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American Institute of Certified Public Accountants

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MANAGEMENT  
ADVISORY SERVICES  
PRACTICE AIDS

TECHNICAL CONSULTING PRACTICE AID

**10**

***EDP Engagement:  
Implementation of Data  
Processing Systems  
Using Mainframes  
or Minicomputers***

**AICPA**

American Institute of Certified Public Accountants

## NOTICE TO READERS

MAS practice aids are designed as educational and reference material for the members of the Institute and others interested in the subject. They do not establish standards or preferred practices. The standards for MAS practice aids are set forth in the Statements on Standards for Management Advisory Services (SSMASs) issued by the AICPA. However, since the services described in this series of practice aids are management advisory services, the standards in the SSMASs should be applied to them, as appropriate.

Various members of the 1988-89 AICPA Computer Applications Subcommittee were involved in the preparation of this practice aid. The members of the subcommittee are listed below.

Michael J. Eggers, *Chairman*  
Nancy G. Britt  
Bruce K. Bryant  
William C. Fleenor  
Carol M. Lockwood  
Joseph C. Maida  
Shashi B. Mainthia

Bruce F. Malott  
Darvin C. Melton  
Mark J. Ryan  
David E. Schlotzhauer  
Linda D. Smith  
Donald J. Zehner, Jr.

---

Monroe S. Kuttner, *Director*  
*Management Advisory Services*

Monte N. Kaplan, *Technical Manager*  
*Management Advisory Services*

Steven E. Sacks, *Technical Manager*  
*Management Advisory Services*

Libby F. Bruch, *Editor/Coordinator*  
*Management Advisory Services*

The subcommittee gratefully acknowledges the contribution made to the development of this practice aid by Eric L. Schindler and other former members of the subcommittee.

***EDP Engagement:  
Implementation of Data  
Processing Systems  
Using Mainframes  
or Minicomputers***

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1211 Avenue of the Americas, New York, N.Y. 10036-8775  
1234567890 MAS 89

# Preface

This MAS practice aid is one in a series intended to assist practitioners in applying their knowledge of organizational functions and technical disciplines in the course of providing management advisory services. An AICPA study has subdivided such knowledge into seven areas: executive planning, implementation, and control; finance and accounting; electronic data processing; operations (manufacturing and clerical); human resources; marketing; and management science. Although these practice aids will often deal with aspects of those seven areas in the context of an MAS engagement, they are also intended to be useful to practitioners who provide advice on the same subjects in the form of an MAS consultation. MAS engagements and consultations are defined in Statement on Standards for Management Advisory Services No. 1, issued by the AICPA.

This series of MAS practice aids should be particularly helpful to practitioners who use the technical expertise of others while remaining responsible for the work performed. For members employed in industry and government, MAS technical consulting practice aids contain information that may be useful in providing internal advice and assistance to management.

MAS technical consulting practice aids do not purport to include everything practitioners need to know or do to undertake a specific type of service. Furthermore, engagement circumstances differ, and, therefore, practitioners' professional judgment may cause them to conclude that an approach described in a particular practice aid is not appropriate.

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# Scope of This Practice Aid

The pervasive use of computers by business and government has created many opportunities for practitioners. They may provide computer consulting services ranging from MAS consultations, in which they give advice based on their existing knowledge of each client and the relevant EDP subject, or they may provide more structured MAS engagements, which are characterized by a formal methodology.

This practice aid describes how a practitioner can help a client implement an EDP system using mainframes or minicomputers, whether or not the practitioner participated in the selection process. Such assistance can include implementation planning, implementation assistance, and postimplementation review.

The techniques and procedures outlined in this practice aid are intended for implementation on mainframes or minicomputers, although many may also apply to microcomputers. Some of the techniques and procedures may require expansion or modification, based on the following:

## *Computer Variables*

- Type and number of applications
- Networking or linking of computers and applications
- Number of computers
- Extent and number of hardware and software modifications

## *Organization Variables*

- Size of the organization
- Number of departments affected
- Complexity of the manual accounting system
- People skills

# Definitions

*Implementation.* All the activities needed to make the system function effectively in the user's business. Examples of assistance include testing the system, training users, and replacing the current system. This phase may be the most critical part of acquiring and installing a data processing system.



