

GAO

Report to the Administrator, Farmers
Home Administration

August 1989

**INFORMATION
MANAGEMENT**

Issues Important to
Farmers Home
Administration
Systems Modernization





Information Management and
Technology Division

B-232946

August 21, 1989

The Honorable Neal Sox Johnson
Acting Administrator,
Farmers Home Administration

Dear Mr. Johnson:

As you know, the Farmers Home Administration (FmHA) is planning to redesign, replace, or enhance its automated systems at an estimated cost of at least \$100 million over the next 5 to 7 years. FmHA is in the planning stage of the modernization program and expects to complete a strategic plan by the end of calendar year 1989. Previous attempts to modernize automated systems at FmHA were unsuccessful, costing about \$26 million. The objective of this review, conducted under our legislative authority to evaluate federal agencies and programs, was to determine if the approach to this current modernization addresses the problems encountered in past efforts, as well as problems other federal agencies have encountered in their modernization activities.

We identified several issues associated with the modernization program based on a variety of factors. The factors included (1) reasons for FmHA's two past modernization failures, as cited in reports by us and by the Department of Agriculture's Office of the Inspector General; (2) common federal systems modernization problems, as cited in a General Services Administration-commissioned study;¹ and (3) common management problems we identified in evaluating other agencies' large systems modernization programs, as reported in one of our transition reports issued in November 1988 on major issues facing the new administration.²

Issues revealed in our review to be critical to the success of FmHA's modernization plans include (1) ensuring that the modernization program addresses the information needs of all agency components; (2) ensuring that the agency has a sufficient number of qualified managers and staff to support its continuing day-to-day operations and to implement the modernization program; (3) developing and following instructions for preparing complete economic analyses to help ensure cost-effective

¹Increasing the Effectiveness of Systems Modernization Projects—Phase I: Problems and Potential Solutions, prepared by American Management Systems, Inc., for the U.S. General Services Administration, September 1987.

²Transition Series: Information Technology Issues (GAO/OCG-89-6TR, November 1988).

modernization decisions; and (4) providing for a strong data-administration function to develop and ensure compliance with standards, so that individual systems can easily share information.

During the course of our review, we discussed these issues with FmHA managers who have recently initiated actions to address each of them. In light of actions now being taken, we are making no recommendations at this time. The first two issues may be adequately addressed if recent actions are continued. However, actions planned to address the latter two issues may not be completed before significant modernization program decisions are made. Completion of these last two actions before modernization implementation proceeds would provide for a greater probability of ultimate program success. (A detailed discussion of our objectives, scope, and methodology in this review appears as appendix I.)

Background

The Department of Agriculture's FmHA is a government credit agency for agriculture and rural development. FmHA is commonly referred to as the lender of last resort for farmers whose financial situations prevent them from obtaining credit elsewhere at affordable rates and terms. The agency administers its loans through three types of programs—Farmer Programs, Housing Programs, and Community and Business Programs. About 10 million loans and grants totaling \$152 billion have been made since 1935 by the agency and its predecessor, the Resettlement Administration. At the beginning of fiscal year 1989, the unpaid principal owed to the agency on all its loans was \$58.2 billion.

FmHA relies extensively on computers and automated systems to meet its mission as a temporary source of credit for rural Americans. Most of the agency's automated systems operate on centralized computer equipment at the Department of Agriculture's National Computer Center in Kansas City, Missouri.

In addition, FmHA has about 2,400 multi-user small computers in its national, finance, state, district, and county offices. The computers are used for transmitting transaction data to the centralized accounting systems that operate at the National Computer Center, and for such general functions as word processing, electronic mail, and spread sheet analysis. The agency has also installed stand-alone loan-management systems on these small computers, and is developing additional management and office automation software for them.

FmHA's Past Modernization Efforts

Since 1974, FmHA has twice attempted to modernize its automated systems. Both attempts failed. The objectives of these two attempts—the Unified Management Information System and the Automated Program Delivery System—were to meet federal accounting requirements; to provide responsive, timely management information to managers at county, district, state, finance, and national offices; to minimize office work load for data input; and to improve service to loan applicants and borrowers. Inadequate planning, combined with ineffective management and oversight, contributed to the failures, after a total of about \$26 million had been spent. Although the agency has made some systems improvements since these projects failed, its modernization goals have yet to be achieved.

