

GAO

Report to the Congress

May 1989

**FINANCIAL
INTEGRITY ACT**

**Actions Needed to
Correct ADP Internal
Control Weaknesses**





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

**Comptroller General
of the United States**

B-234348

May 9, 1989

The President of the Senate and the
Speaker of the House of Representatives

The Federal Managers' Financial Integrity Act of 1982 (31 U.S.C. 3512(b) and (c)) requires federal department and agency managers to evaluate whether internal control systems have weaknesses that can lead to fraud, waste, and abuse in government operations. The act requires federal managers to report annually to the President and the Congress on their systems and plans to correct identified weaknesses.

This report provides an overall perspective on the progress agencies have reported since the act's passage in identifying and correcting automated data processing internal control weaknesses. Specific recommendations to the Office of Management and Budget are provided in chapter 5.

We are sending copies of this report to the Director of the Office of Management and Budget and to the heads of federal agencies. This report was prepared under the direction of Howard G. Rhile, Associate Director. Other major contributors are listed in appendix II.

for Ralph V. Perone

Charles A. Bowsler
Comptroller General
of the United States

GAO analyzed agency weaknesses and corrective actions based on the results reported by the agencies in their December 31, 1983, to December 31, 1987, Financial Integrity Act reports. The December 31, 1987, report was the latest available at the time GAO did its work.

Results in Brief

ADP weaknesses are a significant portion of all weaknesses reported under the Financial Integrity Act. Each of the 23 agencies that GAO examined reported ADP weaknesses, and these were about 25 percent of all reported internal control weaknesses. About one-third of the reported ADP weaknesses were uncorrected.

Two types of reported weaknesses could lead to weaknesses in other areas and weaknesses not being identified. These are shortcomings in ADP organization and management controls such as policies, and flaws in the methodology used by agencies to identify ADP weaknesses.

Progress in correcting ADP weaknesses is difficult to measure. Agencies do not always provide complete information in their Financial Integrity Act reports on the status of uncorrected weaknesses and the reasons for delays in correcting them. The Congress should have such information in carrying out its oversight and funds authorization roles. This information could be used in considering the extent that agencies have resolved internal control weaknesses and the consequences of remaining weaknesses on the agencies' abilities to effectively develop and operate ADP systems.

Principal Findings

The 23 federal agencies reported 522 ADP internal control weaknesses under the Financial Integrity Act from 1983 through 1987, accounting for about one-fourth of all weaknesses identified. Of these, 173 were reported as active in agencies' 1987 Financial Integrity Act reports. About 86 percent of the active ADP weaknesses fell within 4 types identified by GAO: (1) controls over computer applications, (2) ADP security, (3) ADP organization and management, and (4) methodology for evaluating ADP controls and security.

About 30 percent, or 156, of the reported weaknesses were in the areas of ADP organization and management controls and the methodology for evaluating ADP controls and security. ADP organization and management controls are a prerequisite to effective implementation and operation of ADP systems. For example, during a 1987 review GAO reported that ADP

GAO also recommends that OMB ensure itself that the heads of federal agencies fully report the schedules for correcting ADP internal control weaknesses and the reasons for any delays when they occur.

Agency Comments

Because agency-specific data were not used in the report beyond those included in the agencies' Financial Integrity Act reports or previously issued GAO reports, written agency comments were not obtained. However, GAO obtained oral comments from OMB on a draft of this report. OMB had no disagreements with the report's facts, conclusions, and recommendations.

OMB commented, however, that instead of annually summarizing the status of internal control weaknesses in the areas of agency evaluation methodologies and ADP organization and management controls, it might start highlighting ADP problems in its annual management reports. In GAO's view, a summary of the status of weaknesses in these areas is a prerequisite to identifying the ADP weaknesses to be highlighted.

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Abbreviations

ADP	automated data processing
GAO	General Accounting Office
IMTEC	Information Management and Technology Division
OMB	Office of Management and Budget

Federal managers depend on the strength of their agencies' internal controls to ensure that automated operations and systems are timely, accurate, and reliable.² The Federal Managers' Financial Integrity Act of 1982 was enacted as a means of strengthening the federal government's internal controls, including controls over ADP systems. The act requires agencies on a yearly basis to evaluate the extent to which their internal controls assure that

- obligations and costs are in compliance with applicable law;
- funds, property, and other assets are safeguarded against waste, loss, unauthorized use, or misappropriation; and
- revenues and expenditures applicable to agency operations are properly recorded and accounted for.

In accordance with the act's implementing guidance, Office of Management and Budget (OMB) Circular A-123, Internal Control Systems, dated August 16, 1983, and revised August 4, 1986, agencies have reported to the President and to the Congress, on December 31 of each year since 1983, whether their internal accounting and administrative controls meet these requirements. Agencies must include in these reports any material weaknesses³ that have been identified during these evaluations, as well as their plans and schedules for correcting these weaknesses. Also, since fiscal year 1986, OMB has summarized governmentwide implementation of the Financial Integrity Act in its annual management reports that accompany the President's budget.

After assessing agency Financial Integrity Act reports for the first 3 years under the act, the House Committee on Government Operations found that agencies needed to evaluate internal controls more thoroughly, so that judgments about their sufficiency could be made with greater confidence and reliability. Also, the Committee found that agencies had not made sufficient progress in taking corrective action on many material internal control weaknesses, some of which were long-

²Under the Financial Integrity Act, internal controls are viewed as being synonymous with management controls—the whole network of policies, procedures, practices, and systems used by managers.

