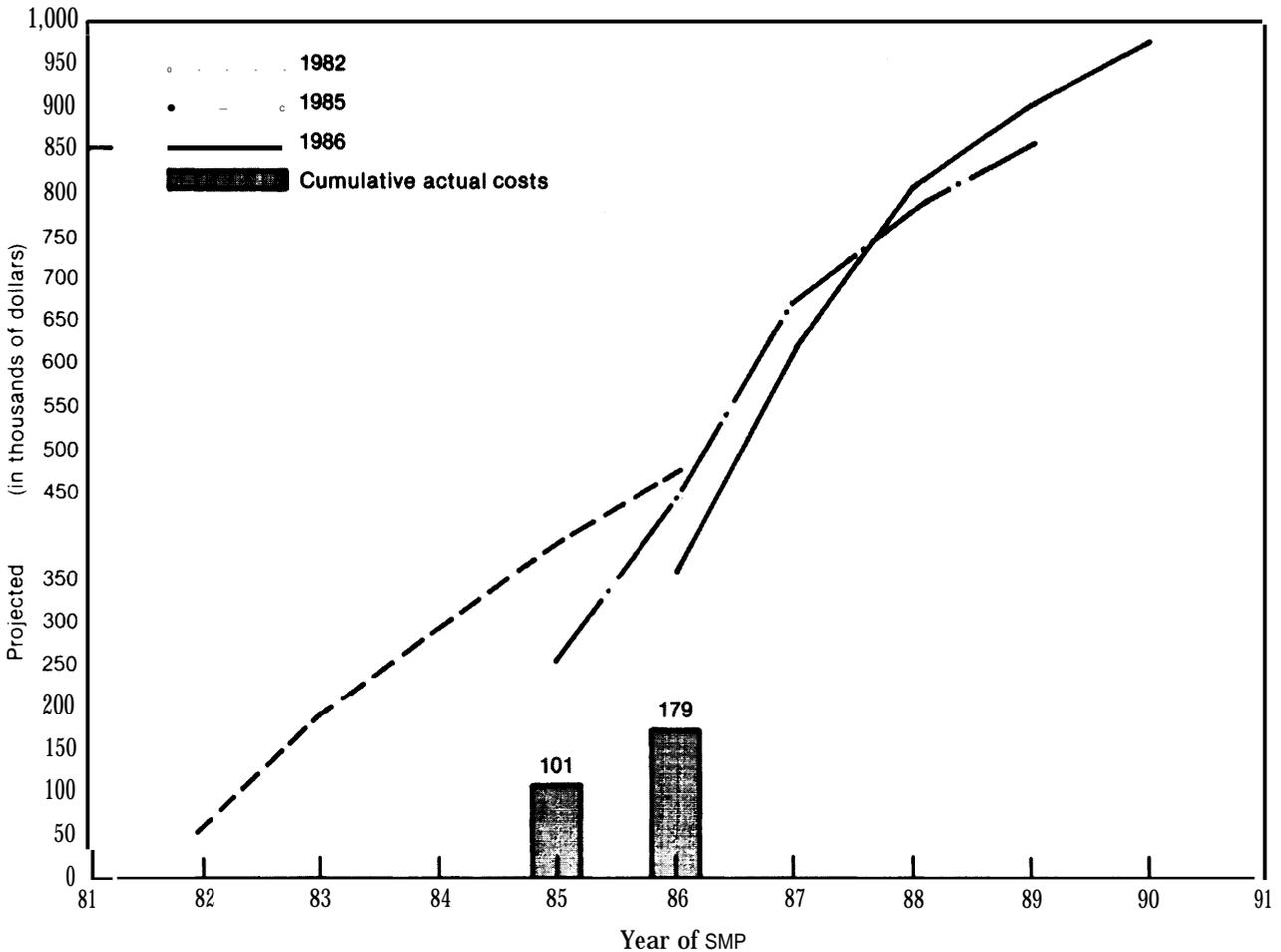
- Are the problems that SSA had, and is having, generic problems that other Federal agencies are likely to face in managing information technology'?
- What can be learned from SSA experience that can be helpful in future adoption, use, and management of advanced systems for government operations?
- Will advanced information systems facilitate, or make more difficult, congressional oversight of executive agencies?
- Are there feasible strategies for making oversight more effective?

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[1] This is an abbreviated quote from SSA's *Systems Modernization Plan: From Survival to State of the Art*, ch. 1, February 1982, pp. 1 8- 19. Material in this chapter describing the Systems Modernization Plan and not otherwise attributed is drawn from SSA documents and discussions with SSA officials.

SUMMARY OF CONCLUSIONS

The necessity of modernizing SSA's information technology systems was beyond dispute, yet in the 4 years that SMP has been underway, it has never been free of criticism and controversy. There has been widespread questioning of the basic strategy of SMP and of certain critical choices that SSA made. There is serious doubt about how much progress has been made in systems modernization; and about whether SSA fully understands and is prepared to cope with some persistent problems, or has dealt, in an open and frank way,

Figure 1.— Cumulative Projected Total Costs for the Systems Modernization Plan (SMP) for 1982,1985, and 1986

Year of SMP

with its oversight organizations in terms of these problems and SSA's plans to cope with them.

Some of the doubts about and criticisms of SSA's systems modernization plan can probably not be answered definitively. Both in the public sector and in the private sector, large organizations with complex data operations are still struggling to find the best ways to use advanced technology to maximum advantage. While many lessons have been learned from experience, experts can be found to attack or defend any strategy with plausible reasoning and with equal vehemence. There is no clear and indisputable 'right or 'best way to au-

tomate the operations of a large data-handling operation; there are several alternative approaches, each of which has some advantages and disadvantages. SSA's plan must be evaluated in that context.

The basic strategy of SSA Systems Modernization Plan is in accord with accepted engineering practice; it is reasonable and defendble. To reverse this strategy four years into the effort probably would be wasteful of investments already made, and alternative broad strategies suggested by critics would not necessarily provide any stronger guarantee of success. This conclusion does not however necessarily imply that SSA performance in im-

plementing the plan is satisfactory or that the objectives of the plan will be achieved. At a minimum, increased monitoring and close oversight are necessary if SSA is allowed to proceed according to its current schedule; but it is essential that decisions about specific SMP procurements be made in the context of the broad plan.

The success of SMP in meeting its reasonable objectives will depend not only on the basic soundness of the plan, but also on:

1. whether SSA has the technical competence to implement the plan,
2. whether SSA exercises good management in carrying out the plan, and
3. whether certain conditions are obtained at SSA at this critical stage in its implementation.

There are some serious questions about whether the progress toward implementation of the plan can be considered satisfactory. In some areas, the implementation of SMP is far behind schedule, and although SSA makes strong claims to have solved, or to be well on the way to solving, serious technical problems in achieving its goals, it has not been able to demonstrate to independent experts that this is the case. *There are disturbing signals that SSA either may not understand the seriousness of these problems, is relying on "solutions" that are likely not to work, or is covering up the seriousness and persistence of the* problems.

SSA appears to have just begun to develop some management procedures and mechanisms to improve its capability at advanced systems development, for example, to remove long-standing friction between the systems development and operations components of the organization, to improve the recruitment and training of systems personnel, and to use an innovative and constructive approach to labor-management relations. These management improvements, if they are developing as SSA officials describe, are still highly fragile. As this report is being completed, there has just been a change in SSA top leadership. Whether this will strengthen or disrupt these promising developments, remains to be seen. A thorough reorganization of the agency could, for example, interrupt or destroy these still tenuous management improvements.

