

INFORMATION SYSTEMS: IMPLEMENTATION GUIDELINES

*A practical guide to the development life cycle
of microfinance information systems*



<http://www.cgap.org/technology>

About This Project

The process an organization undertakes to improve its management information system involves six core phases—**project preparation, needs analysis, design, selection, implementation and management**. Regardless of the magnitude of the changes required to improve the information system an organization should follow this standard process to ensure a well-researched and vetted solution.

The operations of microfinance institutions are dynamic and ever-evolving due to changes in client needs, regulatory environments and economic conditions. In order to support the operations of the institution, the information system must also be dynamic. Consequently, continuous improvements are being made to the information system to ensure that it continues to support business operations.

This iterative cycle of evaluating organizational needs, designing a better solution, selecting appropriate tools, implementing the solution and managing performance is known as the system development life cycle. The length of time and the amount of attention required for each phase will depend on the degree of change needed. The more frequently an organization can successfully complete this cycle, the better able that organization will be to implement new ideas and technologies to continually meet future challenges.

The **IS Implementation Guidelines** are divided into six segments to provide you with instructions and tools to assist you as your organization undertakes an IS initiative. Each segment corresponds to a phase in the life cycle process. To learn more about information systems and CGAP's other work on technology and financial access, visit <http://www.cgap.org/technology>.

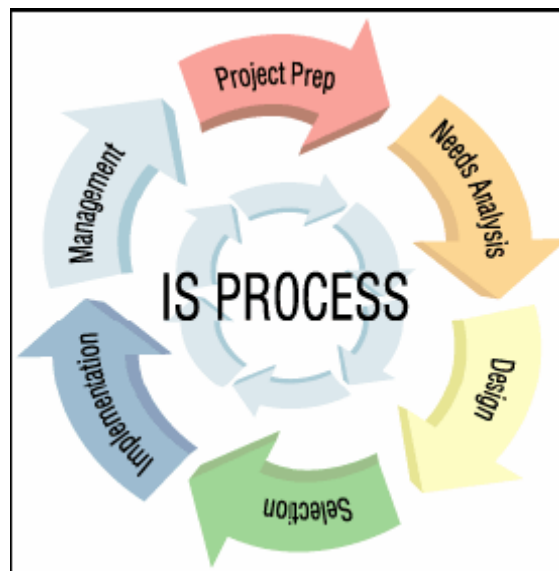
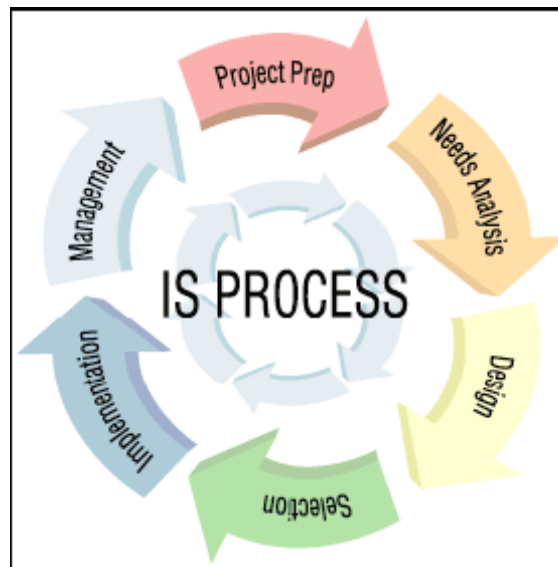


Table of Contents

<u>About This Project</u>	1
<u>IS Process Overview</u>	3
<u>Project Preparation</u>	4
• <u>Building the Team</u>	4
• <u>Defining Goals & Expected Results</u>	5
• <u>IS Project Inventory</u>	5
• <u>IS Performance Measures</u>	5
<u>Needs Analysis</u>	7
• <u>Current Information System Inventory</u>	7
• <u>Future Information System Inventory</u>	9
• <u>Technical Environment</u>	10
• <u>Budget</u>	10
• <u>Needs Analysis Documentation</u>	11
<u>Design</u>	12
• <u>Specifications Document</u>	13
<u>Selection</u>	14
• <u>Due Diligence Overview</u>	14
• <u>Vendor Scripts</u>	15
• <u>Due Diligence Inventory</u>	15
• <u>Negotiating a Software License</u>	17
• <u>Implementation Plan Inventory</u>	18
<u>Implementation</u>	20
<u>Management</u>	21
• <u>Evaluation</u>	21
• <u>Maintenance</u>	21
• <u>Negotiating a Maintenance Contract</u>	22
• <u>Optimization</u>	22
• <u>MIS Optimization Inventory</u>	23
<u>About CGAP</u>	24

IS Process Overview

A management information system, known as a MIS or simply IS, involves all aspects of gathering, storing, tracking, retrieving and using information within a business or organization. Thanks to the development of computers and the software applications that run on them, much of this work can now be automated and the information more readily accessed. However, the software application itself is not the information system. All the policies, procedures, and practices that direct an organization's operations and the staff that interact with the information, combined with the software and hardware comprise an information system. Consequently, the selection and implementation of a new software application for tracking an organization's core information needs generally results in significant changes to the organization and the overall management information system. An organization's information technology (IT) strategy should underpin and drive the achievement of the organization's business strategies. Hence, it is critical that an organization choose its MIS software in light of its organizational goals and objectives. Organizations who are best able to realign their operational policies and practices with the new software will have an easier time with the implementation, create more positive organizational goodwill, successfully optimize the software, and achieve a greater return on their investment.



Project Preparation

The drive for efficiency and expanding client outreach in the microfinance sector has led many MFIs to seek ways to use information system (IS) technology to free skilled staff from many time consuming, repetitive and tedious manual tasks. If appropriate choices are made, computer-based information management solutions can present a clearer picture of an institution's numbers, and allow staff to focus their energies on higher value-added activities such as servicing clients and strategic planning in increasingly competitive markets. To initiate a project, organizations generally form a team to manage the software selection process. A team approach better reflects the diversity of needs throughout the institution, helps build organization-wide acceptance of the solution early in the process, and disseminates the extra activities across multiple individuals.