³OMB has defined a material weakness as a specific instance of non-compliance with the Financial Integrity Act of sufficient importance to be reported to the President and the Congress. Such weaknesses would significantly impair the fulfillment of an agency component's mission; deprive the public of needed services; violate statutory or regulatory requirements; significantly weaken safeguards against waste, loss, unauthorized use or misappropriation of funds, property, or other assets; or result in a conflict of interest.

controls. Using the agency descriptions of each weakness, we categorized the weakness by type and then determined which of the 10 types of ADP weaknesses were being reported most often. While some descriptions might fit under more than one type, we judgmentally determined which best described the weakness, and counted each weakness only once.

An effective internal control identification and review process is needed to reasonably assure that automated controls and security are in place and are working. Therefore, we analyzed the internal control weaknesses reported by agencies in their methodology for evaluating ADP internal controls and security. To the extent agencies were continuing to report active (uncorrected) weaknesses in their evaluation methodologies, we examined how and when corrective actions were planned.

To determine the extent to which schedules for correcting ADP internal control weaknesses had slipped, we examined the active weaknesses first reported in 1986 or earlier and computed the age of pending or ongoing corrective actions for those weaknesses. To the extent that we could, from the information reported, we determined patterns that might indicate why slippages occurred. We made these determinations by examining cases where estimated completion dates were beyond the original targeted completion date.

As agencies issue new Financial Integrity Act reports yearly, the reports should show that some previously reported internal control weaknesses have been corrected while others remain to be corrected. Also, the new reports will probably identify new weaknesses. Examples used in this report include internal control weaknesses with corrective actions scheduled for completion during 1988. We did not confirm whether these schedules were achieved. However, as part of our continuing effort to evaluate agencies' implementation of the Financial Integrity Act, we plan to determine the status of these weaknesses during 1989.

Except for occasional references to previous GAO reports and testimony, this report is based on data from agencies' Financial Integrity Act reports, as compiled in our data base. We did not conduct any follow-up or updating beyond the date of the most current Financial Integrity Act reports at the time of our review, which were dated December 31, 1987. While agencies' 1988 reports have been issued, they were not available for analysis during the time that we did our work for this report. We neither discussed this information with the agencies nor obtained

ADP Internal Control Weaknesses Are a Significant Part of the Weaknesses Reported

All 23 federal agencies have reported ADP internal control weaknesses under the Financial Integrity Act, over a 5-year period. About one-fourth of the weaknesses reported were ADP weaknesses. Further, most of the ADP weaknesses fell within four types, namely (1) controls over computer applications, (2) ADP security, (3) ADP organization and management, and (4) methodology for evaluating ADP controls and security.

Frequency of ADP Internal Control Weaknesses Reported

From 1983 to 1987, 522 ADP internal control weaknesses accounted for roughly one-fourth of the approximately 2,000 weaknesses reported. Table 2.1 shows for each year from 1983 through 1987 the number of ADP internal control weaknesses reported.

Table 2.1: ADP Internal Control Weaknesses by Year First Reported, 1983 Through 1987

Year First Reported	Number of ADP Weaknesses
1983	72
1984	114
1985	112
1986	160
1987	64
Total	522

As table 2.1 shows, the number of ADP internal control weaknesses reported has generally increased from 1983, except in 1987. The reason why the number declined in 1987 was not explained in the agencies' annual reports. According to OMB staff responsible for overseeing the act's implementation, the decline was probably due to agency consolidation of weaknesses as encouraged by OMB.

Most Frequently Reported Types of ADP Internal Control Weaknesses

One way to gain a firmer understanding of automation problems facing the government is to look not only at the numbers, but at the types of ADP internal control weaknesses reported. We found that most of the weaknesses fell into 4 of the 10 types that we used to analyze these weaknesses. Figure 2.1 displays the percentage of ADP weaknesses reported, by type, for the 5-year period of 1983 through 1987. The top 4 types of ADP internal control weaknesses include 420 out of the 522 weaknesses reported, or about 80 percent, and are described in the following sections.

the integrity of processing, and the verification and distribution of output. Such controls are unique to each system, and correction often requires the development of a new automated system or a major upgrade to an existing system.

Without adequate application controls, data produced by the system could be inaccurate, out of date, or incomplete. For example, in 1987 the Department of the Treasury reported that the Internal Revenue Service had inadequate controls over payments to vendors. Treasury reported that this weakness created the possibility for incurring late charges, making payments on erroneous billings, or suffering misappropriation of funds. Treasury reported that it planned to correct this weakness in 1988 by providing adequate vendor identification before payments, realigning job responsibilities to improve separation of duties, and improving the automated system.

Application control weaknesses can be costly. In an April 1987 report, we found that errors in an Air Force system's data could cause early, late, or erroneous payments and inaccurate reports on how federal funds had been spent.¹ As a result of inadequate application controls in the Air Force's Acquisition Management Information System, used to manage its contract and payment disbursement functions, the Air Force disbursed over \$17 million in erroneous payments from May 1983 through December 1984. While these payments were subsequently detected and corrected, the government incurred unnecessary interest expense while the payments were outstanding.

ADP Security

The second most common ADP internal control weakness was security, which accounted for 22 percent of the 5-year total and was reported by 18 agencies. ADP security provides for administrative, physical, and technical safeguards to systems, and prevents unauthorized access to computer rooms, equipment, programs, and files. Further, ADP security controls ensure that measures are in place to protect computers from environmental disasters, such as fires or floods, and to support backup and disaster recovery. Breaches in security could result in the loss of assets and leaks of sensitive information.