Other impending events that will affect the likelihood of success in systems modernization are largely out of SSA's control. For example, *the attempt to reap the anticipated benefits of increased productivity, in the form of severe work force reductions, before the systems are in place to provide these benefits could pose significant risks to continued progress.* The Administration is insisting on immediate reduction of SSA's work force. If SMP's promised increases in productivity are not yet in place to support such reductions (as they probably are not), any subsequent temporary expansion of the volume of work (e.g., implementing a legislatively mandated change in benefits or coverage) could again lead to huge backlogs, which could discredit SMP before it is completed, and would almost surely result in a breakdown of a promising but still embryonic joint agreement designed to reduce crippling labor-management tensions.

SSA's problems in data-handling built up slowly, but became evident when the agency was several times able to respond to congressional mandates only with extraordinary efforts and with long-lasting, deleterious aftereffects, For at least a decade, *SSA's frequently changing leadership was unable to solve chronic organizational problems, and the agency failid to communicate effectively these problems to Congress throughout several Administrations.*

Many of the problems that in the decade before 1982 drove SSA to the brink of crisis were common to many large organizations with similarly complex operations and rapidly growing workloads. In the case of SSA, however, they persisted and were exacerbated almost beyond the point of solution by, on the one hand, certain characteristics of the organization and

failures of its management, and on the other hand, by external constraints and pressures, such as frequent changes in organization and in its top leadership.

Government agencies are properly and necessarily subject to constraints, accountability requirements, and oversight that do not affect private sector organizations. These greatly complicate agencies' decisions about technology and forbid some routes to modernization that private sector organizations have found productive. In addition, governmental agencies are insulated against suffering the immediate marketplace penalties for bad decisions; this allows them at times to persevere in faulty management practices and to ignore or conceal emerging problems until they become intractable. The report indicates that in some aspects of systems modernization, SSA did this persistently in the 1970s and may well be doing it today.

The problems that SSA has demonstrated will be likely to afflict other government agencies as they adopt, and struggle to use, advanced information technologies.

A number of Federal agencies are like SSA in that they handle huge volumes of highly standardized data, deal with individuals directly, and are now absolutely dependent on information technology systems to perform their missions: the Internal Revenue Service, the Bureau of the Census, and the U.S. Treasury are obvious examples. They are vulnerable to the same pressures that caused SSA to fall behind technologically, and those that the agency encountered in modernizing and managing systems, to the extent that these are structural or generic problems.

Congressional oversight procedures did not detect or understand emerging problems in SSA —for reasons that involved the priorities of SSA, the Administration, and congressional committees themselves. Similar problems in making congressional oversight effective are almost certain to occur in the future, and to become progressively more troublesome. A defensiveness on the part of SSA career officials, described in other chapters of this report,

appears to have contributed to this situation and still complicates attempts to understand SSA's problems. This defensiveness was extreme but is not unique to SSA. The highly technical decisions that must be made with regard to advanced computer systems pose special difficulties for most congressional oversight committees. Special mechanisms may be needed to facilitate oversight of major technological decisions by Federal agencies.

The issue of restoring SSA to the status of an independent agency is now before Congress; the House of Representatives has already passed a bill (H. R. 5050) to this effect. One of the reasons that has been put forward in advocating this action is to improve SSA's responsiveness to congressional policies related to systems modernization. Whether or not this action is advisable on other grounds, *independent status is unlikely to solve either SSA systems development problems or problems with congressional oversight of that process.*

For long-term success in achieving systems modernization and allowing SSA to use information technology efficiently and effectively in carrying out its mission, a strong systems planning capability is crucial. SSA's effective planning horizon is limited to 5 years forward, and is focused on achieving the state of the art of *today* technology, not on being at the leading edge of information-handling technology as it continues to develop rapidly. SSA officials have said that they do not want to be on the leading edge but rather in a position of average industry performance. This means, however, that in 20 years it may again be a decade behind current practice, unless it continually forecasts and monitors emerging technological capabilities with a view toward their future utilization.

There are several other areas in which Congress may wish to clarify its policies or priorities with regard to SSA practices; among these are safeguards for the privacy and integrity of client information. This report of the SSA systems modernization efforts is intended to help in foreseeing and understanding those problems.

WHY SSA FACED POTENTIAL DISRUPTION OF SERVICE IN 1982

The first question addressed in the report is, "why did SSA face potential disruption of services . . . through critical system deficiencies' as it stated when announcing its Systems Modernization Plan in 1982. The reasons for these deficiencies bear on the extent to which such problems are unique to SSA or may be of more general governmental concern. The steps through which SSA moved toward service disruption will be briefly summarized below. (Part II of this report is a more detailed case history.)

Brief History of SSA and Information Technology

Three Decades of Healthy Progress

In its first few years, 1935 to 1939, SSA began to establish a reputation as a highly efficient and well-managed agency. It was able to recruit a well-qualified staff, set high standards for data security and privacy and for responsiveness to client needs, and maintain low administrative costs. SSA then enjoyed a high degree of autonomy. Its needs for data-handling equipment stretched or exceeded the limits of then available technology, but the agency was able to work closely with manufacturers to push the state of the art. Commissioners were experienced managers and maintained a good balance between attention to daily operations and insistence on long-range planning for technological development.

From 1940 to 1970 there was steady growth in SSA operations. Congressional support for social security programs had become broadly bipartisan. Programs were expanded and new programs were added; but as the volume of work expanded the work force grew proportionately, at least in the first two decades. SSA employment tended to be a lifetime career, and workers and managers had a strong shared commitment to the social programs for which the agency was responsible.

In 1946, SSA was placed within the Federal Security Administration; thereafter, it was headed by a single commissioner rather than a three-person board. A few years later, it became a component in the new and massive Department of Health, Education, and Welfare.

In the late 1950s and 1960s, as information technology steadily improved, SSA developed a special relationship with IBM, and worked closely with that company to adopt and adapt systems to fit its needs. This was in no way unusual, since IBM was then the clear leader in the field, and computer systems in most Federal agencies were predominantly IBM. SSA was a leader in use of information technology through much of this period, although as late as 1971, SSA operations, like those of other data-handling organizations, were still heavily paper-based.

Early Signals of Emerging Problems

After Public Law 89-306 ('the Brooks Act' was passed in 1965, it was clear that SSA relationships with computer vendors and its methods of procurement would have to change. But by this time IBM had able competitors. Competitive procurement should not have caused major troubles. By the end of the 1960s, however, there were emerging but not fully recognized problems at SSA. By virtue of having been one of the first users of large computers, SSA also had the oldest system; it was no longer at the leading edge and would fall steadily farther behind. If new systems were not necessarily to be IBM equipment, there would be problems of compatibility. Software conversion and updating would be a growing necessity. Documentation of changes in the software would become more essential; but the importance of this had not been fully realized earlier, and as the software had been adapted to accommodate changes in benefits or eligibility determination procedures, these modifications had not been well documented.

Because SSA had been at the forefront of computer use, its system designers, managers, programmers, and analysts had to learn their craft on the job. People at SSA tended to stay there, and some allowed their skills to become obsolete. Because promotions were based on seniority, and because SSA no longer had state-of-the-art technology, it became difficult to make room for, or to attract, highly trained newcomers.

In the late 1960s and early 1970s, these and other emerging problems were not highly visible to Congress, and perhaps not even to SSA's top management. As the work force grew, labor-management relations inevitably became more complex. The training and orientation given to new workers was somewhat diluted and their commitment to the goals of social security programs was less personally and directly translatable into standards of performance and loyalty to the agency. In the mid-1960s, with the rapid growth in most employees' workload, conditions deteriorated, and there were signs of serious tension. After 1962, union membership and collective bargaining for Federal workers made labor-management problems more adversarial.