FmHA's first systems modernization program began in 1974. The Unified Management Information System was to replace all existing automated systems. The agency awarded a contract in November 1975 for system design and development. However, because the contractor missed several deadlines and requested additional funds for contract completion, FmHA terminated the contract in September 1979—after spending \$17 million. FmHA planned to complete the system using in-house personnel, but in December 1979 the Department of Agriculture withdrew its authorization for the system, and FmHA subsequently ended the project.

Our reviews of the project supported this termination decision on the basis that user needs would not be met, the system might not be as efficient or effective as planned, and that no valid economic analysis of alternative designs was performed.³

In 1982 FmHA management initiated the agency's second attempt to replace its inefficient and ineffective accounting and management information systems. It awarded a planning and design contract for this project, the Automated Program Delivery System, in December 1982. In early 1985, the FmHA project manager accepted the contractor's design. In July 1985, FmHA awarded the second phase of this project, computer software development, to a second contractor. After the contractor delivered an implementation plan with increased resource requirements, including FmHA-required staff hours and contractor cost reimbursements, and with, according to FmHA, technical deficiencies, the agency

³Farmers Home Administration Needs To Better Plan, Direct, Develop, and Control Its Computer-Based Unified Management Information System (CED-78-68, Feb. 27, 1978), and Farmers Home Administration's ADP Development Project—Current Status and Unresolved Problems (CED-80-67, Feb. 19, 1980).

cancelled the contract in July 1986. FmHA officials estimated the agency spent about \$8.7 million on the project.

The Department of Agriculture's Office of the Inspector General reviewed the project and attributed many of the project's problems to FmHA's acceptance of inadequate design documents from the first contractor and to FmHA's inadequate management of the second contractor.⁴ The Inspector General reported that although the planning and design contract required delivery of documents detailed enough to permit software development personnel to write programs for the system without additional design work, the development contractor highlighted the need for additional design work in reports to FmHA. In the Inspector General's opinion, these factors contributed significantly to the development problems, and to the ultimate termination of the development contract.

According to FmHA officials, the development contract failed because the contractor performed poorly and did not deliver quality products in a timely manner. In commenting on this performance problem, the Inspector General reported that FmHA allowed the development contractor to assign key contractor personnel to jobs unrelated to this project—in violation of contract terms—and failed to establish clear lines of authority and responsibility for those in charge of administering the contract.

Status of FmHA's Strategic Modernization Planning

FmHA is planning its third attempt to modernize its automated systems. Thus far, the agency has issued two general documents defining the overall direction of the modernization program: (1) Vision Statement: The Future of Information Resources Management, issued in the summer of 1987, and (2) Vision Implementation Framework: The Future of Information Resources Management, issued in October 1988. These documents describe in general terms the expected modernization goals, which include improvements to program and administrative management, financial and accounting management, agencywide productivity, and delivery of service to the public.

A third document, a strategic plan, is to be completed by the end of calendar year 1989. The Assistant Administrator for Automated Information Services, FmHA's senior information resource management (IRM) official, called strategic planning a very high agency priority. He noted

⁴Farmers Home Administration: Design of the Automated Program Delivery System (Audit Report No. 04530-18-FM, Mar. 5, 1987) and Farmers Home Administration: Review of the Automated Program Delivery System Development Contract Management (Audit Report No. 04530-26-FM, Mar. 26, 1987).

that the agency is currently pursuing multiple automation initiatives that must be brought together in the strategic planning process.

We commend FmHA's intention to develop a strategic plan to guide the modernization program. This plan's chances of success are increased to the extent that the agency's management ensures that IRM initiatives, recently started or about to start, are compatible with the upcoming strategic plan, and do not preclude any of the potential alternative modernization approaches that might be considered in the strategic planning process. Further, effective implementation of the strategic plan also depends on FmHA management's addressing the important issues enumerated earlier.