¹Internal Controls: Air Force Contract Payment Controls Should Be Strengthened, (GAO/IMTEC-87-13, Apr. 2, 1987).

development, that contain sensitive information, establish training programs to increase security awareness and knowledge of security practices, and establish a security plan for each computer system processing sensitive information.

ADP Organization and Management

ADP organization and management was the third most common weakness, comprising 18 percent of ADP internal control weaknesses reported. Thirteen agencies reported weaknesses of this type from 1983 through 1987. Eight agencies reported 30 active or uncorrected weaknesses in their 1987 reports. ADP organization and management refers to controls, such as policies and procedures and the organizational structure, that an agency uses to manage its ADP operations and systems development. Sound ADP organization and management is fundamental to defining and implementing other ADP management controls; these controls provide management with reasonable assurance that properly supervised, competent ADP personnel perform correctly the duties they have been assigned. Without these controls, there is a risk that automated systems may not be operated in the manner intended and could process erroneous transactions.

The Department of Defense, for example, reported in 1987 that the information resources management function of one of its components was not organized in accordance with Defense policy and directives, contributing to a management information system that is fragmented, uncoordinated, and lacking integration. To correct the weakness, Defense planned to take the necessary steps to develop a comprehensive, integrated system by September 30, 1989, that will provide senior managers and other users with the automated support they need.

In another instance, the Department of the Interior reported three weaknesses at its Bureau of Indian Affairs, one in 1986 and two in 1987, that were planned to be corrected by the end of 1988 through the issuance of new policies or procedures. Interior reported that the Bureau did not have published procedures for fully implementing OMB Circular A-130, Management of Federal Information Resources, December 12, 1985.³ The Bureau also did not have published procedures for developing, implementing, and maintaining ADP application systems and did not have policies, procedures, and standards for planning and operating all its

³OMB Circular A-130 establishes a minimum set of internal controls to be included in federal automated information systems security programs.

Agencies Have Reported Weaknesses in Their Methodologies for Evaluating ADP Controls and Security

The ADP internal control weaknesses identified in this report may not fully represent problems that exist at the agencies examined, because all agencies did not have procedures necessary to properly evaluate their ADP controls and security in accordance with OMB circulars. Included in this ADP weakness type are cases where agencies report that evaluations or risk analyses of ADP controls or security have not been performed. Since the inception of the Financial Integrity Act, 12 of the 23 agencies have reported weaknesses in their methodologies. Although action has been taken by OMB to establish evaluation guidelines, and agencies have reported improvements in their methodologies, 16 active weaknesses in this area were still reported by 5 agencies at the end of 1987.

Actions Have Been Taken to Improve Evaluations

Two OMB circulars require that agencies evaluate their ADP controls and security. OMB Circular A-123 requires agencies to evaluate annually their internal controls, including ADP controls and security, to ensure proper identification of deficiencies and effective implementation of corrective actions. Also, OMB Circular A-130 provides that agencies shall establish a management control process to assure that appropriate administrative, physical, and technical safeguards are incorporated into all ADP applications, and significant modifications to existing applications. In addition, this circular requires agencies to conduct periodic risk analyses to identify (1) ADP security risks, and (2) areas where safeguards or controls are needed.¹

In our first two governmentwide reports on agency implementation of the Financial Integrity Act, we stated that ADP controls generally were not evaluated and that OMB needed to establish specific evaluation guidelines to ensure that ADP controls are considered.² Since then, OMB issued a publication, Model Framework for Management Control Over Automated Information Systems (Jan. 1988), that provides agencies with detailed guidance.³

By 1987, seven agencies reported that they had corrected their active evaluation weaknesses. For example, the Department of Education

¹According to OMB Circular A-130, risk analyses are conducted to ensure that cost-effective safeguards are incorporated into existing and new installations. Unless agencies conduct periodic risk analyses, their ADP activities could lack adequate controls and security.

²Implementation of the Federal Managers' Financial Integrity Act: First Year (GAO/OCG-84-3, Aug. 24, 1984); and Financial Integrity Act: The Government Faces Serious Internal Control and Accounting Systems Problems (GAO/AFMD-86-14, Dec. 23, 1985).

³This model framework was jointly prepared by the President's Council on Integrity and Efficiency and the President's Council on Management Improvement.

Chapter 3
Agencies Have Reported Weaknesses in Their
Methodologies for Evaluating ADP Controls
and Security

The Small Business Administration reported in 1985 the need to evaluate its ADP controls in accordance with OMB and agency guidelines. This agency further reported in 1986 that (1) its computer security procedures needed to be revised to comply with OMB Circular A-130, and (2) computer security reviews and risk analyses needed to be performed. The Small Business Administration further reported that it had not conducted a risk analysis since 1979. To correct these weaknesses, the Small Business Administration planned to conduct and distribute computer security procedures and to complete risk analyses and security reviews of five major computer applications. In addition, this agency assigned responsibility for implementing these corrective actions, which were to be completed in 1988, to an assistant administrator of its Office of Information Resources Management.

Two other agencies also reported that they needed to conduct better risk analyses of their computer activities. The Department of the Treasury reported in 1985 that the Internal Revenue Service was not in compliance with OMB Circular A-71, the circular updated by OMB Circular A-130. To correct this weakness, Treasury reported that it planned in 1988 to conduct risk analyses of all the Internal Revenue Service's centers, and has established a special project office to develop and review contingency plans for all its ADP facilities. In addition, Treasury has requested funds to perform a risk assessment of Treasury general accounts.