Beginning in 1968, there were several forced reductions in SSA's labor force, although the work had increased with the expanded social programs of the Great Society. The increased workload strained the operating efficiency of the agency and further stressed the workers, while recurring announcements of layoffs caused resentment and feelings of insecurity. However, growing use of computers allowed the work to be absorbed without serious disruptions or delays.

A Decade of Deepening Problems

During the 1970s, SSA's problems deepened and became intractable. From 1972 to 1981, 15 new laws made changes in retirement, survivors, and disabled insurance programs. Four of these made significant changes in entitlements and benefits. This often required extensive changes in coding and revisions in software. Repeatedly the time allowed between the passing of a law mandating changes and the time at which they were to go into effect proved to be inadequate. The changes could not be made in an orderly and efficient manner, and were accomplished only at the cost of heavy overtime for the workers, high error rates, and disruption of other activities (e.g., quality control, new software development, and above all, long-range planning). Backlogs became a recurrent problem.

Instability of leadership and repeated and incomplete reorganizations of the agency, perhaps intended to solve the problems, instead made them worse. Between 1973 and 1981, SSA had seven different commissioners or acting commissioners, with an average tenure of 1,1 years. There were four drastic reorganizations, none of them fully completed in the sense of establishing clear jurisdictional boundaries and program account ability before the next reorganization. In the course of these, the activities of the major social security programs were split apart and distributed between functional divisions of the agency; program coherence was lost and performance measures were obscured. Advanced systems planning was fragmented, its professional resources drained to bolster over-stretched and failing operations; finally advanced planning was almost completely discontinued. Mechanisms for decisionmaking and for review and control of technology procurements, which had been institutionally separated, were merged so that important checks and controls were lost.

In the larger world, it was increasingly recognized that software development, rather than advances in hardware, was the key to the effectiveness of future computer systems. In this area SSA was now falling further and further behind. The complexity of its operations and the frequent changes in procedures that were necessary required frequent modifications of codes and software programs, but these were done piecemeal and under pressure, with little attention to uniformity, standards, documentation, or knowledge of the just beginning discipline of software engineering.

Promotion by seniority for systems personnel was by now taking its toll. The long tenure of SSA upper managers carried with it experience, loyalty, and dedication to the mission that was SSA'S strength, but the managers also developed a deep defensiveness and a suspicion of both consultants and new administrators who criticized established procedures or tried to introduce management innovations.

The passage of the Supplemental Security Income (SS1) Program, at the end of 1972, evoked a crisis—still spoken of at SSA as a disaster–that made the agency's problems only too visible. This program was very different from other SSA programs, although the differences were not widely recognized at the time. It involved much greater interaction between SSA service representatives and clients, often under conditions of distress and urgency, and these interactions often took on the character of prolonged negotiations, or became contentious and adversarial.

SSA had two planning groups studying SS1 proposals before Congress passed the bill, but there was considerable doubt until the last moment that it would pass, and in any case the planners had no resources to do more than minimal paper studies. After the bill passed, SSA had 14 months to get ready. At this point it chose to put in place a new telecommunication system to link service representatives with headquarters. There were only one or two terminals per office, the systems failed frequently, and the communications traffic exceeded expectations and soon saturated the communication lines. The communication system became a bottleneck in SSI operations rather than a facilitator.

Moreover, the number of people trained to operate the system and to provide client services was grossly inadequate. Long lines of clients formed, waited for hours, and were sent home to come again. Huge backlogs developed. SSA reputation and public relations suffered severe damage, and its chronic problems were now visible to Congress.

Congress had not anticipated this outcome, and was surprised and indignant. Congressional oversight committees blamed SSA for poor technological decisionmaking, for misestimating the resource requirements of the new program, or for failing to inform Congress of the impending crisis. They suspected that SSA had been prevented from making its problems and resource needs known by its parent agency and the Office of Management and Budget (OMB), whose overriding priority was to reduce SSA work force and budget. Employees of SSA say that agency officials had repeatedly warned the Administration and, indirectly at least, Congress that the preparation time and the work force for the new program would prove inadequate. All parties to the debacle agree that the oversight process had somehow failed to reveal the extent of SSA'S problems in meeting congressional mandates, and those problems had become intractable.

The Systems Modernization Plan introduced in 1982 was designed to solve these problems. (The progress that SSA has made since then is discussed in ch. 2.) Neither SSA'S problems, nor severe criticism of the agency in Congress and elsewhere, has disappeared. Stringent enforcement of the Disability Amendments Act of 1980 and the Debt Collection Act of 1982 brought SSA strong criticism. Pressure to reduce the SSA work force troubles its employees. There are many concerns about the agency's ability to respond to future congressional mandates for changes in its programs or procedures.

Underlying Factors in SSA'S Critical Systems Deficiency

Problems Common to Large Data-Handling Organizations

From this brief overview and more detailed discussions in Part III, broad factors that contributed to SSA'S nearly disastrous situation can be identified. Some were problems to which many private sector organizations had also fallen victim. The restructuring of the computer industry in the 1960s had caused widespread confusion and floundering in systems planning.

SSA'S problem was not that its computers were "old" or "obsolete." It was that the workload had become too large, too complex, and too dependent on automated processing to be handled by SSA'S existing work force with existing technology. In this situation, every addition to the workload became a potential crisis. Information processing was:

- pieced together, program by program, with manual handling and mechanical flow of data in between automated steps, with no agencywide planning or designing of a system that could allow the work to flow smoothly, and little backup for systems that "went down" when the workload was heaviest;
- the computer systems were driven by heavily patched, inefficient software, with years' of changes and revisions that were poorly documented; and
- the data in 50 years of SSA files was categorized and recorded variably and unsystematically, with data definitions that differed across files; there was no "corporate (agency) database. "

Advanced computer systems cost millions of dollars and several years to procure and implement. These investments cannot be lightly abandoned. Continuing modernization of hardware requires continuing software upgrading and conversion. When technological capabilities are improving rapidly, the leaders in a field, having sunk large costs, may be overtaken and left behind by more recent adopters of the technology. Government officials are not as free to take risks as are corporate entrepreneurs; nor can they independently undertake to raise capital for new ventures on the gamble that this will pay off in the marketplace. Thus Federal agencies are particularly vulnerable to falling behind the state of the art in technology.

The greatest management failure at SSA was lack of planning and advanced development. Professional competence in computer technology was scarce and had to be devoted to solving immediate operational problems; the budget did not provide adequate resources for long-term systems development; top-level executive officers, who were not technologically sophisticated, did not insist on its importance; and political decisionmakers did not want to encourage demands.

Special Problems for Federal Agencies

Box A summarizes some conclusions from a series of OTA assessments of *Federal Government Information Technology.*[2] This special report on the Social Security Administration found that many of the generic problems identified in these earlier studies could be observed in this agency. Many of the Social Security Administration's problems are not particular to it, but typical of problems in large Federal Government organizations. The conclusions in box A were based on cross-cutting examination of many Federal agencies, but can also be read as a diagnosis of SSA problems in information technology management.

Excessive Instability of Leadership.— While much of the SSA work force, up through the levels of middle management, suffered from a lack of "new blood, " the top level of management was continually changing. Commissioners are political appointees; in recent years they came and went almost yearly. Most had little understanding of advanced technology resource needs and constraints, or technology-oriented management, but sought to gain control by reorganizing the agency.