*Implementation planning.* Developing an overall plan to consider all aspects of the implementation process before installing a new system. The successful completion of any task requires adequate planning.

*Installation.* The physical process of setting up equipment or software for operation.

*Postimplementation review.* A follow-up review to ensure that the system performs effectively by meeting design and operating objectives.

## Engagement Acceptance Considerations

Implementation is generally part of a multiphase engagement process. An engagement involving only implementation presumes that someone besides the practitioner performed tasks such as needs analysis and system selection. Before accepting the engagement, the practitioner may want to consider if the new system will function as expected in the client's environment. For example, the client may have selected the system and not have foreseen its impact on the overall organization. The practitioner would need to advise the client of possible problems\* and might therefore decline the engagement. When accepting implementation-only engagements, the practitioner needs to carefully delineate the scope of his or her responsibility in a written engagement understanding with the client. (See exhibit 1 in the appendix.)

## Engagement Approach

### Client Involvement

It is very important to involve the system's prospective users in the implementation process. When forming the implementation team, the practitioner needs to consider which client staff members to include. Likely choices are representatives from each department that will be affected

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\* See "Client Benefit" in SSMAS No. 1, *Definitions and Standards for MAS Practice* (New York: AICPA, 1981).

by the new system and any client personnel who assisted in selecting the system. In addition, the project director or coordinator can be from the client organization.

## **The Engagement Work Program**

Developing and using an engagement work program helps a practitioner document a project's progress. The work program details objectives, tasks, responsibilities, and time estimates for all phases of the engagement, including implementation planning, implementation assistance, and postimplementation review.

Attitudes and skills in dealing with people, as well as the client's operational requirements, figure significantly in planning target dates and responsibilities. Before drawing up an engagement work program, the practitioner needs to confer with the client and agree on these items, taking into consideration the implementation team's capabilities. Identifying target dates provides tangible goals for the team and aids the practitioner in explaining the implementation process.

## **Practitioner-Client Communication**

Communication between the practitioner and client is particularly important because many computer users mistakenly believe that a system can be "plugged in" and become immediately functional on delivery (that is, they equate installation with implementation).

In addition, if the software is modular, the practitioner may need to determine the installation sequence of the various components. By explaining the process particular to the client's situation, the practitioner facilitates implementation.

# **Implementation Planning**

Creating an implementation plan for a new system can be quite complex. For example, the practitioner may be requested to plan the implementation of a system developed by various sources. In addition to the practitioner's contribution to developing the system, other planning factors may include—

- The client staff's ability to participate.
- Existing software, usually with planned modifications.

- Hardware and software purchased from multiple sources rather than a single source. (It may be difficult to determine vendor liability if the system fails.)

Regardless of who developed the system, the practitioner needs to establish a sound implementation plan. Important elements of the plan deal with site preparation, security, documentation, training, data conversion, and system training and acceptance.

## Site Preparation

In some cases, the engagement may be limited to integrating additional application software into the system without making changes in the system's hardware or operating personnel. In those instances, site preparation may not be a consideration. Other installations, however, may involve significant changes. In such cases, site preparation becomes an important consideration, and the hardware vendor can be a valuable resource for needed information. Some of the items to consider are as follows:

*Environment.* Some mainframe and minicomputer hardware components are sensitive to temperature and humidity. With microcomputer installations, on the other hand, environmental sensitivity may be less of a consideration. The practitioner needs to research vendor requirements to adequately plan the environment.

*Floor space.* The physical layout of both current and future hardware and work space for personnel is important. Space requirements will differ, depending on the type of computer, peripheral equipment, and planned growth. In certain large installations, raised floors may be required to accommodate cables connecting various hardware components. Maintenance access also needs to be considered.

*Electrical connections and communications.* Some hardware installations require special electrical features, such as added power sources, protected lines, power purifiers, surge protectors, special receptacles, alternative power supplies, or protection against static electricity. An electrician knowledgeable in computer installations needs to be consulted. If communications (such as voice messaging, electronic mail, and electronic bulletin boards) are needed, early consideration needs to be given to telephone lines, modems, and internal calling.