In another instance, the Defense Logistics Agency reported in 1987 that, contrary to current directives, it had not analyzed all of its information systems for potential security weaknesses. This agency planned to perform risk analyses for seven of the agency's automated information systems by the end of 1988.

were scheduled to be corrected before September 30, 1987.¹ Table 4.2 shows our results.

Table 4.2: Corrective Action Completion Dates for Active Weaknesses First Reported in 1986 or Earlier

Original Reported Completion Dates	Weaknesses
Not scheduled to be corrected until after September 30, 1987	32
Scheduled for correction by September 30, 1987, but were still active	68
Correction date not provided when weakness first reported	17
Total active weaknesses	117

Agencies intended to correct 32 of these active ADP internal control weaknesses after September 30, 1987. The remaining 85 internal control weaknesses were still active after their original scheduled correction dates, or correction dates were not provided when the weakness was first reported.

Reasons for Delays in Correcting Weaknesses Not Always Explained

Agencies are required to report estimated correction dates for identified internal control weaknesses and to implement, on a timely basis, corrective actions identified through internal control efforts, according to OMB Circular A-123 and supplemental reporting guidance. The circular does not define timely, but we were able to determine cases in which agencies did not meet their own timetables. Our analysis of the data base indicated that planned corrective actions for 68 active internal control weaknesses should have been completed by September 30, 1987, if agencies were to meet their schedules. Nineteen of these weaknesses have been active for 2 or more years.

OMB supplemental reporting guidance to the circular provides that changes in corrective action schedules should be explained. Reasons for slippages were given in only 13 of the 68 cases, however. Table 4.3 provides the reasons given for slippages.

¹Agencies report to the President and to the Congress at the end of each calendar year, but the status of their weaknesses and corrective actions is as of the close of the preceding fiscal year. For example, agency reports dated December 31, 1987, contained the status of their internal control weaknesses and corrective actions as of September 30, 1987.

Conclusions and Recommendations

Conclusions

ADP weaknesses reported under the Financial Integrity Act, while active, present threats to the integrity of agencies' automated systems of sufficient importance to bring to the attention of the President and the Congress. The reports filed by agencies on weaknesses in their ADP operations for the first 5 years of the act paint a disturbing picture. Agencies have reported over 500 ADP internal control weaknesses from 1983 through 1987, representing about one-fourth of all weaknesses reported. Agencies have also reported that about two-thirds of these have been corrected. On the surface, therefore, it would appear that agencies are systematically identifying weaknesses and correcting them as they are found.

A look behind the figures, however, raises questions as to whether progress is as substantive as it appears on the surface and whether the Congress is getting the kind of information required by the act to measure this progress. Continuing weaknesses in two areas—organization and management and methodologies for evaluating ADP controls and security—could hinder an accurate assessment of progress made. Also, delays in correcting weaknesses are occurring, and in most cases the reasons for delays cannot be determined from the agencies' Financial Integrity Act reports.

With respect to progress, 30 organization and management and 16 evaluation methodology weaknesses remained uncorrected at the end of 1987. These numbers represent a considerable portion of the 156 weaknesses reported for these two areas during the 5-year period.

Eight agencies reported active weaknesses with ADP organization and management. Controls in this area, including policies and procedures and a proper organizational structure, are a prerequisite to effective implementation and operation of ADP systems.

Five agencies reported active methodology weaknesses. An effective process for determining the adequacy of ADP controls and security is essential to identify needed improvements and proper implementation of required controls.

The existence of ADP organization and management and evaluation methodology weaknesses raises questions as to whether agencies are making real progress in correcting the root causes of internal control weaknesses in their ADP operations. Until agencies correct these fundamental weaknesses it is likely that problems in other areas will continue to exist or will go undiscovered.

To ensure that this summary information is most useful to the Congress in carrying out its oversight role, we also recommend that OMB link the information to the agencies' budget submissions, and describe the resulting budgetary implications.

To provide a sound basis for OMB's use in summarizing the results, we also recommend that OMB ensure itself that the heads of federal agencies fully report the schedules for correcting internal control weaknesses and the reasons for any delays when they occur.

Agency Comments

Because agency-specific data were not used in the report beyond those included in the agencies' Financial Integrity Act reports or previously issued GAO reports, written agency comments were not obtained. We obtained oral comments on a draft of this report from OMB staff responsible for overseeing agency implementation of the Financial Integrity Act. OMB did not disagree with our facts, conclusions, and recommendations, but stated that OMB has not reviewed the agency data to the extent that we have. Also, OMB believed that our report would be timely for the incoming administration.