Frequent, drastic reorganizations broke up the earlier coherence and accountability of major programs, but failed to provide what may have been better–a rational structure based on a redesigned work flow and technology-based functions. There were no organization-wide systems or system development planning, because operations and systems development

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[2]U. S. Congress, Office of Technology Assessment, *Electronic surveillance and Civi] ~Jiberties* (Washington, DC: U.S. *Government* Printing Office, October 1985); *Management, Security, and Congressional Oversight* [Washington. DC: U.S. Government Printing Office, February 1986); *Electronic Record Systems and Individual Privacy* (Washington, DC: U.S. Government Printing office, June 1986). Conclusions in box A are quoted or abstracted from *Management, Security, and Congressional Oversight,* pp. 1-5.

Box A.—General Problems in Federal Government Information Technology and
Information Policy As Identified in Previous OTA Assessments

Strategic Planning: Failure to:
- . include strategic as well as operational planning in 5-year plans;
- • identify innovative opportunities for use of information technology;
- • connect planning effectively to implementation;
- • involve users, clients, and the interested public in the planning process;
- explicitly consider the implications of information technology use for protection of data security and privacy; and
- • have an effective vision of the future, with strategies for using new technology to further government missions.

Information Availability and Quality
- • There are serious deficiencies in the scope and quality of information available to Congress and to agencies themselves, which can hamper effective congressional oversight and agency decisionmaking. There is a need to specify the types of information that should be reported to assist oversight of information technology, and to strengthen data quality standards and procedures.

Innovation
- • Where there are examples of agency innovation, such as use of electronic mail, videoconferencing, and computer-based decisionmaking, the exchange of this experience and learning with other agencies is irregular or nonexistent. Many agencies view innovations as too risky to try.

Procurement
- • Government information technology procurement is subject to multiple and sometimes conflicting efforts to simultaneously expedite the procurement process (e.g, through General Services Administration's delegation of procurement authority), increase the level of competition (e.g., the competition in Contracting Act), and more clearly demonstrate a significant return on investment in information technology (as now required by OMB).
- • The "success" of procurement is closely tied to the government's ability to plan and define technology needs and to match technology to those needs. There still appears to be a need for: better training of procurement staff, greater senior management involvement in and understanding of the planning and procurement process, improved mechanisms to exchange procurement experience and learning, and possibly a procurement and management troubleshooting team to assist with serious trouble spots.

Information Resources Management *(IRM)*
- • This concept was intended to bring together previously disparate functions—such as computers, telecommunications, office automation, and the like-and to establish the importance of information as a resource. Actual implementation of IRM varies widely and has been only partially or minimally implemented in many agencies.
- . IRM is essential for large, long-term investments in equipment and its related training and recruitment demands. Chief executives are not in control long enough to realize the return on investment in resources spent for long-range planning and development.

were constantly forced to compete for professional resources and management attention, and because reorganizations were generally not completed and "set," before a new commissioner and his team took over.

Private sector organizations had similar problems. SSA'S problems were made more dif-

ficult by the imperatives and constraints that are special to public sector organizations. SSA'S performance in coping with technological change in the face of these necessary governmental rules was particularly poor; but the explanation need not involve conspiracy, malfeasance, or even special ineptitude. These pitfalls will continue to beset governmental agen-

cies as they attempt to reap the benefits offered by advanced information systems.[1]

In some cases, new commissioners arrived with a political directive (i.e., immediate budget reduction) that had to take priority over finding long-term solutions to chronic operational problems or improving service delivery. In addition, the scale of SSA operations and the extent to which they had become dependent on technological systems made it difficult for new leaders to understand SSA problems quickly. This was compounded by the defensiveness of the long-tenured middle managers. Committed to "getting the checks out on time" and barely able to cope with growing backlogs, many of them feared any innovation, seeing it as carrying a risk of disrupting daily operations.

Lack of Control Over Changes in Its Workload and Commitment of Resources. –Corporations —if well managed—consider many factors before seeking a greater market, offering new services, or making significant changes in their operations. They pay particular attention to the timing and to the manpower, skills, and equipment that will be required. Often this analysis is made easier by studying the experience of similar or competing organizations. For SSA, assumption of new programs, provision of new services, and changes in benefits and entitlements are mandated by Congress. In government there are always at least three sets of actors in this situation: Congress, which mandates changes in mission and responsibility; the agency, responsible for performance; and the Administration, which can to some extent constrain the flow of resources, and to a large extent control the communication to Congress of resource needs. An agency's spokes-

man to Congress-its chief executive officer— effectively represents the Administration, rather than the agency.

Lack of Control Over Systems Procurement.– Competitive procurement became a serious problem chiefly because SSA had been accustomed to working closely with the vendor to develop systems tailored to its needs, did not clearly understand its technological requirements, and already was struggling with software loaded with poorly documented patches. By the time competitive procurement laws were passed, technological choices were broad, the computer manufacturing industry offered many alternative systems and vendors; there were many large computer-using organizations whose needs provided the stimulus for further technological innovation. SSA poor procurement procedures rather than the legal requirements for maximum competition caused it serious troubles and opened the way both for defective systems and for fraud and abuse by SSA officials.

Nevertheless, the ability to schedule procurements at the best time for the organization, to carry them through quickly, to choose without constraints, and to gamble on innovative but unproven technology, gives private sector organizations a large advantage over government agencies in making technological choices.

Impatience in Collecting the Return on Investment.–Putting in place radically different technology for carrying out operations requires adjustment of the flow of work, changes in internal jurisdictions, and acquisition of a skilled work force and management team. Attempts to grasp the benefits too quickly–to sharply cut labor costs before the automation is ready to pickup the load–can lead to overloads and disruptions that discredit the systems and undermine management's commitment to the technology. The expectation that this will happen at SSA is now causing renewed resistance to and criticism of the SMP both within SSA and in oversight organizations.

[1] For example, the Internal Revenue Service had serious troubles with its 1985 tax processing; a contractor review (according to *Computerworld,* which obtained the report from a congressional committee), said that IRS lacks a strategic plan, and its processing system is "inefficient, fragmented, and difficult to maintain." Mitch Betts, " IRS Systems Need Revamp, Auditors Say', *Computerworld,* Mar. 24, 1986. p. 1.

WHY MONITORING AND OVERSIGHT FAILED
TO CORRECT SSA'S PROBLEMS

During the 1960s and 1970s, SSA was progressively less able to respond to congressional mandates without herculean efforts, resulting in large backlogs, high error rates, deteriorating cost-effectiveness, and worsening workplace conditions. Repeatedly, congressional oversight committees were unpleasantly surprised by these outcomes, as revealed in later hearings. Yet oversight mechanisms, during this time, had been exercised diligently. Several factors contributed to these unpleasant surprises:

- *Differences in priorities between Congress, the Administration, and SSA itself constrained SSA communication of resource needs.*

  The White House and both Houses of Congress have been controlled by the same party for only 4 of the last 18 years. Administration constraints on the budget sometimes overrode estimates of the number of man hours necessary to make changes that Congress mandated, whether the Administration supported or opposed those legislative initiatives. Thus in 1972, the overwhelming demands that the Supplemental Security Insurance Program would place on SSA staff were not clearly communicated to Congress, although enough analysis had been done within SSA to make clear that new and more time-consuming ways of dealing with clients would be necessary.

  In 1982, both the Administration and Congress supported the large investment in SMP but with differing perspectives on its justification and expectations of its outcomes. The Administration supported automation as a means of increasing productivity and trimming the Federal labor force. Many Members of Congress give greater emphasis to improved responsiveness to clients.