Project Preparation Steps:

- [Building the Team](#)
- [Defining Goals & Expected Results](#)
- [IS Project Inventory](#)
- [IS Performance Measures](#)

Building the Team

There are a myriad of issues to consider in the evaluation and selection of software – and the quality of the decisions made along the way are improved by having multiple people involved. Who should be included on the team? First identify the key users of the system in your organization and the general stakeholders (e.g. chief executives/general managers, board members, and donors). It is important to include a cross-section of your institution as part of the team, representing different users at all levels in the organization that regularly interact with the system, as well as others, internally or externally, who will need reports derived from it.

From the very beginning of the process you should include at least one member, either from your staff or an outside person, who is knowledgeable about information technology. Make sure that you also have appropriate management representation so that as costs for the project are developed during the analysis process, you will not find yourself in a situation of delivering "surprising" news to senior management. Chosen technology and budget decisions should be fully supported by all stakeholders. Most organizations use a team approach to manage the software selection process in order to reflect the diversity of needs throughout the institution and give the process the high-level attention required for success. Depending on the pace of the project, a minimum of monthly (preferably weekly) team meetings are strongly recommended.

Communication and having a project champion from senior management are critical to success for any initiative of this magnitude. Identify someone who is well-respected to be the project champion, and the voice to the organization about the new system. This person doesn't have to be involved in the day-to-day activities of the project, but must believe in the project and be able to convey that confidence to the rest of the organization.

It is important to bring staff along with you through the process to ensure cooperation and acceptance of the new system. While everyone will not be involved in the process, they should be kept informed on the progress being made. And, whenever possible, it is best to give staff the opportunity to voice their opinions. You may not incorporate their feedback, but at least you have given them the chance to be heard, and you now have the information necessary to properly sell the solution and associated changes back to employees.

The form of communication will vary depending on the organization, but could be done by email, weekly staff meetings, special organization-wide meetings, flyers, or update articles in an existing company communiqué like a newsletter. The time of the project champion should be leveraged here to help keep the organization focused

and moving forward with developing the new system. Establishing a set frequency and mode for communication early on in the initiative will generate a great deal of organizational goodwill and make the transition to the new system much smoother.

Defining Goals & Expected Results

The team will need to begin by identifying and agreeing on specific goals that are to be shared for the project by all team members. An initiative is usually started and a team formed because of a few loosely known changes that are wanted by senior management. Before the IS team can move forward with the project, it is critical that these desired outcomes be discussed, further articulated, prioritized and agreed to by senior management as well as the IS team. Without a set of fully developed goals and measurable objectives at the beginning of the process, significant time will be wasted in pursuing various agendas and opportunities of the different decision-makers involved. In the process, significant staff trust and change capital will be lost to the long-term detriment of the organization. The team should address the following questions outlined in the IS Project Inventory in detail to help flush out the main goals and prioritize the measurable objectives.

IS Project Inventory

- What do you need and why do you need it?
- What results do you wish to accomplish with this effort?
- What are the business reasons (drivers) for these changes, and how do these changes support the overall needs of the business?
- What is your overall information technology strategy?
- What changes do you wish to see in your institution as a result of any increased capacity to manage information?
- What core functionality do you need your information system to have?
- What work processes are you willing to change through this initiative and what might these new processes look like?
- What influences your institution's information needs from outside (e.g. market environment, donor requirements, desire for new products, expansion etc.)?
- What in general are the current needs for information management among various stakeholders?

Once the project goals and broader objectives have been set, it is important to determine the detailed objectives for the new system and the measurable objectives for the activities within the IS process itself. Generally, the detailed performance objectives for the system can not be set until the [Needs Analysis](#) process has been completed and requirements definition created.

IS Performance Measures

The implementation of a computer-based management information system (MIS) can only be considered successful if it enhances the efficiency of the users' daily routines and allows the various stakeholders (managers to clients to donors) access to easily digested, useful information in a timely manner. Once the changes have been implemented – whether it is new software or re-designed processes – you are going to want

to know if the project was a success. Without clear measurable objectives, it is difficult to know whether the project was successful or not, how much you exceeded or fell short of the mark, and how you might adjust to achieve the goals set forth. Just as you have performance measures for the staff, the portfolio and other business measures, you should have performance measures for all aspects of the information system.

A new MIS does not need to automate every possible operation, but your institution should have absolute confidence the system is reliable and accurate for those functions it does support. The IS project team must devise quantitative measures to address these issues from the first planning session through the entire implementation process. Such measures allow both senior management and the IS project team members to make objective judgments.

The measure of a system's ability to produce reports without unacceptable delay can provide an example of how to quantify a performance measurement of a MIS. Whether or not the system can produce a "timely report" is an example of a subjective standard that has not been quantified. Instead, the measure can be redefined as the ability of the MIS to produce all standard reports according to an established schedule, and all ad hoc reports produced within one to two hours of a user's request. This would be a superior, objective, quantifiable way to judge a system's performance in reporting. Likewise, a system's reliability could be defined as having no more than 4 hours of time out-of-service per month during regular business hours. Staff and software productivity is often measured in "turn-around time," such as the number of transactions a teller or loan officer can process in an hour/day/week, or perhaps the length of time it takes to disburse a loan from request to cash-in-hand.

The indicators that you choose to measure should be most relevant to your organization's business objectives and the context in which you operate. You are advised to keep them simple, but monitor them on a frequent basis. You may have a few that are tracked on a quarterly basis, but most would be daily, weekly or monthly.

For the institution as a whole, an automated system should have a positive affect on the MFI in the following ways:

Increase Information Accuracy: When a user needs to select or sort client information according to particular values, the system will need to be able to sort through all of the information contained in all its files, and consistently identify and communicate any data problems or inconsistent records. The application should also edit and validate records through criteria that allow the software to accept only data that is appropriate for a particular data field.

Increase Processing Speed: Often the biggest advantage to automation is the fact that data entry, updates, calculations, sorting, and report generation can be done more quickly. The MFI staff can also access more up-to-date information.

Create More Useful Results: A MIS with appropriate functionality can track an institution's client demographics and provide information to staff during the applicant screening process. The system can also track costs more easily and many MIS applications can alert users when there are various problems, such as shortage of funds. This function marks or lists data or patterns outside the defined range of acceptable conditions; when data or patterns exist outside the range, the institution can resolve conflicts and problems at an earlier stage.