OMB commented, however, that it might provide highlights of agencies' reported weaknesses in its annual management report instead of summarizing the status of these weaknesses, as we recommended. We believe that summarization is a prerequisite to identifying the ADP weaknesses to be highlighted. Further, we believe that the summarized information would be of value to the Congress, as discussed above. OMB further stated that agencies are conducting a number of activities under the Computer Security Act of 1987, and suggested that our report mention some of these. We have not discussed these activities in this report because our focus was on the Financial Integrity Act, but we have reviewed agency compliance with the Computer Security Act of 1987, and have issued two reports on this subject.¹

¹Computer Security: Status of Compliance With the Computer Security Act of 1987. (GAO/IMTEC-88-61BR, Sept. 22, 1988); and Computer Security: Compliance With Training Requirements of the Computer Security Act of 1987. (GAO/IMTEC-89-16BR, Feb. 22, 1989)

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Departments' and Agencies' Financial Integrity Act Reports Included in Our Review, and Numbers of Active ADP Weaknesses as of December 31, 1987

Department or Agency	Number of Active ADP Weaknesses ^a
Department of Agriculture	57
Department of Commerce	4
Department of Defense	
Office of the Secretary of Defense ^b	11
Department of the Army	3
Department of the Navy	7
Department of the Air Force	2
Defense Logistics Agency	7
Defense Security Assistance Agency	0
Department of Education	3
Department of Energy	1
Department of Health and Human Services	5
Department of Housing and Urban Development	1
Department of the Interior	13
Department of Justice	1
Department of Labor	4
Department of State	10
Department of Transportation	5
Department of the Treasury	29
Environmental Protection Agency	0
General Services Administration	0
National Aeronautics and Space Administration	1
Small Business Administration	5
Veterans Administration	4
Total	173

^aAs stated on page 10 of this report, we determined whether a weakness was an ADP internal control weakness by examining the descriptions reported by the agencies. OMB and the agencies do not make a similar determination of the number of ADP weaknesses reported. Also, our count consists of individual weaknesses reported by agencies while agencies may count weaknesses reported by combining some weaknesses into specific categories.

^bIncludes other DOD components except the Army, Navy, Air Force, Defense Logistics Agency, and the Defense Security Assistance Agency.

The number of active ADP internal control weaknesses (1) that have not been corrected as planned—68, (2) for which reasons for delays have not been explained—55, and (3) for which correction timetables were not reported—17, points to the need for continued strong federal management commitment to operating effective and secure ADP systems. Such commitment is essential in this age when most of the government's operations are critically dependent on ADP systems. These conditions also result in the Congress having incomplete information on the status of corrective actions. Complete information is required by OMB Circular A-123 and supplemental guidance.

The Congress, in carrying out its oversight of federal agencies, and in its role of authorizing funds for the development and operation of ADP systems, should have useful information on the status of agencies' ADP internal control weaknesses. This information could be used in considering the extent to which agencies have resolved ADP internal control weaknesses and the consequences of remaining weaknesses on agencies' abilities to effectively develop and operate ADP systems. For example, such information would permit the Congress to fully evaluate funding requests to develop systems before internal control weaknesses that could adversely affect the systems' development are properly corrected.

Recommendations

Effective ADP systems are vital to the accomplishment of agencies' missions across the government. We recommend that OMB take a leadership role to focus attention on progress to identify and correct the underlying ADP management control problems that affect successful implementation of the Financial Integrity Act; and to provide the Congress with useful, reliable information on overall progress. Specifically, we recommend that the Director, OMB

- annually summarize for the Congress agencies' ADP internal control weaknesses and the status of actions to correct (1) ADP organization and management controls, and (2) agency evaluation methodologies needed to identify and correct ADP weaknesses; and
- include in this annual summary a discussion of corrective actions that have been delayed for 1 year or more past their estimated completion dates, the reasons for delays, and the timetables for corrective actions.

The recommended summary could be provided as part of OMB's annual management report.

Chapter 4
Some ADP Weaknesses Are Not Corrected
on Schedule

Table 4.3: Reasons Given for Corrective Action Schedule Slippages

Reason Given for Slippage	Number
Delayed management reviews of proposed actions	2
Changes in the corrective action	3
Resource limitations	3
Delayed system installation	2
Faulty contractor work	1
Corrective action more complex than anticipated	1
Delayed completion of related system	1
Total number of weaknesses with slippages	13

As examples of schedule slippages, the Department of Agriculture originally reported that it needed to (1) complete physical security improvements at one of its computer centers by September 30, 1986, and (2) develop data administration and data base development policies for one of its bureaus by September 30, 1985. Both weaknesses had revised completion dates for 1988. No reasons were reported for these slippages.

In regards to unreported correction dates, of the 117 weaknesses, 17 did not have correction dates when the weaknesses were first reported. Of these 17 weaknesses, 10 still did not have planned correction dates at the end of 1987. The lack of clearly reported timetables for correcting weaknesses makes it difficult to hold agencies accountable for correcting weaknesses as planned. In addition, for 13 of the 17 weaknesses, no explanations were given as to why these weaknesses had not been corrected. Without established timetables and explanations for delays, there is no way of knowing the status of these weaknesses from the agencies' reports.

Some ADP Weaknesses Are Not Corrected on Schedule

The very existence of ADP internal control weaknesses, together with reported inadequacies in properly identifying weaknesses and the tendency for some weaknesses to remain uncorrected beyond their scheduled completion date represent threats to the integrity of federal agencies' automated systems. While agencies report correcting ADP internal control weaknesses, new ADP weaknesses have been identified in each year. Our analysis of 522 ADP weaknesses reported over the 5-year period from 1983 through 1987 showed that about two out of three, or 340 weaknesses, were reported corrected. However, 68 of the active internal control weaknesses first reported in 1986 or earlier were not corrected as planned within their originally scheduled times. Nineteen of these weaknesses remained active for 2 or more years.

There may be rational explanations for continuing internal control weaknesses. For example, the problems may be severe or may require additional funding or other resources that are not available. However, reasons for delays were provided for only 13 of the 68 weaknesses that were not corrected as scheduled. In addition, for 17 active internal control weaknesses, agencies did not set a date for correction when the weakness was first reported, making it difficult to detect and monitor schedule delays. Correction dates were later provided for 7 of these weaknesses.