  The way in which SMP was justified to congressional oversight committees in 1982 illustrates a problem that may oc-

cur frequently. The commissioner and his aides presented in documents and several hearings, a dramatically strong picture of SSA'S "crisis" in operations. Congress had not heard such strong statements in the past, and heard them in 1982 only after an internal struggle at SSA. Some SSA middle and upper level managers then disputed (and still dispute with some bitterness) the accuracy of these statements—either because the statements were exaggerated, or from reluctance to reveal past shortcomings, or to protect their power base within the agency.

All information that congressional oversight committees receive is of necessity affected by the political objectives of the Administration, and by the attention and concerns of the congressional committee that poses, or fails to pose, crucial questions to the responsible officials.

- *Conflicting priorities among oversight committees further obscured SSA developing problems.*

  Oversight of SSA is shared by several committees in both the House and Senate. Appropriations committees have one set of concerns—accountability and efficiency; other committees focus on social programs and the special concerns of the aging or of disabled workers; others are chiefly concerned with competitiveness in procurements. In addition, since 1981 the House and Senate have been led by different parties, which emphasizes differences in priorities in guidance to SSA, SSA officials repeatedly assured each committee that the agency was attempting to respond to its chief concerns, without much discussion of the conflicting directives that this implied.

- *Alternative channels of communication failed to reveal the cumulative, interactive, and long-range nature of emerging problems.*

  GAO performed scores of studies of SSA for various congressional comittees

during this period. Most addressed specific, narrowly framed questions posed by the committees, usually having to do with technical performance or compliance with a particular law. It was difficult for any one person—even by reading all of the reports—to get an integrated, coherent picture of the situation that was steadily developing. (GAO's new series of agency management reviews takes a more integrated approach.)

Special studies by national commissions focused on the viability of the social security Trust Fund and did not probe SSA management issues; others (such as the Grace Commission and the National Academy of Public Administration) looked at management issues but did not give great attention to quality of services or to the long-range future.

- *SSA officials themselves had little motivation to call attention to accumulating problems.*

    Congress does not confine its attention in hearings to the Commissioner. It heard from many other SSA officials or former officials, vendors, and outside experts during this time. There are also less formal channels of communication between bureaucrats and Congress. SSA officials who testified were nevertheless either political appointees or under their control, and so inclined not to dispute the Administration position. Those who held positions in operations and those who held positions in systems development, moreover, often lacked a comprehensive or disinterested view of the problems that were developing. Some others who appeared at hearings either had no credible source of information about SSA'S internal problems or (especially vendors or potential contractors) had a vested interest in possible congressional actions.

- *Members of Congress and the staff of most oversight comittees lacked the specid"zed expertise to challenge statements about advanced data-processing capabilities, options, or resource requirements.*

Most congressional oversight committees do not have either Members or staff with the specialized training and experience to fully understand or challenge what they are told about the increasingly complex and esoteric field of advanced information systems. Experts themselves disagree on many critical issues of design, capabilities, choice, implementation, management, and lifecycle costs; and few experts can discuss these questions in jargon-free language understandable to the nonspecialist. Staff members who have made themselves expert on one aspect (such as competition in procurement, or systems capabilities) may still not be experienced in problems of management. Relatively few are able to ask hard questions about the likely course of technological development over the next 10 years. Thus, it is increasingly likely that many important questions about long-range return on public investments will go unasked by Congress and thankfully unanswered by government agencies.

- *SSA own estimates may have been unreliable.*

    Though SSA people say that their requests for resources were repeatedly cut by the Department of Health and Human Services or OMB before reaching Congress, these estimates of requirements were themselves often the focus of dispute between operations officials, systems development people, and the Commissioner's office; it is not clear whether they were credible projections.

As Federal agencies become more dependent on large computer systems both for operations and for internal administration, critical information that Congress needs for effective oversight will more and more be embedded in large databases. Management information systems can be made to extract, combine, manipulate, and format data to produce performance measures, accounting categories, benchmarks, and trend projections tailored to almost any purpose. The temptation to present such informa-

tion ' 'in the best possible light (or, according to purpose, in the worst possible light) has always existed; but computers can make it easier to get away with it by removing such processing a few steps further from easy perusal, everyday experience and plain common sense. At the same time, the motivation to conceal mistakes or failures is increased by the high stakes riding on investment in systems that promise high, but delayed, return on investment, It will be more and more difficult for most Congressmen and Congresswomen to challenge what they are told by agency officials about their technological choices and problems.

THE BASIC STRATEGY OF SSA'S SYSTEMS MODERNIZATION PLAN IS SOUND

Another question addressed by this report is the soundness of the basic strategy of SNIP. That strategy is:

1. *To Upgrade computer Capacit&v:* To consolidate SSA scattered computing systems and sites, greatly increase its total computer capacity, acquire more modern computers, develop a local network for high-speed data transfers, and acquire better peripheral equipment.

2. *To Integrate Its Database:* To rationalize and integrate files into an SSA database, by moving files onto disk storage, achieving direct (random) access to data, developing an overall ' 'database architecture, " and establishing a data dictionary to standardize the definition and form of separate units of data,

3. To *Institute Modern Techniques of Software Engineering:* To retain and upgrade as much as possible existing software, rewriting as much code as necessary; enforce consistent standards for all future software; improve and modernize all software documentation (reference manuals, user and training manuals, records of changes); develop new software applications.

4. *To Build a Data-Communications Utility:* To re-engineer and consolidate three major telecommunications networks into a modern, expanded conduit for two-way transmission of data and interactive communications between service representatives in the field offices and the headquarters processing operations.

5. *To Add Automated Management Tools:* To these primary goals were added, somewhat later, the development of automated techniques for managing and scheduling computer operations, and development of information systems for use in management and administration.

Most elements of this strategy are noncontroversial, but there are several points at which the strategy has been questioned, as is discussed in more detail in chapter 2. One debate centers on whether centralization of processing was a sound choice; the alternative is distribution of data-processing operations to regional centers. A second critical question is whether SSA should have bought or developed all new software, rather than choosing to preserve, modify, or rewrite millions of lines of code. (In practice, SSA now appears to be taking a middle course, rewriting some code and developing new software to modernize some operation s.)

The questions and criticisms regarding basic SMP decisions are serious ones, but they do not have definitive "right' answers to which all experts can agree-in general or with regard to a specific organization such as SSA. *In terms of the basic SMPstrategy, the choices that SSA has made may not be demonstrably the "best" choices but they are reasonable, in accord with well-established engineeringtices, and defendable.* There is no guarantee that alternative choices or strategies, urged or implied by critics, would be more assured

of long-range success or involve fewer problems or risks, or indeed fewer doubts and criticisms.

The main thrust of SMP strategy is to produce first a modernized claims process, with service representatives in field offices using interactive terminals to access SSA'S headquarters database to answer the clients questions and transmit an application to headquarters for final processing. Other program procedures and management activities will also be automated as the plan proceeds. It can be argued that SSA should be looking much further ahead at developing technological capabilities and new ways of accomplishing its mission, rather than automating today's procedures with today's technology. This, however, involves a degree of innovation, and perhaps risk-taking, that few government agencies are willing or able to assume.

Substantial progress has been made in some areas of the SMP and there have already been large expenditures of time and effort which should show results in the near future. *Torequire SSA to begin again with a different strategy does not appear to be justified even the uncertain strength of the critical arguments.*

To conclude that the basic strategy is sound and should not be abandoned, however, does not necessarily mean that SSA can and will carry the systems modernization plan to a successful conclusion. Neither will it answer the broader question of how long-range technology planning and development— which will always be beset by uncertainty and risk—can best be evaluated in ways that are both useful to Congress and supportive rather than threatening to public servants with a difficult mission to perform.