Increase Productivity: An appropriate MIS makes it easier for the MFI's staff to do their work by enhancing their ability to collect data and retrieve useful information. A user familiar with an automated system can search for information much more thoroughly and efficiently than a search through paper files or other manual system. Data analysis can be much more sophisticated and report creation much easier as well. If the MIS software integrates multiple functions such as the General Ledger, client background and demographic information and staff payroll, all areas of the MFI can share information quickly and thoroughly. In such ways, a well-planned automated MFI information system improves the overall productivity and competitiveness of the organization.

[Return to Table of Contents](#)

Needs Analysis

In order to choose the best possible technology solutions, an MFI must have a thorough understanding of its information needs, both present and future. The process of gathering and analyzing this information, known as the Needs Analysis phase, should be methodical and well-documented. In order to understand the information flows in your organization, you need to know the work-flows that result in the capture and use of information. To achieve this level of knowledge about your organization, you must first begin by conducting an assessment of both the information and work-flows. If you have some of this already documented, it will make the collection process much faster. If you don't have this type of information already documented, this is a good opportunity to get the current system outlined on paper. While it can be tedious, it is a good way to keep your institutional information system history from walking out the door.

To share the work involved, we recommend forming a team of three to seven persons to conduct the needs analysis. Interviews with senior management, clients, and employees within the MFI can be used to identify and prioritize your institution's information needs. Individual or group interviews should be held with representatives from the various departments, branches or other sites to gain a clear picture on the needs of the different user groups. For example, if you have 6 branches and 60 loan officers, interviewing two at four different branches should give you a sufficient sample of the differences and similarities in their processes and use of information. The role of the interviewer is simply to gather information about what employees do in practice on a daily basis, not to judge or critique them. This should be clearly conveyed to the interviewee to encourage more candid responses. In many ways, this first step is simply a listening and documentation project. A sample questionnaire is provided below as a guide for IS team members.

Needs Analysis Steps:

- [Current Information System Inventory](#)
- [Future Information System Inventory](#)
- [Technical Environment](#)
- [Budget](#)
- [Needs Analysis Documentation](#)

Current Information System Inventory

1. Describe your role and responsibilities.
2. What computer applications or other tools do you use to complete your responsibilities?
3. How satisfied are you with these applications and/or tools?
4. How might these applications and/or tools be improved?
5. Do you ever perform redundant actions? Please explain.
6. Who else do you rely on for data/information to accomplish your tasks?
7. Do other individuals or departments rely on you for information or reports?
8. What reports do you receive on a frequent or infrequent basis? Are these computer-generated reports?
9. Who generates/creates (runs) these reports? To whom are these reports distributed?
10. Are these reports stored anywhere for future reference (either in a hard copy or electronic version)?
11. Do the reports you receive reflect the appropriate data?
12. How do you use the information from these reports?
13. How do you request custom or ad-hoc reports? Do you create any ad-hoc reports on your own?
14. Do you receive any unnecessary reports or portions of reports?
15. Do you ever query a database (or similar) on your own to review pertinent information for accomplishing your job?

16. Are there any processes (tasks) within your department (branch) that you feel should be automated?
17. Are there any processes (tasks) within your department (branch) that are currently automated, but you feel require more time than they save? Please explain.
18. What decisions are made in your department?
19. What decisions do you make, and how frequently (daily, weekly, monthly)? What information do you use to guide these decisions?
20. Is there any information that you are not getting currently that you wish you could get to help you make better decisions?
21. What information do you provide to others to assist with their decision-making responsibilities?
22. What files or forms do you create back up copies of, either electronic or paper copies?
23. Are you satisfied with your computer or other hardware that you use? If not, explain.
24. Is there anything else you think we should be aware of regarding the current system, either the software or the processes and procedures?

Optional

25. Do you use email? If yes, how often and for what purposes do you use the email? If not, what other means of communication do you utilize and how often?
26. Do you use the Internet? If yes, how often and for what purposes do use the Internet? If not, why not?
27. Would you like to have email or Internet access? For what primary purposes would you use either of these tools?
28. Do you use a desktop computer or another electronic device to record appointments and daily schedules? If not, how do you make appointments or coordinate daily schedules in your job?

The notes from all of these interviews should be compiled in a systematic manner to make it easy for all involved in the process to verify and analyze the results. The two most common ways to depict this information is through flow diagrams (e.g. swimlane diagrams or use case diagrams) or in a matrix/table form (e.g. often in MS Excel). It is important that each process is labeled beginning with an action, such as conduct, review, sign, or disburse. A person should be assigned to each task by job title, not individual name, i.e. loan supervisor or accounting assistant. Note the timeframe required for completing the task, as well as any inputs or outputs of the task.

Once this information has been organized and verified with the original interviewees as being accurate, the next step in the process is to compare actual daily practices with institutional policies and procedures to identify any gaps. Gaps between policy and practice will need to be addressed in order for your organization to properly prepare for a new system. The manner in which they are resolved will vary greatly. Sometimes the policy is no longer considered important and eliminated; sometimes it is re-written; or sometimes better controls are put into place to change practices of employees. Whatever the outcome, it should be documented.

Additional sources that should be considered for this step include:

- Documents related to the delegation of responsibility and control systems including policy manuals, employee handbooks, accounting policies, etc
- Any documents, notes or exceptions as a result of either an internal or external audits

Future Information System Inventory

After analyzing your current use of information and the state of the existing information system, it is time to look at what future demands may need to be met by the new IS. During the interviews you would have begun to collect some ideas about the future needs of the different individuals and departments. This information should be organized separately from the data relating to the current state of affairs within the organization. Again, the form that this data is best captured in is up to the members of the IS project team. Usually some form of a matrix makes it easiest to identify the needs based on user groups, such as field officers, accounting staff, senior management, board members, or by functional area, such as marketing, operations, credit services, accounting, or human resources.

Additional sources to review to determine future requirements include:

- Documents articulating organizational goals and objectives, the mission or value statements
- Strategic or financial planning documents, including any notes and spreadsheets;
- Annual Reports and Board of Director's meeting notes, as is relevant to institutional policies or strategy
- Notes or documents of plans for a re-organization or job restructuring;
- A human resource inventory of staff skills from interviews and documents, such as job descriptions and Curriculum Vitae, along with any additional short and long term staff or training plans
- Employee surveys, interviews, performance reviews, meeting notes, etc., that may depict attitudes and satisfaction levels of staff
- System documentation, including any hardware & network specifications, or maintenance logs. (Note where any changes may be necessary in equipment, technology or automation.)