Status of Reported ADP Internal Control Weaknesses

About one-third of all ADP internal control weaknesses reported in the 5-year period from 1983 through 1987 were reported still active. Table 4.1 shows the correction rate of reported ADP internal control weaknesses.

Table 4.1: Status of ADP Internal Control Weaknesses, 1983 Through 1987

Status	Number	Percent
Corrected	340	65
Active	173	33
Merged/Dropped	9	2
Total	522	100

A significant portion of ADP weaknesses have not been corrected as scheduled. Of the 173 active ADP weaknesses, 117, or about 68 percent, were first reported in 1986 or earlier. As part of our analysis of slippages, we attempted to identify how many of these 117 weaknesses

reported in 1987 that it had a methodology for reviewing ADP general and application controls. Also, the Department of Transportation reported that same year that it performed risk analyses of its computer facilities.

Active Evaluation Weaknesses Reported

While efforts have been taken to improve ADP methodologies and guidance, five agencies reported 16 active weaknesses related to this area as of December 31, 1987. These include the lack of risk analyses and evaluations of ADP internal controls. Examples from the five agencies reporting active problems with methodology are described below. Until these agencies have made effective internal control evaluations of their ADP activities, they may not have reasonable assurance that the billions of dollars they are spending on or through their ADP systems are meeting user needs, are secure, and are being managed in the most cost-effective manner.

The Department of Health and Human Services reported in 1985 that lack of resources precluded it from establishing a computer matching operation between Medicare death data and Social Security Administration payment records. Such an operation could assist Health and Human Services staff in evaluating the internal controls intended to prevent duplicate payments. It could also serve as a control to detect duplicate payments. The match had been originally scheduled for July 1986, but had been rescheduled for September 1988. The agency's report cited an Office of Inspector General estimate that this matching of duplicate payments could result in estimated annual savings ranging from \$7 million to \$11 million.

The Department of Agriculture reported in 1986 that it needed to better monitor the general controls of its ADP activities as required by OMB Circular A-123. The agency reported that it was conducting ongoing information resource management reviews to correct this weakness in 1988. Agriculture also reported in 1986 that it needed to conduct risk analyses at two of its computer centers. For one center, risk analyses were not performed before approving the center's design specifications. At the other center, Agriculture reported that a specific timetable for conducting risk analyses had not been established, nor did the center's security plan include documentation of risk analyses. Agriculture reported that it plans to conduct ongoing risk analyses to correct these weaknesses, which were to be completed in 1988.

computer centers. Interior did not report the adverse impact of these weaknesses.

Organization and management weaknesses may have adversely affected a systems development project at the Department of Labor. Labor had reported from 1983 through 1986 that its ADP management was deficient in four areas: (1) ADP policies, procedures, and standards; (2) structure for ADP oversight; (3) ADP inventories; and (4) ADP security. We reported during a 1987 review that ADP management control deficiencies had contributed to Labor's unsuccessful attempts, at a cost of about \$30 million between 1974 and 1986, to develop an integrated automated system for its Federal Employees' Compensation Program.⁴

Methodology for Evaluating ADP Controls and Security

Problems with reviews of ADP controls and security by agency management ranked fourth in overall frequency, covering 12 percent of all ADP weaknesses and 12 of the agencies. These weaknesses indicate that agency evaluations to identify ADP weaknesses were not conducted in accordance with OMB requirements. This type of weakness is discussed more fully in chapter 3. The remaining ADP internal control weaknesses, accounting for 20 percent, were a compilation of other types including planning, hardware, software, systems development and maintenance, data center management, and microcomputer controls.

⁴ADP Internal Controls: Actions to Correct System Weaknesses for Federal Employees' Compensation, (GAO/IMTEC-88-9, Dec. 22, 1987).

On October 29, 1985, we testified before the Subcommittee on Transportation, Aviation and Materials, House Committee on Science and Technology, on the seriousness of ADP control problems that the government faces.² We surveyed ADP security for 25 automated systems at 17 civil agencies. Generally the results of the survey showed that each of the systems is vulnerable to abuse, destruction, error, fraud, and waste because the safeguards needed to protect systems from potential threats, such as periodically changing passwords, were not always in place. In our testimony, we pointed out that effective ADP security in these systems was needed to prevent undesirable events, such as denial of benefits to citizens, unauthorized disclosure of sensitive information, loss of government money, waste of federal resources, human injury, and in extreme cases, loss of life and endangerment of the national welfare.