What is needed is a mechanism or mechanisms for providing both agency officials and Congress with an independent and disinterested source of expert advice and evaluation, separate from monitoring and investigatory functions and also apart from both regulatory responsibilities and political objectives. While there would often be a lack of consensus among such expert advisors, the range of options available for consideration by agencies and by Congress would possibly be broadened and the relative advantages and disadvantages of the options clarified before choices are made. Such mechanisms already exist in the several congressional support agencies, but their assistance is often sought after basic decisions have been made and implemented. Also, since they are located within the legislative branch, their assistance and advice is usually not available in helping agencies frame action proposals to be put forward to the Administration or to Congress. One alternative is to create new mechanisms for this kind of public service. Some possibilities are outlined in the options section of this chapter.

CONFLICTING EVIDENCE ON PROGRESS IN SYSTEMS MODERNIZATION

There appear to be serious implementation problems to which SSA–in spite of strong claims of accelerating progress-does not yet appear to have a credible solution. Denial that these problems exist, or unsubstantiated assertions that they have been solved (in ways that to outside experts are not clear or convincing) *leave considerable room for doubt that SSA understands its technical difficulties or is addressing them adequately.* For example, while SSA proceeds with hardware procurement and upgrading, it consistently downplays the problems it is having in defining a database architecture and making decisions about database integration and management. Only persistent challenges to the statements of SSA officials and comparison of those statements with information gleaned from workers, contractors, and monitors, reveal the existence of some of SSA'S persistent, unresolved techni-

cal problems. GAO's forthcoming management review, based on examination of records not directly available to other congressional support organizations, may answer at least some of the questions raised in this report about the adequacy of SSA response to technical problem areas and the amount of sound progress that has been made. (See table 1.) If GAO confirms the apparent gaps between SSA'S official statements and the degree to which SMP objectives are being realized, this will underscore the increasing difficulties in monitoring highly technology-dependent government operations.

As of the end of fiscal year 1986, it appears that about 20 percent of SMP'S currently projected costs have been expended. Major procurements for the SMP, especially for placing the interactive data communication terminals in field offices, will occur in fiscal years 1987 and 1988. Some SSA critics say that before such steps are taken, Congress should insist on a complete reexamination of the assumptions and strategy of the SMP with a view to aiming it in radically different directions, or formulating a quite different plan. At a minimum, they say, the procurement of 22,000 to 39,000 interactive terminals should not be done this calendar year as scheduled—instead, terminals should be phased in over the next 2 to 5 years, or the procurement should wait until all field office services are redesigned and automated. Even though there are no convincing arguments for reversing SMP'S basic strategy at this stage, it is not certain that SSA is making satisfactory progress in development of software; it would not be unreasonable to move more slowly in making major procurements until there is proof of acceptable progress in all areas. This decision, however, should be made in the light of its effect on SMP as a whole. To stop a pivotal SMP procurement on the grounds that the 1974-82 operational crisis has been surmounted would effectively be a rejection of the concept and objectives of systems modernization.

The most unequivocal progress in implementing SMP has been made in upgrading the capacity of large primary computer systems.

Major programmatic systems computers have been upgraded and "mean-time to fail]-ure " increased from 270 hours to 19,000 hours. Telecommunication processors and some decision support systems have been installed. Major files have been moved from tape storage to disk storage. The six Program Service Centers are still using very old, too small computers and a procurement award for their replacement has been held up by a challenge under the Competition in Contracting Law. In general, however, the *capacity upgrade program,* which will account for about 24 percent of SMP expenditures, is approximately on schedule, with other procurements to be completed this year.

The *soft ware engineering program* has had serious problems and is behind schedule. SSA claims to have completed essential early steps: definition of its functional requirements for data-handling and software applications, developing software engineering standards, and preparing a basic Software Engineering Technology manual. The agency says that it is making a strong effort to enforce new tools and standards for software development.

Some new software systems and applications have been put in place. SSA apparently judiciously abandoned vague promises to rewrite all old code, but software improvement has begun. SSA is, however, still far from having made its existing software 'maintainable and transferable, as was to have been achieved by this time.

There is evidence that in some areas the functional requirements are not well enough developed to be an effective guide to systems redesign, and that use of software engineering tools and standards is not yet stringently enforced. Software will not be ready for full and efficient use of the new interactive terminals being procured for field offices for several years.

About 21 percent of total SMP projected costs are allocated to the software engineering technology program; expenditures in this program have been running somewhat ahead of projections.

Database integration is also far behind schedule; SSA now says that by 1987 this part

Table .—Major Reported Accomplishments of the SSA'S Systems Modernization Plan in Its First 4 Years and Future Milestones by Specific Program Areas

Accomplishments [a]	Transition to state of the art
Software engineering program:	
• Piloting a modernized claims system at two district offices	• Design, develop, and implement LAG software
• Initiated functional requirements for LAGs	• Upgrade SET
• Completed operational software improvements	• Continue software improvement
• Designed new debt management system	• Implement claims modernization nationwide
• Began piloting critical payment SET	
• Designed AWR	
• Established PDTF/TTSF	
Database integration program:	
• Implemented nationwide, on-line query capability on several major master files for district offices	• Implement on-line omnibus query capability on all major master files
• Converted major files from tape to disk storage	• Complete data purification through verification and validation
Ž Implemented data administration tool	• Develop and implement database architecture
• Began piloting target database architecture	• Provide database support for LAGs
• Initiated data purification	
• Initiated database support for LAGs	
Data communications utility program:	
• Continued with procurements of DCU network and terminals	• Implement DCU backbone network nationwide
• Replaced SSADARS host computers	• Acquire and install new terminals for district offices
• Upgraded telecommunicate ions lines and software	• Engineer future network components and expanded capabilities
• Completed general DCU design	
• Planned DCU and TAP implementation	
Capacity upgrade program:	
• Completed seven phases of DASD installation	• Install new hardware at PSCS
• Converted on-line, programmatic, and test systems to MVS/XA Operating System	• Upgrade programmatic, telecommunications, and test capacity
• Implemented local computing network and HYPERchannel facilities	
• Installed high-speed printers at Baltimore sites	
• Replaced programmatic and TTSF host computers	
System operations management program:	
• Implemented new tape management system	• Continue to Institutionalize and enforce data center standards
. Increased job run frequency for critical system	• Complete user service agreements
• Implemented automated job rerun capability	• Expand use of automated tools to on-line and decision support systems
• Improved off site storage process	• Complete NCC integrated control center
	• Modernize computer operations at PSCS
	• Implement on-line operating environment
Administrative/management information engineering program:	
• Established information center	• Implement new systems to provide reliable MIS
• Initiated office automation projects for SSA components	• Increase office automation
• Initiated MID project to provide reliable management information for SSA	• Implement SSA'S portions of FAIMS
• Initiated projects to define management Information requirements for MID	• Develop management information database architecture
• Implemented end-user computing guidelines	• Provide telecommunications support for management informat ion
• Developed framework for an integrated MIS	
• Installed FAIMS database management system on the TTSF	

[a] The text raises questions about some of these accomplishments

KEY
AWR —Annual Wage Reporting
DASD —Direct Access Storage Device
DCU —Data Communications Utillty
FAIMS —Financial and Administrative Integrated Management System
LAG — Logical Application Groups
MID –Management Information Design
MIS – Management Information System
MVS –Multiple Virtual Storage

NCC —National Computer Center
PDTF –Program Development and Test Facility
PSCs — Program Service Centers
SET –Software Engineering Technology
SSADARS—SSA Data Acqusition and Response System
TAP —Terminals Acquisition Project
TTSF —Test and Time Sharing Facility
XA – Extended Architecture

SOURCE U S Department of Health and Human Services Social Security Administration SSA Systems *Modernization* Plan 1986 Long *Range* Stralegic Plan Publication No 40004 October 1985

of the implementation may be back in step. Some tasks have been accomplished. Master files have been transferred from magnetic tape to disk storage, and the number of tapes in use for storage has been significantly reduced. Field offices have been given limited access to the master data files through a file management and access system, although processing is still sequential, and random (direct) access to records is still beyond SSA capability. A data dictionary has been developed, but it will take years to rewrite all of the 50 years of records to make them fit the data dictionary categories and standards.