These documents can usually be reviewed by members of the IS project team. A future needs matrix will need to be created and then reviewed by senior management and department heads to ensure that all the information was captured accurately. The future needs matrix should also include the level of priority to be placed on outside regulatory body requirements, internal business requirements, client driven requirements, or "would be nice to have" options.

The following are questions to consider when reviewing strategic and planning documents and discussing potential future requirements of an information system.

- What do you anticipate your information system needs will be in the next few years (i.e. to support new products, further research, and greater client growth)?
- What software applications may be needed? When will you need them?
- Will future software applications share the same data that is input into the system?
- If so, how will you prevent having to enter the same data into a different application in future years?
- Can these systems be integrated, or made to talk with one another?
- Are you planning to eventually adopt applications that operate through the Internet and if so, is this the time to begin moving in that direction?
- How will your operations processes and institutional policies change as a result of this selection?

The first questions listed could be included in the questionnaire used to interview staff regarding current information needs, thus reducing the need to re-visit those individuals. In some ways the question of future

needs is addressed through the other questions, but often it will need to be asked within a specific potential future context, e.g. processing a third more loan applications per week or marketing a new type of loan product. Typically an organization is looking to do something in the future, which it is currently not doing at all. If you include the question in the original interviews, you can go back to these interview notes and compile this information. Alternatively, you could use a broad participatory approach, such as a workshop or design session, to involve more employees and gain a wider spectrum of opinions on the information needs or impact of future initiatives. The remainder of the questions provided is really for the IT team to address, as they assume a certain technical knowledge of existing computer-based systems and potential options on the commercial market.

Technical Environment

It is absolutely critical that you define and evaluate the base technical environment that will be needed to support new software applications before any final decisions are made about acquiring specific products. IS project team members, with an Information Technology representative playing a key role, should lead others through these considerations and act as mentors so the entire team has a basic understanding of the relevance. At this point in the process, you will probably not be able to answer the following questions, as you have not even looked at what technology solutions are available. However, going through the questions with your IT staff will begin to ensure that you will have thought about the potential answers by the time you get to the selection phase. And at a minimum, you should be able to document your answers for the current information system. The questions that need to be addressed include:

- What type of application software is needed (e.g. accounting, loan portfolio management, client information management)?
- Will it be installed only on a stand alone PC, or will it be accessible by a number of computers linked together through a peer-peer network, a client/server network, or a mainframe?
- Will the network have a protected main computer that serves information to many other terminals (i.e. client/server) or is it just a small office where security is less of a concern and a few computers share information equally (i.e. peer network)?
- What operating system and version does the application run best on - Windows NT, Novell NetWare, Unix, etc.?
- If the software stores information in a database, which database(s) (i.e., FoxPro, SQL, Oracle, and DB2) is compatible with your data management needs and budget? What additional database-related costs can be expected? Will you need additional training or additional technical staff to maintain and support the database? If it is a database application, what database does your company support?
- How will the software manage and consolidate data originating from one or more remote offices? Do you need to access information in "real-time" so that data entered at one location is immediately available at a different office?
- Do you want the application to be accessible via the Internet?
- Does it make a difference what language the application is programmed in, such as C++ or Visual Basic? Is your IT department planning a major change in technology platforms (e.g. PC versus Macintosh) in the next year?

Use the [MIS Evaluation Framework](#) by Andrew Mainhart for more guidance on questions to consider.

Budget

Any technology project budget can be hard to define before you speak with software vendors about various costs, but you need to come up with a general estimate of what your organization is willing to pay before you begin interacting with vendors. The majority of the expense for the organization is not the software itself, but all

the other costs activities and components necessary to successfully design, select, implement and optimize the full information system. Staff resources must include time for the up-front system design (or re-design), software review and selection, implementation, including staff training, and evaluation of system performance. Additional resources, including materials and staff time, must also be allocated to ensure effective communication throughout the project for critical organization-wide buy-in. During the budget definition, your costs for taking your new information system design from a plan to a working system fall into three core areas: software, hardware and implementation.

- Software includes the initial software licensing fee paid to the vendor and other software costs for items such as database licenses and annual maintenance costs.
- Hardware is what you will need to spend for costs, such as servers, PCs (client machines), printers, data input devices or network upgrades.
- Finally, implementation costs encompass the money you will spend for configuring the software and hardware, training staff, and staff time converting data and running systems in parallel. (It may also be necessary to contract out consulting services from the vendor or third party consulting firm to help in implementation.)

In addition, there are many "hidden" costs, such as the time staff will spend away from normal activities for training, and the inevitable work slow-down that will occur during the transition period, as well as any time spent running the old and new systems in parallel while the initial problems are worked out. Even institutions that have been through such a transition before often badly underestimate the time and costs involved with this process. This possibility should be discussed openly from the beginning with senior staff members, Board members and donors so that guidelines, limits, and contingency plans can be developed.

Finally, it will be necessary to determine how much technical support is required for maintaining the system—software, hardware and data overtime. The cost of the maintenance agreement should be figured into your operational budget for supporting the system over the long-term. As a general rule of thumb, an organization should expect to spend anywhere from 1% to 5% of its operating budget each year on information technology and the staff to support it. The maintenance contract is a portion of those expenditures and generally is a percentage of the cost of the actual software license, which is typically dependent on the number of users. The theory being that the more people, users, on the system then the higher the volume of assistance needed. This does not refer to problems with software, but more operator errors or learning curves.

Needs Analysis Documentation

The Needs Analysis process should be documented and should include most, if not all, of the following components by the end of this phase:

- Executive Summary
- Institutional/Business Overview (including Purpose, Scope, Background, Definitions, References to other Documents)
- Summary of Current Processes with Descriptions
- Summary of Reports
- Proposed Improvements & Future Needs
- System Requirements & Technical Environment
- Institutional/Business Area Impacts
- Budget Issues

[Return to Table of Contents](#)

Design

Once you have finished collecting the information regarding your current work-flows and information needs and your future system needs, you will need to analyze the information. This process of gathering information then analyzing it does not necessarily happen as distinct linear steps. More often as you evaluate the work-flows and information needs of each operational area, you will begin to analyze the data. You may even begin to make minor modifications in your processes, which should be documented as well. However, any major changes or re-design of processes should be vetted through the IS project team as part of the bigger IS project planning process. In essence, during the Needs Analysis phase you are completing many mini-cycles of evaluation and analysis, evaluation and analysis. The results of these analyses should be brought together in the Design phase, reviewed in light of their impacts on the entire organization and integrated, as appropriate, to create the new design for the information system.