Modernization Plan Must Address Needs of All Agency Components

The degree to which FmHA's modernization program is successful will depend on how well the strategic plan addresses the information needs of all agency components, and has the entire agency's support. Our experience in evaluating IRM modernization programs at other federal agencies indicates that sustained participation and commitment by key user groups is important to the success of a modernization program. A General Services Administration document that provides guidance to federal agencies on IRM planning also notes that participation of major users or policy-related organizations is important to the success of IRM planning.⁵

Involvement of all user components and recognition of their IRM needs was not effective during the agency's first modernization effort over a decade ago. At that time, we reported that because users' needs were not adequately evaluated and considered during the project's planning phase, FmHA had no assurance that the modernization attempt would meet those users' information needs.⁶

FmHA's user groups include top and mid-level managers and staff at the national office; financial managers, accountants, and staff at the finance office; and managers and staff in approximately 2,200 state, district, and county offices throughout the country. A 1987 Department of Agriculture task force reported that FmHA personnel at the national and state

⁵Strategic Information Resources Management Planning Handbook (revised), Office of Software Development and Information Technology, U.S. General Services Administration, October 1987.

⁶CED-78-68, Feb. 27, 1978, and CED-80-67, Feb. 19, 1980.

levels believed their information needs were not being adequately met.⁷ For example, the task force reported, the IRM organization seemed to give more attention to accounting needs than to the needs of other components of the agency, such as those of managers and staff at headquarters and the field offices. The report continued that the agency's IRM technicians had an inordinate amount of influence on IRM decisions affecting users.

After the start of our review, information resource managers attempted to increase attention to users' needs. For example, the Deputy Administrator for Program Operations stated that the agency's current Deputy Administrator for Management and the senior IRM official have both consulted with his managers and have indicated that all of the agency's components' information needs will be included in modernization planning. Further, the senior IRM official said that he plans several actions to assure that this occurs, including meeting regularly with managers of all of the agency's components. The strategic planning process will, he also stated, include processes and procedures to ensure that all users' information needs are adequately considered in the modernization program.

These activities, if successfully implemented, should increase IRM users' participation in the modernization program. The agency's past difficulties in adequately addressing all its users' needs heighten the importance for FmHA's senior management to follow through on these activities and intentions. This is needed in order to ensure that all key users are actively involved in initial modernization planning, as well as in monitoring the plan's progress and updating as needed.

Skilled IRM Management and Staff Are Key Factors in Successful Modernization

Automated systems maintenance and modernization requires a sufficient number of dedicated IRM managers and staff with the right qualifications and skill mix. These managers and staff will be needed to support the agency's continuing day-to-day operations and to manage and implement the modernization program.

A shortage of technically qualified management and support staff contributed to the delay in the Social Security Administration's system modernization. A similar lack of technical expertise at the senior-management level contributed to delays in modernizing the Internal Revenue

⁷OFM's Review of FmHA's Current Accounting System Data Base Structure and Related ADP Activities, Office of Finance and Management (OFM), U.S. Department of Agriculture, March 1987.

Service's tax administration system.⁸ Without adequate consideration and planning in this critical area, FmHA may encounter similar problems.

FmHA's senior IRM official agreed that IRM personnel is a key issue that must be addressed if the modernization program is to succeed. He said the agency does not have staff with sufficient knowledge and expertise in strategic IRM planning or economic analysis of automation projects to effectively develop a strategic modernization plan. He said he has initiated action to contract for the development of a strategic plan. He also stated that he has started personnel initiatives to increase the technical qualifications of the agency's IRM work force. One such initiative is requiring that all IRM vacancies occurring after April 1989 be filled by computer specialists, unless otherwise approved by the senior IRM official.

These actions may resolve FmHA's immediate need to develop a strategic plan and enable the agency to increase the number of computer specialists it employs. However, it is also important that FmHA has managers and staff who have sufficient expertise to periodically update the plan and to implement it, while at the same time maintaining current operations. Even if the agency decides to rely principally on contractors to implement the modernization program, it will need managers who have sufficient expertise to properly manage the contracts and the contract personnel.

FmHA's Deputy Administrator for Management's continued monitoring of this area as the modernization program proceeds will help ensure that the agency has a sufficient number of qualified IRM managers and staff to effectively manage and implement the modernization program.

⁸GAO/OCG-89-6TR, November 1988.

FmHA Instructions Requiring Complete Economic Analyses Should Be Made Final Before Modernization Begins

FmHA's current information systems development instructions do not conform with federal standards and Department of Agriculture regulations regarding analysis of the costs and benefits of alternative approaches to develop automated information systems. Such instructions are the basis for evaluating the cost effectiveness of modernization alternatives so decisionmakers can make informed decisions on proposed automation projects.

