



Investing in Mifos[®]:

**A Framework for Forecasting
Return on Investment**

About Grameen Foundation

Grameen Foundation empowers the world's poorest people, especially women, to escape poverty through access to financial services, information, and viable business opportunities. Founded in 1997 by a group of friends who were inspired by the work of Muhammad Yunus and the Grameen Bank in Bangladesh, our innovations, programs, and resources have helped millions of people in Africa, Asia, the Americas, and Middle East North Africa begin their journey out of poverty.

With microfinance and technology as our foundation, we connect people and local institutions across the globe that share our vision of shattering the barriers for the one billion people trying to live on less than a dollar a day.

About The MasterCard Foundation

The MasterCard Foundation advances microfinance and youth learning to promote financial inclusion and prosperity. Through collaboration with committed partners in 42 countries, The MasterCard Foundation is helping people living in poverty to access opportunities to learn and prosper.

An independent, private foundation based in Toronto, Canada, The MasterCard Foundation was established through the generosity of MasterCard Worldwide at the time of the company's initial public offering in 2006. For more information, please visit www.mastercardfdn.org.

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CONTENTS

Introduction	2
ROI Modelling	3
Overview of Methodology	4
Mifos Benefits to Be Measured	4
ROI Methodology	5
Capturing the Benefits of Increased Revenue	7
Loan Officer Efficiency	7
Cash Management	7
Product Development	8
Capturing the Benefits of Decreased costs	8
Simplified Reporting	8
Centralized System Maintenance	8
Easier Fraud Detection	9
Improved Arrears Management	9
Reduction in License Costs	9
Faster Loan Disbursement	9
Capturing Project Expenses	10
Other Factors Impacting ROI	10
Conclusion	11
Terms & Formulas	12

INTRODUCTION

Technology solutions are expensive to acquire and maintain. Installing a new information technology (IT) system and making it succeed is not a one-time expense but requires a long-term commitment of funds, staffing, training, and support. This is as true for microfinance institutions (MFIs) as it is for any business. Before making such a commitment, therefore, those managing an MFI must be able to see the entire picture that an IT deployment will bring. Will deploying the system be worth their effort? And will they be able to sustain it?

Due to the competing demand for budgets and staffing resources, executive management, stakeholders, and donors increasingly need to know the answers to those questions in quantifiable terms. Exactly what benefits are to be gained or have already been gained? Further, when an organization is considering more than one project, managers today want to know which of those projects will return the biggest benefits.

An excellent method for answering these questions is known as return-on-investment (ROI) modelling. ROI modelling helps in project decision making and priority setting by estimating how much benefit you will get from your project investment. It is a widely used tool that can be applied to any project. Since MFIs have very limited resources, accurately measuring the ROI of technology projects can become a very important undertaking.

In general, ROI modelling can be used to

- evaluate whether projects are feasible
- determine which project among several will bring the largest return, and
- evaluate the actual value of projects after their implementation.

The method uses a mathematical model to compute the net benefits to be gained from implementing a project by deducting the project costs from the project returns. In turn, estimating project returns requires developing business cases, which are examined to identify the savings that may be achieved in various areas of the business.

The ROI framework described here is designed so that MFIs can estimate the net benefits of Mifos, an award-winning open-source platform for microfinance. Built on leading technologies, Mifos is designed to give MFIs the flexibility and capacity to scale up their client lists and loan portfolios with greatly improved efficiency. The Grameen Foundation has been guiding the development of Mifos while its global community of affiliates and volunteers supports and extends its use worldwide. Among its intended advantages, Mifos should allow MFIs to more quickly centralize data, improve their operational efficiency, and bring greater predictability into planning for future needs and costs.

ROI MODELING

ROI modeling is an accurate, credible, and widely used method for quantifying the contribution made by new initiatives within an organization, including IT initiatives. By conducting an ROI study, an organization can determine whether the benefits of the new technology, expressed in monetary values, have outweighed (or will outweigh) the costs. In sum, it can determine if the initiative made (or will make) a net contribution.

MFIs can use this method to help establish their IT priorities. Calculating the ROI of technology use in different business areas will determine which IT systems contribute the most to the organization. This knowledge is helpful in setting priorities for higher impact. And with this knowledge, systems that prove to be inefficient can be designed and redeployed, while ineffective systems can be discontinued. When choosing between various front-end technologies, an MFI can choose the one that is the better investment.