At this point in the process, the IS project team should have a clear picture of what the system should be able to do for them and what it will enable the staff to do. This does not mean you know "how" the system will actually perform the functions. For example, you may determine that it is important that clients be able to easily access their account information seven days a week, and you want it to be an automated service. During the Selection phase you will evaluate which technology solution, such as a web page, standalone kiosks, or telephony services, will work best for you and your clients and fit within your budget. An extra effort should be made at this stage to not grasp onto any one piece of technology, either software or hardware. The purpose of this phase is merely to define the scope of requirements for your system.

All ideas for changes—whether in processes, the way data is captured or information is used, should be vetted with staff across the entire organization to ensure the full understanding of the impact of the proposed changes. This will help guide the IS project team when hard choices need to be made regarding the final design. Creating the design for the revised system should be fun and should get everyone involved with the process of improving operations.

Once the full scope of the desired system is documented, the IS project team must prioritize the requirements. Some sense of a budget must be known at this time for the technology, if not the complete implementation, training and consulting costs, to help in prioritizing the system requirements. This act of prioritizing the criteria for the system is critical to the success of the project. Failure to get full sign-off at this point in the process from the IS project team and senior management on the most important components of the system will bring headaches and wasted resources further along in the process. It is far less painful for management to do the hard work now and come to agreement on their priorities, within the context of a particular technology choice, rather than compromise later.

The final outcome of this design step should be a detailed specifications document, outlining in detail the system requirements with priorities assigned and other parameters, such as the budget, that will ultimately define final choices.

Here is a list of questions to help prioritize requirements of the new system design:

- What functions are absolutely necessary, which functions are important and what functions are merely convenient but not so important?
- If a new software-based solution is being considered, how could it support the overall institutional needs identified above?
- How will the new system be able to support any desired changes in the institution's work processes?
- What does the organization need to support the given design? Are there other available information systems solutions that offer this functionality?

- How willing are you to consider changes in your lending and institutional policies and work processes that may be needed in order to accommodate this new system?
 - What needs to be considered as part of your overall medium and long-term strategy in adopting a technology-based information system for your institution? For example, how will you fund the initiative? What additional skills will you need among your staff? How will you develop staff competencies to effectively use the system? How will you support and maintain the new system? Will you need additional infrastructure, (e.g. a network system, additional hardware, back-up power, communication lines)?
-

Specifications Document

The Specifications document, also referred to as a Requirements Definition document, evolves from the Needs Analysis documentation, but the level of detail is much greater and most importantly it will set the criteria and priorities for the technology, either hardware or software, that you eventually choose to use. Additionally the Specification document has a different audience, it is intended for the technology staff in the organization, the outside vendors (portions), and the IS team who will be evaluating the possible solutions. Hence this document is more technical in nature than the Needs Analysis documentation, which is usually written for senior management and the general users of the system.

The following components should be included in the Specifications Document:

- System Requirements
- Technical Environment
- Budget
- Issues

[Return to Table of Contents](#)

Selection

During the Selection Phase, members of the IS project team research options for addressing the requirements defined in the [Needs Analysis](#) phase and documented in the [Specifications Document in the Design Phase](#). To identify potential solutions, use the [MIS Software Listings](#), talk to others in the sector to see what they are using, ask your IT person to look for local companies, and touch base with any technology association in your area. Also, see what is happening at a university or research institute in your region. Identifying a good vendor more often than not comes from simply letting people who are in the IT sector, or people with similar needs, know that you are looking for a solution.

Selection Steps:

- [Due Diligence Overview](#)
 - [Vendor Scripts](#)
 - [Due Diligence Inventory](#)
 - [Negotiating A Software License](#)
 - [Implementation Plan Inventory](#)
-

Due Diligence Overview

Once you have identified options, it is your responsibility to conduct the due diligence needed to determine if the identified solutions are best for your organization. From your Specifications Document, you should be able to select the five to seven most important criteria for the technology you are researching. With this criteria set in hand, you should be able to create a short list of three to four products that will meet your needs from just a little bit of information. This step is often referred to as a "high level scan" of available commercial options.

Once you have narrowed your options down, you will want to conduct some in depth research on the product and vendor. If you haven't done so yet, contact all the vendors on your short list and ask for printed (or Web based) materials along with a demo version of their product for your team to review. Also, remember to request client references. Where possible, try to visit another organization that has the product installed to see how they are using it. Seeing the software in action can often be a very telling sign of its appropriateness for your organization. At a minimum, take advantage of Internet forums to find out what active users think of the product and the services provided with it. Do not be afraid to ask lots of questions both of the vendor and other users. While there may be aspects of the software you have to live with, you would rather know about it up front, rather than discover them during your Implementation Phase.

The [MIS Evaluation Framework](#) is a very good tool for capturing all the information you are gathering about the various products. Download the document if you don't have it and transfer your requirements from your Specifications Document to the framework, along with the weighted priorities. Using the framework to create your Specifications Document can help ensure that you have thought about all aspects of your information system requirements. The framework makes it much easier to organize what you are learning about each product and to share that information with others.

Once you have narrowed the options down to two or three, you will want to view a live demonstration of the software by the vendor. If possible, send them a small sample of your data to use in their presentation, and definitely let them know ahead of time what you are expecting them to show you. Without guidance from you, the vendor will show you just the bells and whistles of the application. A good vendor demo should first walk you through all the core functionality you would use on a daily basis. Next, it should show the user defined features and how to set up and edit your financial products, users, and other global system level controls. Finally, they can end by showing you functionality you didn't request but might be interested in.

All members of the IS project team who will be responsible for making the final choice of solutions should participate in all of the vendor presentations. Depending on the vendor, the functionality and the general price of the product, these presentations can take anywhere from two to six hours, so you must be prepared to sit for a long while and take good notes.

Vendor Scripts

Provide the vendor with a list of scenarios you would like to see demonstrated. Select scenarios that are very common and ones that can be problematic. For example:

- Open an account for a new client, maybe with both a loan and savings account
- Post payments for an entire village banking group or several groups
- Setup a new loan product in the system with various conditions and terms
- Generate a report of loans in a given geographical region and more than 30 days late
- Query all loan officers with clients in arrears
- Query all active clients who have been members for > 5 years and have children
- Setup a new user (employee) on the system with restricted privileges
- Review transaction logs for errors or security breaches

Send the same scripts to all the vendors you select. Designate a time period for them to send you questions; then distribute answers to all of the participants, not just those who posed the questions.