We reported that an incomplete and inadequate economic analysis contributed to the problems in the agency's first modernization program.⁹ An economic analysis provides managers, users, designers, and auditors with cost and benefit information to evaluate alternative approaches to systems development.¹⁰ The analysis should describe the development and operating costs and the nonrecurring and recurring benefits associated with each alternative approach. In addition, Department of Agriculture regulations specify that an economic analysis should be prepared for major systems development projects, in accordance with the requirements of Federal Information Processing Standard 64.

FmHA's existing IRM instructions do not adhere to this guidance. For example, the instructions do not require that the costs and benefits of proposed alternatives be estimated for major projects. Further, the instructions do not stipulate estimating total life cycle costs for each alternative for major projects, which would include operating costs.

FmHA's senior IRM official agreed that the agency needs to strengthen its IRM instructions in this regard. He provided us with a draft instruction that states that FmHA's software development activities will follow standard life cycle management practices, as prescribed by Department of Agriculture regulations. It also states that alternative approaches to system design will be evaluated, including the associated costs and benefits of each alternative design. The instruction is still being revised, and should be made final some time this year. To ensure that key modernization decisions are made with complete and consistent information, it is important that the instruction be made final and put into effect prior to the time such decisions are required.

⁹CED-78-68, Feb. 27, 1978.

¹⁰Federal Information Processing Standard: Guidelines for Documentation of Computer Programs and Automated Data Systems for the Initiation Phase; U.S. Department of Commerce/National Bureau of Standards, Aug. 1, 1979.

Strong Agencywide Data Administration Can Ensure Effective Information Sharing

The extent to which FmHA can share information across existing data bases and those that will be developed under the modernization program depends on an effective data-administration function. This function should have the authority and responsibility to manage FmHA's data and data bases on an agencywide basis. Without agencywide standards and a strong data-administration function, FmHA may not be able to build systems and data bases that can share information.

Department of Agriculture regulation 3400-2 (data administration) requires that each agency develop data-administration policies, regulations, standard data-element definitions, and reporting conventions. It states that a data administration program can help ensure that data are accessible to those who need it in a timely and cost-efficient manner. The regulation continues that an agency's data-administration function is responsible for developing and administering the policies, standards, and guidelines for the management and control of data in both manual and automated systems.

The lack of an agencywide data-administration program prevented the agency from sharing information in two separate data bases in 1987. During that year, Congress required FmHA to sell a portion of its community loan portfolio. This portfolio included loans made to rural communities for building such projects as water and sewer systems. FmHA determined that much of the information necessary to support this sale was in two separate data bases—the Program Loan Accounting System data base and the Rural Community Facilities Tracking System data base. The accounting system data base contained FmHA's official accounting records for the loans, including the loan amounts, current loan balances, and loan payment dates. The Rural Community data base contained primarily nonfinancial information about the borrowers, including number of users or people served in a community, type of loan collateral, and median income of the people served by the project.

FmHA was unable to match the information from the two data bases because the accounting system data base was organized by loan account and the Rural Community data base was organized by fund request.¹¹ Although the two data bases had some common data elements or attributes that might have been used to link these files, much of the actual

¹¹ A fund request is a request by the borrower that FmHA disburse loan proceeds. There may be several fund requests for a single loan.

common data needed for the links were missing. As a result, FmHA prepared and mailed to district offices a special questionnaire for each loan, which had to be completed from manual records.

In response to a Department of Agriculture task force recommendation,¹² FmHA established a data administrator position in November 1987, reporting directly to the senior IRM official. The individual designated to be the data administrator prepared draft documents defining the function and helped prepare documents to support procurement of a data base management system. However, as of July 1989, FmHA had not made the authority and responsibilities of the position final. The data administrator stated that he believed the agency had not taken further action on this issue because of the numerous changes in both the Deputy Administrator for Management and the senior IRM official positions since the data administrator position was established. The senior IRM official added that FmHA must address numerous issues if the modernization program is to be successful, and that data administration had not been given as high a priority as had others. In order to ensure that data administration is given a high priority in the modernization program, it is important that an effective data-administration function be in place before significant modernization program decisions are made.