Real database integration is, however, still far in the future. SSA has still not settled on a database architecture, although the agency says that a "target" database architecture has been defined. This in turn further delays the rewriting of software. It is difficult to tell whether SSA has, in fact, made any significant progress toward real database integration. Recent statements that it has taken a big step toward solving the architecture problem by deciding to use an already available data management system appear to be almost meaningless on close examination.

This program was originally expected to spend about 14 percent of projected SMP costs; it appears so far to have accounted for about 4 percent of expenditures.

The *data communications utility program* appears to be about on schedule. Troublesome data transmission backlogs were greatly reduced during the first year of SMP by replacing the host computers, adding trunk lines, and upgrading telecommunications. The backlogs have now been eliminated. The design of the communications utility has been completed, and by early 1987 SSA plans to put over 22,000 interactive terminals in field offices, to modernize its claims process. The timing of this move is controversial; many critics argue that terminals cannot be used to full capacity for several years, and a full-scale procurement should not go forward at this time. The data communications development program has expended 7 percent of SMP costs to date, but will eventually account for about 28 percent.

In 1984a new component was added to SMP, the *systems operation and management program,* to develop automated procedures for scheduling and managing major computer operations. It has already implemented automated job scheduling and several other applications, and is on schedule. This will account for less than 3 percent of SMP costs. Another element belatedly added to the plan is the *administrative/management information engineeringprogram,* to develop management information systems and other administrative tools, and to encourage personal computer applications and use. This effort is one of the more advanced elements of SMP, although hardly avant-garde. Not including this element in the original SMP was a blunder that may have significantly increased the costs of the management information systems development. The program will probably account for about 20 percent of SMP costs.

SSA reports that the backlogs and high error rates that marked the crisis period have largely been overcome, that SMP has already significantly improved performance, and that the basic steps have been accomplished to allow continuing and steady progress in the later phases of SMP.

According to SSA, significant progress has been made in developing new mechanisms for strategic planning and for resolution of the persistent conflicts between operations and systems development personnel, through their mutual involvement in the systems modernization effort. There is said to be an active program of outreach to the systems users to further define changing functional requirements. The agency has expanded its training programs as it implements the SMP, and has recently recruited some senior computer systems experts. A joint agreement with the union was signed last year, which appeared at that time to hold great promise for improving labor-management relations.

One critical test of SSA'S claims of improved management and resolution of internal conflicts over systems modernization will come during the next 6 to 9 months, as the claims modernization project is implemented, If these

improvements are real, they are more hopeful signs of progress than acquisitions or quantitative measures of performance, because such management innovations would signal a change in SSA organizational culture and behavior. Such changes are probably essential to the success of SMP.

There are, unfortunately, reports that these new mechanisms have already disappeared or gone dormant. The joint agreement with the union is being severely strained by SSA official position with regard to work force reduction, and there is widespread disappointment with the present lack of activity in putting its provisions to practice. Since the announcement of a change in leadership of SSA, the expectation of another drastic reorganization has raised fears of a protracted period of uncertainty, confusion, and possible internal power struggles. The present organizational structure is probably far from ideal; however, it has the advantage of allowing for agencywide rather than program-by-program design of an automated work flow, and its continuation for a while could help avoid the disruption and turmoil caused by repeated reorganizations of SSA over the last decade. Assessment of the likelihood of progress in systems modernization in the near future must take into account these troublesome uncertainties.

Many critics of SMP are skeptical of SSA'S ability to achieve its objectives. Some individuals inside and outside SSA and in monitoring organizations privately dispute some of SSA'S claims of progress, say that bad news is being concealed, or suggest that perform-

ance indicators have been changed and, therefore, results of SMP (in terms of comparison with past performance) cannot be demonstrated. Such private comments may sometimes be based on biased judgments, or on obsolete information; progress of SMP has, if SSA claims are accepted, quickened in this fiscal year in spite of some unanticipated delays because of challenges under the Competition in Contracting Act.

Both SSA statements about progress or results and the statements of its critics are difficult to evaluate since those who do not have a vested interest to protect also do not have independent access to operational data or close familiarity with SSA'S complicated tasks. GAO is now undertaking an extensive management study of SSA[3] that will provide another expert judgment; however, both GAO auditors and OTA assessors are in part dependent on information selected and presented by SSA.

The more fundamental difficulty for Congress, however, has been and will be the necessity of making judgments about complex technological strategies for which there are no categorically right or wrong answers and on which even computer experts disagree.

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'Recognizing that good management is essential to the effectiveness of a department or agency in achieving its mission, GAO in 1982 launched a new initiative, to perform reviews of the overall management of selected Federal agencies. These reviews are to facilitate effective congressional oversight by showing how breakdowns or problems in agency management structures and systems contribute to long-standing programmatic and administrative problems. The GAO management review of SSA is not yet complete.

THE EFFECTS OF SYSTEMS MODERNIZATION: CLOSELY RELATED ISSUES

Systems modernization is likely to affect and to be affected by a number of questions and issues now before Congress: suggested modifications in social security programs, independent status for the Social Security Administra-

tion, privatization of government services, Federal labor-management relations, and data privacy and security concerns. These are discussed briefly below, and in more detail in chapte 3.

SSA Responsiveness to Congressional Mandates

The ability of SSA to respond efficiently and quickly to congressional changes in programs, entitlements, and benefits has improved because of the elimination of backlogs of work, and should be further improved if the systems modernization plan meets its objectives. So far, however, the elimination of large backlogs and achievement of a smoother flow in daily operations has been made possible largely by the hardware improvements–the capacity upgrade. Significant further improvement probably depends on resolution of the technical difficulties with software development and database management, and redesign of post-entitlement systems. It is, therefore, possible that assignment of responsibility for large new programs (e.g., as support for immigration control measures) at this stage could complicate and delay implementation of some SMP steps by suddenly increasing its volume of operations, or requiring new data to be collected and managed. Some congressional sources have suggested a moratorium on legislative changes until SSA is closer to completion of its systems modernization, but this is probably not essential. The changes that appear most likely to be proposed over the next few years, according to congressional committee staffs, appear reasonably small and could probably be assimilated without the large backlogs that occurred in the 1970s.

Independent Status for SSA

The House of Representatives has (in July 1986) passed H.R. 5050, a bill to give SSA independent status, and similar proposals are expected to come before the Senate. Support for the measure comes from some who hope:

1. to give SSA more stability and continuity in leadership;
2. to facilitate congressional oversight of SSA by removing the "political filter" that they believe distorts communications with Congress;
3. to protect SSA from OMB work force reduction and privatization pressures; or

4 to prevent measures that they believe will adversely affect the quality of social security services, such as overly zealous attempts to cut disability rolls.

Stable, experienced leadership could contribute significantly to success in systems modernization, if that modernization is a high priority of the appointed leaders. Independent status might do relatively little to facilitate congressional oversight, because it has also been hampered by other factors, as described above, including SSA own tendency to hide its problems. Independent status must necessarily be limited to a few agencies, yet most of the problems that SSA has had in managing information technology are likely to affect other government agencies as their information needs expand and as they first adopt new information systems. Congress can clearly not make all agencies that suffer from these problems–or from specific Administration directives—into independent agencies.