To prep for the demonstration, create a matrix with each of the scenarios in it and three extra columns. In the extra columns put the following categories and fill in as appropriate during the live presentation.

1. Software will perform this functionality [match out of the box, with slight modification, moderate modifications, and major modifications:—make sure they specify the amount of work in man hours]
2. Matches our current operational practices [1 through 5 for the exact match to completely different]
3. Comments [If there is a disconnect, note whether it is a good thing and a chance to adopt "best practices," or if you think that this disqualifies the vendor.]

When reviewing the software keep in mind that no single application will meet 100% of you needs. Every institution has its unique mode of operation and information needs are always changing. If you find a commercial application that meets 75% of your institutions needs, buy it. You can use several different strategies to make up the difference, such as, customizing certain options, using separate applications that are integrated with the core application, extracting data from the database and analyze in another tool, re designing processes, or creating other types of work around solution. The cost and more importantly, the time involved in developing a software application from scratch is not worth the return of getting a system to match your needs today. By the time software is built and reliable your needs will have changed.

Due Diligence Inventory

The introduction of a new automated commercial information system will have a significant impact on your MFI, especially on your manual procedures, processes and policies. Any areas that are currently handled on a case

by case basis could be problematic. Therefore, the following issues must be considered while conducting your software comparisons.

Organizational Policies and Procedures

- **Workflow and Timing:** Manual processes must blend into the automated system.
- **Transaction Flows:** Address, revise and reach agreement on input forms, authorization signatures, and report routing.
- **Organizational Rules:** The system must include specification of any organization specific rules in existence.
- **System Rigidity:** Once again emphasize that the flexibility of manual processes may evaporate with a new system.

Computer Related Procedures and Policies

- **Data Entry Policies and Procedures:** Who's responsible for entering the data? Does this still make sense if the business processes change with the new system?
- **Timing Considerations:** When will reports be generated? What are the cutoff dates for data entry?
- **Data Updates:** Can anyone update data at any time or will there be cutoff times and/or dates?
- **User Access:** Which users shall have access to which portions of the database and on what basis?
- **Security Administration:** What levels of security do they currently have? What do they want? Is there a plan for the prevention of data damage or loss, the backup of data and program files, unauthorized distribution of information, computer viruses, network crashes, and interruptions in power?

Input and Processing Capability

- **Speed:** Just because a system can hold a large volume of records does not mean that it can process changes to all those records rapidly. Acceptable time parameters should be established early in the project.
- **Information Retrieval:** Users must be able to retrieve grouped data, such as a list of certain types of loans.
- **Data Integrity:** A good system includes several types of procedures that maximize the accuracy of the data it contains. Most data errors occur in the data entry process through miscoding or operator carelessness. Edit and validation processes limit the types of data accepted in a particular field.
- **Printing and Report Design:** A good system is capable of producing reports for management, employees and other government organizations.
- **Distribution Needs:** The form in which information needs to be disseminated has to be addressed. Options may include electronic mail, batch data, use of external databases, distributed or off-line printing at multiple locations, and other telecommunications options.

Organizational Technology Capability

- **IT Staff** — A centralized database will require the use of a network, in some form, to enable user's access to the data. Also the larger the database required, typically the more sophisticated it will be.

Both of these elements together will require a high skilled network systems administrator. Consider the availability and cost of acquiring such a person for the institution.

- **Users** — Depending on the daily staff's previous experience with using computers, it may be necessary to provide a much greater amount of up front training in basic computer skills, in addition to training on the new software package. For novice users a windows based product can be much less intimidating.
- **Management** — Managers often receive the same training as staff users, but in fact their primary contact with the MIS is not putting data into the system, but getting information out of the system. It is important to provide training to management that is customized to their information needs as managers. In some cases, exporting the data or reports into MS Excel or a similar tool will be necessary to do more in depth data modeling and trend analysis. An MIS is only as good as the information its users can extract from it.

If you are considering a software application to serve a specialized function, make sure that you consider how it will need to integrate with other applications, such as your main accounting or portfolio tracking software. It may make sense and be more cost effective to consider other information related issues that can be optimized at this time as well. If you're selecting a new management information system that integrates accounting, portfolio tracking and other functions, how well does it cover/support all your specialized reporting needs? If need be, how does this application support your human resources information related strategy?

The result of all this due diligence should be an application (or possibly multiple) that you feel confident will be the best for meeting your needs. After the live demonstration the IS project team should sit together and review all the information gathered in the selection process and come to a final decision. If you have been clear up front on priorities this should not be too difficult of a decision to make. If people making the decision have their different agendas and departmental interests that they are trying to protect, this final selection decision can be a significant battle. The IS project team will need to make their choice and present their recommendations to Senior Management for approval. The more discussion and buy in from key decision makers early on and along the way can make this final choice much easier for all involved.

Negotiating a Software License

Once an organization has determined which software application they wish to use, it is time to negotiate the licensing and maintenance agreements. These agreements may be the same document or two separate documents depending on the vendor. The cost of the software application, or the license as it is called, is generally a standard price for all consumers. However, the services the vendor provides the organization along with the software will vary from contract to contract, client to client, and are open for discussion.

Software licenses differ in several respects from those for other goods and services. Most importantly, software licenses refer to an organizations right to use a certain number of copies at a certain number of locations. For example, an organization may have 50 staff members with unique login identification, but only 30 of those individuals are ever on the system at the same time. In this scenario, the organization would only pay for a license for 30 users. Depending on the pricing structure, a vendor may have a set price per user, or may have a price based on a range of users (i.e., 0-5 users, up to 25 users, up to 50, up to 100 users, over 100 users, etc.). Since it is easy enough to increase the number of users per license by simply paying more, it is better to be conservative initially about the number of user licenses purchased. The software license should also include operator and user manuals, as well as some form of online help in the actual application.

Additionally, the initial software license should cover a certain portion of the software implementation costs, such as the installation and configuration of the software. Beyond this, any customization or special requests of the software setup are typically charged on an hourly basis, unless negotiated otherwise. A manager should strongly consider the type of support that will be needed to get the software up and running as quickly as

possible and discuss this with the vendor. However, do not allow the vendor to dictate the level of support the institution will need. The vendor may try to under sell because they are stretched with other clients and work, or they may oversell to drive up revenue. The amount of support needed depends on the institutions internal IT staff capacity and readiness for the new technology. If the institution is already networked, having a system administrator who is already familiar with the organization's network architecture will help greatly in this process.