Observations

FmHA is at a critical juncture in its information resource management activities, and recognizes that improvements must be made to its automated systems. To this end, FmHA has begun a strategic planning process for an expensive modernization program.

FmHA management has already initiated action on several important issues. Continuation and in some cases completion before modernization begins provides a greater probability that past problems will not be repeated in this critical new program.

First, agency management agrees that it must ensure that the modernization program addresses the information needs of all agency components. FmHA has taken some actions and plans others to increase the involvement of all of its components in modernization planning. It is essential that these actions be continued if the modernization program is to be successful.

¹²OFM's Review of FmHA's Current Accounting System Data Base Structure and Related ADP Activities, Office of Finance and Management (OFM), U.S. Department of Agriculture, March 1987.

Second, agency management agrees that it needs to increase the technical skill levels of its IRM staff and has initiated action on this issue. FmHA senior management's continued monitoring of this area as the modernization program proceeds will help assure that the agency has a sufficient number of qualified IRM managers and staff to effectively manage and implement the program.

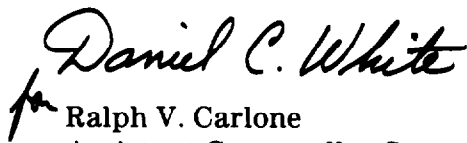
Third, FmHA's system development instructions do not provide for the economic analyses needed so that the agency's decisionmakers can make cost-effective decisions. The agency agrees that these instructions are needed and is currently developing them. It is important that these instructions be made final and be followed so that quality cost and benefit information is available before difficult modernization program decisions are required.

Finally, the agency established but did not make final the responsibilities of its new data administrator position. It is essential that the data-administration function be operational before the modernization program begins, to ensure that the systems that are developed can share information.

We did not obtain official agency comments on a draft of this report. However, its contents were discussed with agency officials, and their views have been incorporated where appropriate. A copy of this report is being sent to the Secretary of Agriculture and to other interested parties. Copies will also be provided to others upon request.

This report was prepared under the direction of JayEtta Hecker, Director, Resources, Community, and Economic Development Information Systems, who can be reached at (202) 275-9675 for more information about this report. Other major contributors are listed in appendix II.

Sincerely yours,


for Ralph V. Carlone
Assistant Comptroller General

Objectives, Scope, and Methodology

Our objective was to determine FmHA's approach to systems modernization and to determine whether the approach adequately addresses shortcomings the agency experienced in past modernization efforts, as well as problems encountered by other federal agencies in their modernization projects.

To understand the reasons why FmHA's past attempts to modernize its accounting and management information systems did not accomplish their objectives, we reviewed our past audit reports and Department of Agriculture Office of the Inspector General reports on these projects, and interviewed agency officials who participated in the projects.

To determine FmHA's current approach and plans for systems modernization, we reviewed FmHA planning documents describing the overall goals of the modernization program.

To determine whether FmHA's key user groups were adequately involved in modernization planning, we interviewed the Deputy Administrator for Program Operations, the three Assistant Administrators for Program Operations and their staffs, the Deputy Administrator for Management, and the Assistant Administrator for Automated Information Services, who is FmHA's senior IRM official.

To determine FmHA's policies and procedures regarding IRM personnel planning and management and the extent that FmHA has performed IRM personnel needs analysis to support a modernization program, we interviewed FmHA's Deputy Administrator for Management, the Assistant Administrator for Automated Information Services, and each of the four division directors in this organization.

To ascertain the adequacy of FmHA's policies and procedures regarding system development life cycle management of software projects, we reviewed FmHA's existing and draft instructions on this subject and compared them with applicable Department of Agriculture regulations and federal guidance.

To evaluate FmHA's policies and procedures for managing data and data bases and establishing standards, we interviewed the individual designated to be the agency's data administrator, reviewed draft documents describing the proposed functions of FmHA's data administrator, and compared these functions with applicable Department of Agriculture regulations on the role of a data administrator. We also reviewed documents describing the agency's attempts to obtain information from its

automated data bases to support a congressionally mandated sale of loans in 1987.

Our field work was done at the FmHA national office, Washington, D.C., and at the FmHA finance office, St. Louis, Missouri. We conducted this review between April 1988 and March 1989, and selectively updated the information gathered during the review through July 1989. We performed this review in accordance with generally accepted government auditing standards.

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