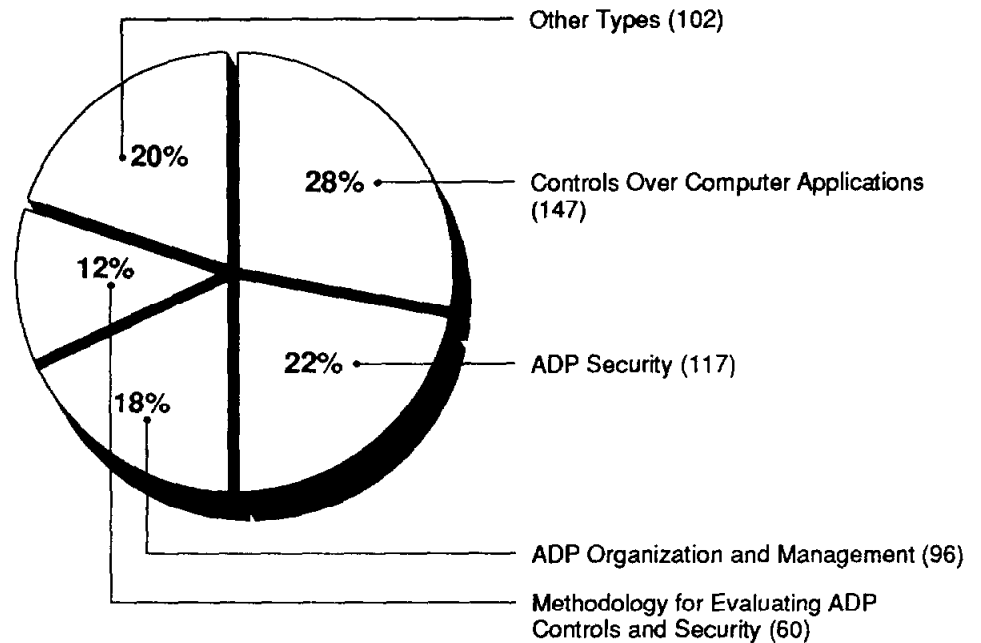
As an example of an ADP security weakness reported under the Financial Integrity Act, the Department of Education reported that its contractors were not adequately complying with the agency's ADP security requirements for security authorizations to access Education's ADP equipment. Education stated in its 1987 Financial Integrity Act report that these access violations could result in a "serious breakdown of security." Three corrective actions were identified, which included contractor security training, security compliance reviews, and an update of all security access authorizations. All corrective actions were planned to be completed by the end of 1988.

Federal agency responsibilities for computer security were increased with enactment of the Computer Security Act of 1987, Public Law 100-235, on January 8, 1988. The act provides for improving the security and privacy of sensitive information in agencies' computer systems. The act defines sensitive information as any unclassified information whose loss, misuse, or unauthorized access or modification could adversely affect the national interest or conduct of a federal program, or the privacy to which individuals are entitled under the Privacy Act (5 U.S.C. 552a). In general, the Computer Security Act requires that all federal agencies identify their computer systems, whether operational or under

²Testimony by William S. Franklin, Associate Director, Information Management and Technology Division, before the Subcommittee on Transportation, Aviation and Materials, House Committee on Science and Technology, Oct. 29, 1985.

Chapter 2
 ADP Internal Control Weaknesses Are a
 Significant Part of the Weaknesses Reported

Figure 2.1: Percentages of ADP Internal Control Weaknesses by Type, 1983 Through 1987



The Other Types label contains the remaining 6 types, which are ADP Planning, ADP Hardware, ADP Software, ADP Systems Development and Maintenance, ADP Data Center Management, and Microcomputer Controls.

Of the 522 ADP weaknesses reported from 1983 through 1987, 173 were reported as active in the agencies' 1987 Financial Integrity Act reports. The types of weaknesses and their proportion were similar to those reported for the entire 5-year period. About 86 percent of the active weaknesses were in the areas of controls over computer applications (32 percent), ADP security (27 percent), ADP organization and management (17 percent), and methodology for evaluating ADP controls and security (10 percent). Appendix 1 shows the active weaknesses for each agency.

Application Controls

The most frequent ADP internal control weakness reported was controls over computer applications, representing 28 percent of the ADP weaknesses reported over the 5-year period. Application control weaknesses were reported by 21 agencies. These controls govern the quality of data,

Chapter 1
Introduction

agency comments on this report, because the report summarizes previously reported problems and actions. Comments were obtained and are included in this report from OMB, which is responsible for overseeing agency implementation of the act.

Our review was performed from March 1988 through November 1988 in accordance with generally accepted government auditing standards.

standing problems. The Committee recommended that agency heads correct their reported weaknesses in a complete, effective, and timely manner, and assure that their managers are conducting adequate evaluations of their internal controls.⁴

Objectives, Scope, and Methodology

Our objectives were to evaluate:

- whether agencies have reported ADP internal control weaknesses and how significant a portion these weaknesses are of the total reported under the Financial Integrity Act;
- the types of ADP internal control weaknesses reported;
- whether agencies are continuing to report weaknesses in their methodology for evaluating ADP controls and security; and
- the reported extent of and rationale for any delays in the correction of ADP internal control weaknesses.

To accomplish these objectives, we compiled a data base of all weaknesses and corrective actions reported by 23 agencies in their Financial Integrity Act reports for the period 1983 through 1987. We selected these agencies because their budgets account for over 95 percent of federal expenditures.

To the extent reported by these agencies, our data base contains a narrative description of and estimated correction dates for each weakness and corrective action. We used the data base to determine whether these agencies were reporting ADP internal control weaknesses and whether these weaknesses were a significant portion of the total of those reported under the act. We determined whether a weakness was an ADP internal control weakness by examining the descriptions reported by the agency.

We defined 10 types of ADP weaknesses primarily on the basis of types used in our audit guide, Evaluating Internal Controls in Computer-Based Systems (June 1981). The types are: (1) ADP planning, (2) methodology for evaluating ADP controls and security, (3) ADP organization and management, (4) ADP systems development and maintenance, (5) ADP systems software, (6) ADP hardware, (7) ADP data center management, (8) ADP security, (9) ADP application controls, and (10) microcomputer

⁴Implementing the Federal Managers' Financial Integrity Act—Three Years Later, H.R. Rep. No. 99-744, 99th Cong., 2d Sess. (1986).