The consulting services a vendor may offer, along with the software license, include project management support, guidance and assistance with data preparation and conversion, and training. Before discussing the costs for these additional services, design and develop a draft implementation plan outlining your needs in these areas.

Implementation Plan Inventory

Project Management

- How aggressive is the implementation plan, both in the timeline and volume of location rollout?
- What level of effort will be needed to keep the plan on time and within budget?
- Who in the organization can be temporarily reassigned to manage the implementation?
- What previous experience do they have with IS software implementation or the current MIS of the organization?
- For what length of time will they be needed?
- For what amount of time during that period will they be needed?
- How strong are their troubleshooting (problem solving) skills?
- Could this person benefit from project management guidance from the vendor? If so, how much?

Data Conversion

- What data, if any, will need to be transferred to the new system?
- What issues are involved with converting the data (i.e., lack of a standard way of calculating interest from one branch office to the next)?
- What is the volume of data to be converted?
- Given time, costs and percentage of error, would a manual or automated conversion, or a combination of both be better?

Training

- What basic training is necessary for the IT staff, and for the general staff?
- Are there any training prerequisites?
- Who conducts the training?
- What is their training experience?
- What language is the training offered? Is this the first language of the trainer?
- Is the training a structured class style format?
- Is there a student manual that has examples and practice exercises?
- Does a TOT (trainer of trainers) option exist?

-
- What follow-up training options are available for reinforcing basic skills, learning advanced features, or instructing new employees?
 - What resources (space, computers, overhead, etc.) will be necessary for the training?
 - Finally, does the system have complete, well written documentation that includes every term, function, operation, and error message?

Once the scope of the implementation plan has been defined, it should be rather easy to determine the remaining cost of the agreement based on what is actually being provided. If possible before making a final decision, participate in or visit a training session for another client of the vendor to get a feel for the quality of the training provided. It is always best to have someone conducting the training that is very familiar with the software application, but if that individual doesn't have good training skills they won't be able to convey their knowledge to the students. A good software company will provide quality training with their products, either directly or through a third party resource.

[Return to Table of Contents](#)

Implementation

An Implementation Plan should breakdown the necessary steps to bring the entire organization online with the new software in an organized, manageable manner. No two-implementation plans are the same, even when installing the same product. Every organization's context, staff skills and available resources are different. Typically, this means conducting the implementation in phases. The phases can be divided-up by modules (functionality) of the software, by levels across the organization, or by regions or departments. An MFI that is decentralized in its operation may want to phase the rollout by regional office and branches, and not necessarily just by functionality. Generally, it is advised to select the best case for success for the first phase, which means selecting the region or level that has the highest degree of standardization in the organization or is the most prepared for the data conversion. The first phase is generally fraught with unforeseen problems, because that is the period of time when all the bugs in the software are being found and fixed, and the wrinkles in the process are being ironed out. From the lessons learned in the rollout of the first phase, an organization should be able to improve the implementation plan in all other areas of the organization.

Implementing a new software application when it is an institution's central enterprise software is difficult. It is important to plan and pace the implementation and conversion process. While the initial installation and conversion should generally take two to six months, it may take more than a year before the organization is optimizing all of the system functionality. Typically, this is seen as a good sign, because it means the software application will meet the organization's growth, not just today but down the road. Too frequently organizations buy a software application that meets only their current needs, and by the time they finish implementing the software, they have already outgrown its capacity.

To choose a software application that includes functionality beyond current needs, incorporate into your long-term implementation plan all of the information on how and when the institution intends to make use of the new functional components. Typically, the first phase of implementation will involve inputting all the new loans into the new system and converting a certain portion of the old loans. Once this is completed, the old and new systems need to be reconciled and the software stabilized. Then begin phase two and input additional information into the system. For example, if your organization has been tracking life and loan insurance manually or in a separate software package from the loan tracking application, then as part of phase two of the implementation plan, you may want to begin tracking this data in the new software. Or, depending on your fiscal year-end, your organization may want to wait until the new fiscal year before converting to the new accounting module, making this the second phase of your implementation plan. For some institutions, the second or third phase of the implementation may initiate the tracking of savings or the use of PDAs (personal digital assistants) for data capturing. Whatever plan you undertake for implementation, it is nearly impossible to over-prepare for the implementation of new IS software. Inevitably something unexpected comes up during the process. However, when the implementation plan is well thought out, handling unforeseen issues is much easier.

As noted before, the implementation phase transforms the MIS from a plan to a functioning system. An implementation process encompasses the hardware installation, software installation, data conversion and transfer, acceptance testing, staff training and general process alignment. The IS team should establish measurable objectives and a timeline with completion targets for each of the activities involved in the implementation process, as well as for the overall system.

Management

The management of an information system involves not only caring for the hardware and software that are the main conduit for the collection and dissemination of data, but also attending to the people, procedures, processes, and policies that comprise the complete system. These activities can be broken down into three core areas: evaluation, maintenance and optimization of the system.

Management Steps:

- [Evaluation](#)
 - [Maintenance](#)
 - [Negotiating A Maintenance Contract](#)
 - [Optimization](#)
 - [MIS Optimization Inventory](#)
-

Evaluation

As the software is being installed and the data converted to the new system, you should be testing the system to ensure that it is functioning properly and the data integrity is intact. Using the performance measures determined back at the beginning of this process in the [Project Preparation](#) phase, begin to track the output or outcomes of the new system on a daily, weekly or monthly basis. Remember, these indicators should reflect the broader productivity measures of the organization, not just software response times and stability.

In addition, a plan (including a schedule) should be created to evaluate the entire system six months after implementation is complete, one year later and every year after. These reviews should evaluate work-flows to ensure that processes are fully aligned with the capabilities of the new software, and determine if the staff has sufficiently trained with the system. Additionally, it is an opportunity to identify functionality within the application that is not being utilized. This is the perfect time to schedule a follow-up meeting with managers about any new information needs that have arisen since the implementation, and to discuss how the system can best accommodate those needs. As with any initiative or program, if you fail to track and measure results, you will not fully achieve your desired outcomes. The importance of on-going evaluation can not be over-emphasized.