Systems modernization is thus not, in itself, an argument for giving SSA independent agency status. However, if Congress decides that Administration personnel and privatization directives are likely to disrupt SSA operations before systems modernization can be achieved, this option will become more attractive.

Privatization of or Contracting Out Government Operations

The Department of Health and Human Services has directed SSA to develop a plan for contracting-out the equivalent of 8,600 full-time positions, about 12 percent of its work force, in operations such as the processing of annual wage reports and running the National Computer Center (where central beneficiary records are maintained). Privatization of determination of disability status (now done by the States) has also been proposed. OMB, GSA, and GAO have found that privatization of some government services can result in significant cost-savings and improved services. But there are serious concerns to be considered in privatizing social security operations:

these include the additional risk to confidentiality and security of SSA'S personal data on 160 million Americans; questions of public confidence in the fairness of eligibility and benefits determinations; the level of competition that could be expected; the large amounts of time and labor that would be necessary for contractors to learn and master SSA operations; possible disruptions from periodic recompeting of the contracts; the likelihood of conflicts of interest for many or most competent competitors; opportunities for fraud; additional difficulties of congressional oversight; and difficulties of contractually specifying a required level of quality of service.

An important question is whether privatization would reduce the return on investments already made in SSA'S systems modernization. *Congress will want to consider carefully whether privatization initiatives are likely to prejudice the objectives that it has sought in supporting SMP, i.e., improved qua.hty of services and equity as well as efficiency in use of public resources.*

The Work Force and Labor-Management Relations

Increasing tension between labor and management during the decade of mounting problems in the 1970s has worsened since 1982 with the threat of severe work force reductions. Employees and their union take the position that improved productivity should be translated into enhancement of services and better working conditions rather than immediate elimination of jobs.

SSA and the union recently agreed to a Joint Statement of Common Purpose toward labor-management relations. After a promising start, that agreement is now said by union sources to be breaking down. *Labor-management relations are likely to worsen if systems modernization is directed toward immediate labor force reduction.*

Privacy and Security Concerns

Systems modernization will facilitate and probably encourage data-sharing programs and computer-matching programs that have expanded under OMB directives and GAO recommendations. SSA is now considering their use for front-end verification of eligibility, which has not been done in the past. These activities are considered useful for elimination of waste and fraud, although SSA has not systematically evaluated their cost-effectiveness. There are, however, growing concerns about intrusions on personal privacy when data collected for many specific legitimate purposes is aggregated and used for other purposes, and/or shared with other Federal and State agencies.

Security measures for SSA'S main computers and databanks have generally improved since 1982 with consolidation of processing activities in the National Computer Center and improved backup of files. SSA does not, however, have procedures and policies to assure privacy and security for data in personal computers. Opportunities for violations of privacy, for fraud, or for inadvertent loss of data will increase as SSA places interactive terminals in field offices and puts a new data communications utility into use. Although SSA plans to use standard techniques of restricted access, passwords, audit trails, etc., for protection, many of the planned control systems have not yet been developed.

Other new technologies which SSA is using or will use in the future, ranging from personal computers to satellite transmission and integrated services digital networks, will also increase the opportunities for unauthorized access to, misuse of, or theft and loss of data. SSA has done relatively little as yet to implement, or even plan for, privacy safeguards for some of these technologies.

Systems modernization will tend to intensify concerns about the privacy and security of SSA data.

OPTIONS FOR FACILITATING CONGRESSIONAL OVERSIGHT OF SYSTEMS MODERNIZATION

In spite of the attentions of a half-dozen congressional committees and frequent hearings, emerging problems were allowed to become chronic and Congress was repeatedly surprised by SSA'S serious difficulties in implementing congressional mandates. At present, OTA has identified a large number of unanswered questions and unresolved issues about which there are strongly conflicting critical charges and SSA claims regarding SSA information systems development and management. There are disturbing signs that SSA'S statements on some of these questions cannot be taken at face value. Some of these questions are in that area of uncertainty where there are no definitive answers and even experts may disagree among themselves. It is increasingly difficult for non-specialists to challenge the actions or the statements of agency managers, who must both be given support in carrying out difficult assignments and be held accountable for their actions. New ways of supporting and assisting congressional committees in their difficult oversight role may be needed, including sources of advice and evaluation that are not associated with investigation, regulation, and assignment of blame for inevitable mistakes. At a minimum, Members of Congress and their staff are concerned that they have access to information about agency needs and agency problems. This information can be provided most easily by the agency, but is often filtered or distorted to fit executive branch policies and priorities. With particular regard to SSA, there are a number of options that address the oversight issue:

1. Independent agency status for SSA has been proposed as one approach to this problem, but it is likely to be at best only partially effective. Executive branch priorities have been only one factor in oversight problems; some of the trouble has come from inside SSA. Moreover, this solution is a special or limited answer that cannot be applied to all agencies that may present similar problems.

2. Increasing the number of GAO audits, or studies from other sources, is a second option. GAO audits and several national commissions have been invaluable in supporting congressional oversight but have not entirely solved the problem. National commission studies usually provide only a snapshot of the situation at a given time, and are in addition usually slow, costly, and necessarily rare events. GAO studies have in the past been technical and narrowly focused, responding to the specific perspective and concerns of the requesting committee or of the Administration, reflecting the fragmentation of oversight responsibilities. They thus tended to overlook intensifying interactions between problems, as well as the effects of one congressional directive or legislative requirement on other competing congressional concerns. GAO is however now undertaking a broader management study of SSA which will be available to Congress later in 1986, and will provide additional insight into current information technology ma.nagement problems and progress.

3. Designation of one committee in each House, or a joint committee representing both Houses, for comprehensive oversight of the Social Security Administration is a third option. This would tend to simplify, integrate, and intensify oversight of the agency, and allow Members and staff to expand the attention they can give the agency and deepen their knowledge of its needs and problems. However, it might lose the benefit of different points of view and specialized knowledge that can be brought to bear by other committees.

4. A more tightly focused mandate for the subcommittees on government information technology management presently in each House is a fourth option. At present the responsibility for information technology is in each house combined with other, somewhat disparate responsibilities. A more tightly focused mandate would in-

crease the attention given to this subject. This would, however, tend to cause consideration of technological issues to be divorced from considerations of each agency's special mission, the quality of its services, and congressionally proposed changes in missions.

5. An external advisory body of nationally recognized experts on advanced information technology could be established to assist all oversight committees now concerned with Federal agencies that are becoming dependent on information technology to carry out their missions. For best use, this body of experts should not be charged with monitoring, investigation, or routine assessment, but should be available, staffed, and ready on a continuing basis to translate for Congress in discussions of technological issues and options, to evaluate agency and Administration positions on basic technological choices and strategies, and to alert Congress to technological trends that might offer alternatives. They could also assist Federal agencies in technology-related choices in an advisory and impartial way, and thus could provide a counterweight to Administration pressures for actions that are not realistic in terms of technological capabilities.

Such a group could be located within an existing congressional support agency. This may however not be the best strategy, because:

- it is difficult to attract into government service people of the prestige and standing that would make for greatest credibility, to assure them of independence, to give them the resources necessary to keep their expertise and their prestige at the desired high level; and
- within a congressional agency, they would be viewed by the executive agencies as investigatory and threatening rather than as advisory and helpful.

Thus a blue-ribbon panel, selected from industry and academia, with a small but highly expert staff, may be preferable.