Introduction

Federal agencies are responsible for ensuring that their automated systems support their missions and operate effectively and efficiently. The importance of these systems has grown significantly in recent years, and virtually all government organizations rely on automation to help carry out vital functions. As we pointed out in our November 1988 transition report to the Congress and the new administration, the government's information technology costs are high, having increased from \$9 billion in 1982 to \$17 billion in projected expenditures for fiscal year 1989.¹ We further reported that strong leadership is needed that can effectively harness this technology to carry out the government's missions, make sure automated systems work as planned, ensure adequate system protection, and recruit and retain talented people to oversee the systems. The Federal Managers' Financial Integrity Act of 1982 (31 U.S.C. 3512(b) and (c)) is a key mechanism that the Congress has put in place to ensure that management controls, including those over automation efforts, are effective, and to hold managers accountable for correcting identified deficiencies.

This report contains our evaluation of weaknesses in automated data processing (ADP) management controls and the corrective actions that have been reported by the agencies. The weaknesses were reported under the Federal Managers' Financial Integrity Act by 23 federal agencies from December 1983 through December 1987 (see appendix I). Eighteen of these 23 agencies issued annual Financial Integrity Act reports to the President and the Congress. The Department of Defense, through the Office of the Secretary, issued a single report for its defense components. Because our review includes Financial Integrity Act reports to the Secretary of Defense from the Air Force, Army, Defense Logistics Agency, Defense Security Assistance Agency, and Navy, we counted these 5 agencies separately to total 23.

Agencies are required to issue new Financial Integrity Act reports by December 31 of each year. Although the numbers and some of the examples in this report will change after future Financial Integrity Act reports containing new or corrected weaknesses are issued, we believe the issues identified in this report are important enough to raise at this time, because of their generic and persistent nature. Our work was conducted to assist the Congress in its oversight of automated systems. Our report should also be of interest to federal managers, especially those who are responsible for designing, expanding, or operating automated systems.

¹Information Technology Issues, (GAO/OCG-89-6TR, Nov. 1988).

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management control deficiencies at the Department of Labor contributed to unsuccessful attempts costing about \$30 million to develop an automated system between 1974 and 1986. Eight agencies reported active weaknesses in this area at the end of 1987.

Although agencies are taking steps to improve their methodology used to evaluate ADP controls and security, active weaknesses in this area were reported by 5 agencies at the end of 1987. If an agency's methodology in this area is deficient, its reported ADP weaknesses may be understated. For example, the Small Business Administration reported the need to evaluate ADP controls and conduct computer security reviews and risk analyses. Without such efforts, existing ADP weaknesses may remain undetected.

In its analysis of 117 active ADP weaknesses first reported in 1986 or earlier, GAO found 68 cases for which agencies did not meet their own deadlines for correction. Nineteen of these weaknesses had remained open for 2 or more years. In most instances, agencies reported no explanations for the delays. In addition, in 17 cases of active control weaknesses, agencies did not set dates for correction when the weaknesses were first reported, making it difficult to detect and monitor delays.

Recommendations

Effective ADP systems are vital to the accomplishment of agencies' missions across the government. GAO recommends that OMB take a leadership role to focus attention on progress in identifying and correcting the underlying management control problems that affect successful implementation of the Financial Integrity Act, and to ensure that the Congress has useful, reliable information on overall progress for its use in carrying out its oversight and funds authorization roles.

GAO recommends that the Director, OMB, annually provide a concise summary to the Congress of the status of agencies' actions to correct ADP organization and management control weaknesses and evaluation methodology weaknesses; and the status of ADP weaknesses for which corrective actions have been delayed by more than 1 year. To ensure that this summary information is most useful to the Congress in carrying out its oversight role, GAO also recommends that OMB link these weaknesses to the agencies' budget submissions, and describe any budgetary implications.

Executive Summary

Purpose

The federal government relies on automation to carry out many of its vital functions. Effective internal controls help management ensure that automated operations and systems are timely, accurate, and reliable. Without such systems, the federal government cannot effectively manage programs that are intended to serve the public's needs.

Under the Federal Managers' Financial Integrity Act of 1982 (31 U.S.C. 3512(b) and (c)), agencies are required to evaluate and report on their internal accounting and administrative controls annually. This report examines automated data processing (ADP) internal control weaknesses and corrective actions that have been reported by 23 major federal agencies from 1983 through 1987 under this act. The results should be of use to the Congress in its oversight of automated systems and to all federal managers involved with automated systems.

GAO's objectives were to determine:

- whether agencies have reported ADP internal control weaknesses and how significant a portion these weaknesses are of the total reported under the Financial Integrity Act;
- the types of ADP internal control weaknesses reported;
- whether agencies are continuing to report weaknesses in their methodology for evaluating ADP controls and security; and
- the reported extent of and rationale for any delays in the correction of ADP internal control weaknesses.

Background

Agencies first reported to the President and to the Congress on December 31, 1983, and have reported by December 31 of each succeeding year, whether their internal accounting and administrative controls meet the act's requirements. Agencies must include in these reports any material weaknesses, including ADP weaknesses, that have been identified during these evaluations, as well as their plans and schedules for correcting these weaknesses. Since fiscal year 1986, the Office of Management and Budget (OMB) has also summarized governmentwide implementation of the Financial Integrity Act in its annual management reports that accompany the President's budget.

Material weaknesses, in accordance with criteria provided by OMB, are those of sufficient importance to warrant the attention of the President and the Congress. For example, such weaknesses could significantly impair the fulfillment of an agency mission or significantly weaken safeguards against the loss or waste of funds, property, or other assets.