*Noise levels.* Certain hardware components, especially printers, can produce noise levels that disrupt personnel productivity. The practitioner needs to consider isolating or acoustically insulating components that have disruptive noise levels.

## Physical and Data Security

The degree of physical security varies, depending on the value of equipment and data. Since the cost of security should be consistent with the benefits derived, physical security becomes increasingly important with larger hardware installations or valuable information. Aspects of physical and data security to consider include—

- Physical control over system access, including protected access to various files and programs (for example, password security for master files).
- Implementation of hardware and software maintenance plans, including periodic testing of backup procedures.
- Provisions for protection against fire and other hazards.
- Formulation of disaster contingency plans.
- A review of insurance coverage (for example, hardware replacement or business interruptions).
- Identification and assignment of personnel responsible for all aspects of security.

## Manual System Control Modifications

Implementing a new system will, in many cases, require modifying duties currently performed manually. The client needs to know about these modifications, which may necessitate new procedures and controls. The practitioner may be asked to help in this process, and such involvement will provide an opportunity to determine that duties are properly segregated among employees and that audit controls exist.

## Operating-System Requirements

The operating system, sometimes called the system software, controls the way a computer executes programs and operates peripherals. The more comprehensive and user-friendly the operating system is, the easier it will be for the company's staff to run the system. It is critical to implementation to know the name of the operating system and what organization developed it. Areas of the operating system that practitioners can investigate include the following:

*Productivity.* In multiuser operations, productivity is a major concern. For example, some operating systems require multiple workstations and shared disk drives to permit maximum user productivity.

*Reliability.* User manuals, reference guides, and error and help messages are perhaps more important in operating-system software than in appli-

cation software. The software should have error-prevention and correction features. The vendor should have offered ongoing local support since the software purchase.

*Ease of use.* The operating software should provide user guidance and prompting, be menu driven, perform tasks with a minimum of operator intervention, and include full documentation, with updates, for users.

*Training.* The vendor should provide operator training, usually included as part of the system's cost.

*Expandability.* The operating-system disks should be able to handle expanded programs, files, records, and workstations, if the need arises.

*Processing.* The vendor should confirm that the operating system can process the anticipated workload in a single shift (173 hours per month).

## Documentation

The ultimate criterion of system documentation is the ability of a qualified individual, other than the preparer, to develop a complete understanding of the system within a reasonable period of time. The plan needs to address a review of documentation to ensure that this criterion is achieved. Documentation generally includes the following:

- Table of contents
- An overview describing the purpose and objectives of the system
- System documentation, such as—
  - Flowcharts
  - Sample output (reports, screens)
  - File specifications
  - Record layouts
  - Program narratives
  - Program source-code listings
  - Hardware specifications
- Operating documentation, such as—
  - Operating instructions
  - Computer setup information
  - Restart procedures
  - Error-message explanations
  - System backup procedures

- User documentation, such as—
  - Data preparation
  - Sample input forms and screens
  - Error and correction procedures
  - Processing sequence
  - Explanation of codes and options

## **Training**

### **Vendor Training Tools**

Detailed instructions and operating manuals facilitate the training process. The vendor may offer training aids such as manuals, videos, demonstration software, help screens, or tutorials. The practitioner can inquire about the availability of vendor training resources.

### **User Training**

The best designed system can fail to perform well if users do not understand it. Some people resist change while others simply fear computers. Developing a thorough user training program may help overcome these obstacles. Accordingly, the practitioner may consider how to effectively educate end users about the new automated system, including running the applications, and about modifications to remaining manual operations. Generally, training may occur on a test system or live data prior to implementation, but live files should not be changed during training.

If user needs and ease of use are properly considered in the design phase, and users know the progress of the project and expected training schedules, training may be easier. The most useful information is of little value if users don't know it's available. This lack of knowledge could turn implementation into a costly exercise. Therefore, it's important to keep an open line of communication and involvement with users during system development and implementation.