Maintenance

To ensure a healthy system it is important to establish backup procedures – daily, weekly and quarterly, if not monthly. Your organization should have strategies in place for off-site storage of the information, as well as recovery plans in case the system should fail due to natural disasters, unauthorized human interventions or system crashes. Loan capital can be replaced if it is stolen (thanks to insurance), but the loss of your client data can not. In many ways, your client information is the most important asset your organization owns. Protect it well. The rigorousness of your organizational procedures for backing up, verifying and restoring data should be directly proportional to the number of days you are willing to operate without a system. In essence, they should reflect your tolerance for losing money or client goodwill. In addition to having a scheduled routine for data backup, you should put in place a schedule and process for regularly updating the software, logging issues and subsequent resolutions. This minimizes the instability of the software and prevents your institutional history from

getting lost when there is a turnover in staff. Either one of these events can be very disruptive to an organization.

Negotiating a Maintenance Contract

Maintenance contracts are of the greatest value in the period immediately following implementation, because they can help the MFI get off on the right foot before inefficient or unproductive patterns become ingrained. For example, the maintenance contract may include participation in a Users Group as a means of suggesting and creating ideas for additional functionality or improvements to the software without it being a customization request. In addition, the maintenance contract may include a limited number of programming hours for creating special reports or other types of minor customizing requests. If these options are not currently provided, they could be points for negotiation in the maintenance contract. It is also important to know the vendor's guaranteed response time to a problem. An institution can not afford to have the system not functioning for an extended period of time. Response times can be a challenge for an institution that is in a different time zone than the vendor supplying the support.

In brief, a properly administered maintenance contract benefits both users and IT staff because it accomplishes the following:

- Promotes better service, with improved timing, results and accuracy
- Fosters more realistic expectations
- Helps track and predict user demands
- Establishes agreement on priorities
- Provides management with summary information

The maintenance contract is generally based on a percentage of the cost of the initial software license. The percentage varies from 5% to 25% of the cost, but 20% percent is the amount commonly charged. This agreement typically provides the organization with product upgrades as they are released; technical support if problems arise with the application or the database; and user support for individuals interacting with the application daily. Technical or User Support may be provided by phone, electronic mail, a Web site, and/or in-person. Be sure that the maintenance agreement specifies the amount of support to be provided, in what languages and the guaranteed response time, without additional charges being incurred. Depending on the distance to the client site, travel expenses, per diem expenses, and an hourly rate may be charged to the client as well. Also, agree on a fee structure for any support services that go beyond the limits of the maintenance agreement.

Optimization

To fully optimize an information system, and maximize your return on the investment, it is necessary to perpetually seek ways to improve the use of the system. This may mean the further streamlining of operational processes to leverage the functionality of the software application. Or it may mean developing new reports or ways to extract data for greater analysis of the organization's products, services, or financial health. Alternatively, it may mean training staff on functionality that they are not currently taking advantage of, to improve their productivity. It may also mean exploring how best to use the information system to support a new product or service initiative of the organization. To effectively achieve any of these changes, it is important to follow a methodical and systematic approach to evaluating, creating, vetting and implementing the new changes. In this way, the organization is simply repeating on a micro-level the basic steps in the development life cycle of an information system. The frequency with which an organization successfully repeats this process,

coming full circle, greatly increases their probability of further success with future changes to the system, either large or small.

Are you fully optimizing your current information system? Here is an inventory of activities your organization should be doing to ensure the greatest use of its system for managing information. In addition to this list, ask your staff, managers as well as frontline users, what ideas they have for increasing the benefit of the your existing system. They can often be your best resource.

MIS Optimization Inventory

Are you fully optimizing your current information system? Here is an inventory of activities your organization should be engaged in to ensure the greatest use of its system for managing information. In addition to this list, ask your staff, managers as well as frontline users, about their ideas for increasing the benefit of the system. They can often be your best resource.

What is the state of your training program?

- Put into practice thorough and on-going training for ALL staff (to whichever level is appropriate) to create duplication in skill sets and greater capacity in the MFI. This is not restricted to just software or computer training, but refers to any training necessary for a person to successfully execute their activities.
- If necessary, plan on a systematic translation and/or in-house development of appropriate training materials and other useful documentation in the best language for the users.

Who is monitoring the ways your organization captures and uses information? How frequently?

- Conduct periodic reviews of employee work-flows, followed by regular sessions with the MIS team to discuss potential process innovations, the scaling back of busy-work, and any other productivity improvements.
- Develop complete awareness of all the functionality in the software to get the greatest benefit of the application.
- Consider additional 3rd party applications that add value to system (e.g. a report writer, financial planning software).

What is the condition of your data, software and hardware?

- Execute deliberate and regular archiving/backup to protect data.
- Stay current with updates, patches, features, and challenges by keeping in touch with the vendor and/or other users
- Renew license fees for continued vendor support
- Consider purchasing additional hardware to enhance stability, efficiency or safety of system (e.g., power stabilizers, back-up servers, LAN hardware, CD/RW or other removable media, air conditioning)

[Return to Table of Contents](#)

About CGAP

CGAP is a consortium of 33 public and private funding organizations - bilateral and multilateral development agencies, private foundations, and international financial institutions - working together to expand poor people's access to financial services.

CGAP was established in 1995 by nine leading development agencies and microfinance practitioners to support the development of a sustainable microfinance sector. Today, CGAP serves a global resource center for microfinance, providing advisory services and information to a wide range of stakeholders.

CGAP's Technology Program

CGAP's Technology Program, co-funded by the Bill and Melinda Gates Foundation, leverages CGAP's expertise, neutrality, network of contacts and role as a public good for the field to advance innovative technology approaches that will push the frontier of access to finance and help MFIs make informed technology decisions.

The program advises financial institutions, governments, technology companies and donors, conducts business approach and market research, offers co-funding for MFIs to seek independent advice on information systems, and provides grant funding to selected projects that support the program's research goals. A core CGAP team manages and implements the program, supported by experts in banking technology, payments, technology strategy, financial regulation, and related topics.

The microfinance field has experimented with using technology for several years, but there has been no systematic research spanning a variety of organizations and country contexts to identify models with transformational potential. There is no engine to coordinate multiple large-scale experiments, mitigate the risks of experimentation, and build industry-wide momentum for innovation. This program aims to fill those gaps while continuing to help MFIs strengthen their technology foundations.