### **Operator Selection and Training**

Users may operate smaller systems themselves. On larger systems, a dedicated operator may be more efficient. The practitioner and client need to consider criteria for selecting and training these operators. When possible, more than one person should be trained in each operator function. With such backup, the system continues to function normally, even with personnel absences.

## **Data Conversion**

Data conversion can be complex or relatively simple, depending on the compatibility between systems. Conversion from a manual to a computerized system may be most time-consuming. Files have to be built and verified, and existing information records may require classification or modification to meet the data needs of the new automated records. In some instances, prior-year information may be required for comparative purposes. The practitioner may use the client's existing clerical personnel, additional part-time client staff, or temporary help to perform data input during manual data conversion.

Data may also reside partially or completely in existing systems and different storage media. In those instances, the plan needs to address how to convert current system data to the new system. If files are to be converted from one mass storage device to another and the storage devices are not compatible, the practitioner will likely need to develop special conversion procedures and programs. These procedures and programs include using tape and disk drives, data communications, and other devices to assist in the conversion. Sometimes, rekeying data manually may be more efficient than electronic conversion. Regardless of the conversion method used, the practitioner needs to develop tests and controls to let users verify the completeness and accuracy of the data conversion.

## **Conversion Controls**

All master and transaction file conversions should be controlled to prevent unauthorized changes and to provide accurate and complete results. The following activities will assist in data conversion control:

- Begin data conversion as soon as possible during the implementation, with a goal of accuracy, not speed. Do not pressure the staff keying data or converting files.
- Key or convert the data in small amounts. Run acceptance tests after converting or entering each data file. Balance newly created files with control totals from source files or inputs to confirm conversion integrity. This way, you can catch errors and avoid rekeying an entire file.
- Develop checklists to assure that all the data files are entered. (It is easy to omit records or files.)

## **System Testing and Acceptance**

System testing is important in the installation process. The practitioner determines if the design and operational reliability of the system meet the client's predetermined needs (see "Engagement Acceptance Con-

siderations"). Inadequate system testing could fail to uncover significant program and maintenance problems. Therefore, the practitioner needs to perform tests on selected data under controlled conditions with client participation. To avoid destruction or alteration of live data, system tests should not be performed against live files. However, the practitioner could enter a small amount of live data in each module. Posting transactions into these modules and performing the posting procedure would ensure the proper setup of posting accounts, especially interfaced modules. The practitioner could then process financial statements to ascertain the posting accuracy of selected transactions within certain accounts.

### **Program Tests**

The practitioner performs tests to ensure the proper working of the input, processing, and output cycles, including end-of-month and end-of-year cycles. These program tests cover paperwork flow, user procedures, manual procedures, and system functions. The system functions may include data input and editing, system transactions, operation functioning, and volumes. In addition, the practitioner conducts tests using abnormal conditions and invalid data. However, it is seldom possible to test every error condition.

### **Stress Tests**

A stress test evaluates system efficiency under peak loads in a normal production environment. Generally, this may include high-volume processing, interactive data entry, and inquiry. The practitioner may also conduct stress tests that are of particular importance if on-line data entry or inquiry is included as a feature of the system.

### **Review of Test Results**

The practitioner develops specific procedures and responsibilities to review test results with all parties, including the implementation team, end users, and computer operations personnel. The client keeps test data and results on file. The practitioner assists in verifying results and identifying problems. After identifying problems, the practitioner and the implementation team make suggestions on how to resolve the problems, which could require additional training or new and revised procedures.

### **Preconversion Acceptance**

Before the system can become operational in a normal production environment, the client needs to approve it for installation. A good implementation plan provides for formal acceptance by all parties, including the implementation team, end users, computer personnel, and management. Acceptance testing could cover procedures, controls, equipment,



personnel, forms, supplies, interfaces, verifications, and approvals. The practitioner may use a sign-off sheet to document acceptance.

## **Conversion to Production**

The final step in the implementation plan is converting the system to a normal production environment. The practitioner and client decide whether to implement the new system using a parallel conversion or a one-for-one conversion.

In a parallel conversion, the old and the new systems are run simultaneously for at least one, and perhaps multiple, production cycles. Its advantage is that the new system can be compared against the old and modified, if necessary, without disturbing operations. Its disadvantage is that it is labor-intensive.

A one-for-one conversion involves implementing the new system while simultaneously removing the old. One-for-one conversions are cheaper to effect than parallel conversions but they do not provide similar controls that maintain operations if system problems occur.

# **Implementation Assistance**

After developing an implementation plan, a practitioner's role can vary. In some cases, the client's personnel execute the plan. In other instances, the client may ask the practitioner to perform the implementation. The practitioner and the client need to reach a detailed understanding about specific practitioner functions and responsibilities. If the practitioner provides implementation assistance, the previously developed implementation plan will serve as the guide in the process. The practitioner may or may not assist with the physical installation of hardware and software.

## **System Corrections and Enhancements**

The primary consideration in implementation assistance is executing the implementation plan. However, the practitioner may identify a need to perform system enhancements during the process. The practitioner can provide the implementation team with a procedure to document desirable changes, which the client considers. The client, with practitioner assistance, prioritizes all desired enhancements as they become known.

To make changes as a single, integrated effort, it is usually best to implement them after the installation of the main system and after post-implementation review. Otherwise, original engagement objectives and timing can be dramatically altered.

## Final User Acceptance

After the conversion to production and system corrections or modifications are concluded, the practitioner needs to obtain final user acceptance from the client personnel. Again, the practitioner can use a sign-off sheet to appropriately document this important step.

## Postimplementation Review

In postimplementation review, the practitioner observes the new system in operation to determine if it has achieved its original objectives (see "Engagement Acceptance Considerations"). This review commonly occurs sometime after the client has accepted the system (for example, sixty to ninety days later). Tasks in this review can include the following:

- Comparison of actual to planned system performance
- Evaluation of system documentation
- Evaluation of the ability to meet user requirements, including future needs related to growth
- Reevaluation of cost-benefit effectiveness
- Evaluation of management information reports
- Analysis of maintenance costs
- Reevaluation of security and controls

## Sample Letters and Forms

Exhibit 1

### Sample Engagement Letter, Implementation Planning Only

[CPA Firm's Letterhead]

Date

Client's Name  
Address  
City, State, Zip Code

Dear \_\_\_\_\_:

As discussed, we will be pleased to assist you with implementation planning for the new data processing system you have decided to install in your company. Our firm has provided this service to many other clients. This letter outlines our understanding of the work we will perform.

#### Engagement Objectives

We plan to assist you and your personnel in developing a formal implementation plan for the new data processing system. After we complete the implementation plan, we will discuss further assistance with the following objectives:

- Implementing the plan to make the new data processing system operational
- Reviewing the effectiveness of the new system in operation

#### Project Scope and Approach

This initial engagement covers only implementation planning for the new data processing system you have selected. Tasks in the planning process will include the following:

- Site preparation
- Physical and data security
- Manual system modifications
- Review of documentation
- Training requirements
- Data conversion
- Systems testing and acceptance criteria
- Converting the new system to a normal production environment

This engagement presumes that the system you have chosen can perform the functions you have specified, such as. . . .

Since your personnel will operate and use the system, you need to assign qualified people to an implementation team. We will work with you to choose team members and establish tasks, timetables, and individual responsibilities. The team can use the formally documented implementation plan to make the data processing system operational and perform any postimplementation review.

Following completion of this implementation planning engagement, we will issue a report. We will also submit proposals to assist you further with actual implementation and postimplementation review.

Project Schedule and Costs

We expect to begin work on January 15, 19XX, and complete the engagement on February 15, 19XX. We estimate our fee for assisting you with implementation planning at \$XX,XXX, plus out-of-pocket expenses. We will bill you as the work progresses. The invoices are due and payable upon receipt. If any conditions change and interfere with this schedule, or if we require more hours than anticipated, we will notify you immediately. The billing arrangements may also then be modified.

If you wish to retain us to perform these services, please sign both copies of this letter and return one to us. We look forward to serving you on this important project.

Sincerely,

\_\_\_\_\_  
[Signer's Name]  
[Title]

Accepted by

\_\_\_\_\_

\_\_\_\_\_  
Date

**Sample Engagement Letter, Implementation Assistance and Postimplementation Review**

[CPA Firm's Letterhead]

Date

Client's Name  
 Address  
 City, State, Zip Code

Dear \_\_\_\_\_:

We have completed the engagement to assist you with implementation planning for your new data processing system. We have also determined that you would benefit from further assistance, both with physical installation and post-implementation review of the system in operation. The services we can provide are described below.

Project Scope and Approach

We will perform the additional engagement in two phases. In the first phase, we will assist your personnel in following the plan developed to implement your new data processing system. In the second phase, we will review actual system performance after implementation and compare the findings to anticipated system performance. We will identify and analyze variances from planned effectiveness for the following areas:

- Actual versus planned system performance
- Systems documentation
- Systems controls
- Ability to meet user requirements
- Cost-benefit effectiveness

We will perform the postinstallation review approximately six months after implementation and submit a report to management highlighting significant system variances and overall effectiveness. We will include recommendations for correcting variances.

Project Schedule and Costs

Our estimated fees and proposed schedule for this engagement are as follows:

<u>Phase</u>	<u>Estimated Fees</u>	<u>Target Start Date</u>	<u>Target Completion Date</u>
1	\$X,XXX	_____	_____
2	\$X,XXX	_____	_____

We will bill you monthly for actual time expended and direct expenses incurred, including out-of-pocket expenses. The invoices are due and payable upon receipt. If any conditions change and interfere with this schedule, or if we require more hours than anticipated, we will notify you immediately.

We look forward to serving you on this important project. Please sign both copies of this letter and return one to us.

Sincerely,

---

[*Signer's Name*]

[*Title*]

Accepted by

---

---

Date

## Sample Implementation Work Program

Client \_\_\_\_\_

Date \_\_\_\_\_

Objectives

1. Verify that appropriate aspects of the implementation are considered prior to implementing the new system.
  - a. Obtain documentation of needs analysis and selection and become familiar with it.
  - b. Obtain vendor contracts and become familiar with contract specifics.
2. Schedule completion dates and identify responsible individuals for the planned implementation tasks.

<u>Procedures</u>	<u>Scheduled Assistance</u>		<u>Actual Assistance</u>	
	<u>To be Performed by</u>	<u>Anticipated Completion Date</u>	<u>Performed by</u>	<u>Completion Date</u>
1. If additional hardware is required, develop plans for the physical site preparation. Address the timing and assignment of the following:				
a. Environment	_____	_____	_____	_____
b. Floor space	_____	_____	_____	_____
c. Electrical connections and communications	_____	_____	_____	_____
d. Noise level	_____	_____	_____	_____
e. Supplies	_____	_____	_____	_____
2. Develop a plan for physical and data security to include the following:				
a. Physical control over system access	_____	_____	_____	_____
b. A contingency plan with documented backup and disaster procedures and responsibilities	_____	_____	_____	_____
c. Maintenance of hardware and software	_____	_____	_____	_____
d. Password security	_____	_____	_____	_____

<u>Procedures</u>	<u>Scheduled Assistance</u>		<u>Actual Assistance</u>	
	<u>To be Performed by</u>	<u>Anticipated Completion Date</u>	<u>Performed by</u>	<u>Completion Date</u>
3. Plan for manual system modifications, including new controls to verify input, control output, and specify day-to-day use of management information.	_____	_____	_____	_____
4. Review documentation for content, ease of use, and error-correction procedures, including the following:				
a. System overview	_____	_____	_____	_____
b. System documentation	_____	_____	_____	_____
c. Hardware specifications	_____	_____	_____	_____
d. Operating documentation	_____	_____	_____	_____
5. Plan for user training. Consider the following:				
a. Operator training	_____	_____	_____	_____
b. Information user training	_____	_____	_____	_____
c. Management's orientation to the new system	_____	_____	_____	_____
d. Timing	_____	_____	_____	_____
e. Responsibilities	_____	_____	_____	_____
6. Plan for adequate system testing, and develop acceptance criteria. Design tests to compare results with capabilities defined in the system specifications. Include the following:				
a. Tests of program logic and calculation paths	_____	_____	_____	_____
b. Response times within prescribed limits	_____	_____	_____	_____
c. Test results versus current system output	_____	_____	_____	_____
d. Time needed to process data in a normal production environment	_____	_____	_____	_____
e. Review of output reports with users to ensure information is provided as required	_____	_____	_____	_____
f. Tests of backup and recovery procedures	_____	_____	_____	_____



<u>Procedures</u>	<u>Scheduled Assistance</u>		<u>Actual Assistance</u>	
	<u>To be Performed by</u>	<u>Anticipated Completion Date</u>	<u>Performed by</u>	<u>Completion Date</u>
7. Plan for data conversion from the old system to the new system. Consider the following:				
a. Timing and responsibilities	_____	_____	_____	_____
b. Conversion of data files	_____	_____	_____	_____
c. Tests of data file conversion	_____	_____	_____	_____
8. Plan for conversion to production to include the following:				
a. Parallel conversion or one-for-one conversion	_____	_____	_____	_____
b. Production schedules	_____	_____	_____	_____
9. Obtain management's acceptance of the implementation plan and the actual implementation.	_____	_____	_____	_____

## Implementation Assistance Checklist

<u>Task</u>	<u>Considerations</u>	<u>Form</u>
1. Prepare final implementation plan and schedule.	Specify timetable, procedures, and user and operating requirements.	Memo or printed schedule
2. Implement user training plan.		Memo
3. Review implementation plan and schedule with management and users.	Ensure that management and users can provide the required personnel and computer resources at the scheduled times. Help management and users identify and resolve any potential problems.	Meeting and follow-up memo
4. Identify desired system enhancements.	Document desirable system changes for postimplementation projects.	Memo or letter
5. Prepare computer site. Install hardware and software.	Evaluate physical environment, floor space requirements, electrical and telecommunication connections, and noise suppression needs.	Memo
6. Convert data.	Determine sources of manual data, sequence of conversion, and modification requirements. Provide for testing of data by users.	Data conversion control forms
7. Start system operation.	Let users know that all the conversion steps are complete and the system is operational.	Memo
8. Evaluate early results with users.	Determine the effectiveness of the system by identifying deficiencies and developing steps to correct them. Provide a formal record of special problems to follow up.	Worksheet and memo

<u>Task</u>	<u>Considerations</u>	<u>Form</u>
9. Identify and authorize system adjustments and program revisions to fine-tune programs.	Control program revisions and system changes with formal program-change control sheets and program-change authorizations.	Change control sheets and preprinted forms
10. Determine that documentation has been changed.	Review documentation to ensure changes were made, indicating correction of problems found during implementation.	Memo
11. Advise the client that the system is operational, and obtain management acceptance of it.		Sign-off sheet

## Postimplementation Review Checklist

<u>Task</u>	<u>Considerations</u>	<u>Suggested Form</u>
1. Review actual system performance.	Identify significant variances in each of the following: <ul style="list-style-type: none"> <li>● Personnel required</li> <li>● Elapsed manpower time</li> <li>● Computing time</li> </ul>	Worksheet
2. Evaluate system documentation.	Review system documentation for the following: <ul style="list-style-type: none"> <li>● Clarity</li> <li>● Appropriateness</li> <li>● Completeness</li> </ul>	Memo or letter
3. Evaluate system's ability to meet user requirements.	Review user statements to evaluate system effectiveness. Consider the following: <ul style="list-style-type: none"> <li>● Stated requirements</li> <li>● Actual system performance</li> <li>● Rate-of-change requests</li> </ul>	Memo or letter
4. Reevaluate cost-benefit effectiveness.	Compare actual versus planned costs, and measure benefits.	Worksheets
5. Prepare and present report to management.	Include the following: <ul style="list-style-type: none"> <li>● Evaluation summary</li> <li>● Suggestions for improvement</li> </ul>	Report

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