Using the ROI method also helps a project team and designers to focus on results. The method requires the project team to think about measurable objectives: What is the program attempting to accomplish? What are the success factors defined in the project charter?

Finally, using ROI helps establish what the "value" of a successful IT system could be in terms that management can understand and appreciate. Developing ROI information is a very good way to earn the respect of

management, donors, and stakeholders. Management appreciates the efforts to show the actual monetary returns of a systems project, an effort that will make them more comfortable with evaluating and approving IT projects in the future. When properly done, an ROI methodology allows management to realize that IT projects are investments and not simply expenses.

However, ROI measurement is not an exact science. While every attempt should be made to make the projections and assumptions as realistic as possible, circumstances do change. Over the course of a project's implementation, many things can change — costs, business processes, and even the technology itself. For this reason, the ROI model must be updated to reflect any new factors that might change its outcome.

Further, the ROI model cannot possibly measure all the benefits an IT deployment may bring. For example, being able to build an electronic database of clients and loan data means setting in place a very important building block for future IT systems, but it is something we cannot quantify directly. IT deployments bring a host of intangible benefits that ROI modeling does not measure. Therefore, to build a complete picture of costs and benefits, in addition to its ROI modeling the MFI should also identify those intangible benefits, especially since some of them might be as important to its operations as the activities that the ROI model does capture.

OVERVIEW OF METHODOLOGY

MIFOS BENEFITS TO BE MEASURED

The benefits to an MFI of adopting a system like Mifos are many. Not all the benefits are financial returns that can be directly or easily measured. With proper planning and integration into the full business process, a management information system (MIS) that provides more complete, accurate, and timely business information will produce many benefits that are difficult to quantify, including these:

- Increased staff productivity due to elimination or reduction of tasks that can be automated
- Better products, based on accurate product-performance data
- Increased access to financing and lower financing costs, due to better transparency
- Reduced portfolio-at-risk (PAR), since loan officers have more time to follow up with clients and have better information about arrears
- More robust social programs, since loan officers have more time to use group meetings as a platform for education
- Better customer service, brought about by more efficient processes such as faster loan application and disbursement
- The formation (or quality improvement) of client, loan-portfolio, and financial databases (especially for MFIs that are moving away from a manual system)
- Easier integration of loan portfolio information with other systems, such as accounting, business intelligence, and human resources
- Better monitoring of social performance (measurement of impact on poverty)

- Improved quality in the work life at MFI offices, due to eliminating repetitive, low-value tasks from staff duties
- Stronger ability to conduct audits or to meet the requirements of internal and external auditors, and
- The ability to make business projections based on the MIS building blocks that are being put in place today.

All these benefits are real, though they are not inevitable. Nevertheless, if MFIs are to adopt MIS systems like Mifos on a broad scale, it is important for them to identify the direct financial returns wherever possible and to measure the systems' impact on the financial performance of the business.

Our ROI forecast focuses on measurable impacts that result in either increased revenue or lower costs or both. These impacts are:

- **Loan officer efficiency.** An MIS that reduces the time loan officers must spend on bookkeeping tasks enables them to spend more time supporting clients. This can have either of two financial impacts. An MFI can either increase the number of clients supported by each loan officer (translating into incremental income) or it can increase the amount of time spent on each client (allowing the loan officer to appraise loans better or to collect arrears, translating into reduced write-offs or decreased PAR). Either change can increase the gross loan portfolio for additional revenue.
- **Better cash management.** MFIs must maintain adequate cash reserves to fund loans. Holding more cash than necessary means making fewer loans and earning less interest income. Holding less cash than necessary means unnecessary short-term borrowing and added interest expense. Because Mifos provides real-time data on the loan portfolio, it makes it possible to manage cash better. This is measured by actual cash reserves that move closer to reserve targets.

- **Faster launch of new products and services.** When new MIS products are launched, they must be delivered through the branch network. A centralized system allows products to be delivered to all branches at the same time, without the need to visit each branch to update software. This shortening of cycle time produces additional incremental revenue, since the products begin generating income sooner than would be otherwise possible.
- **Reduced time and expense of reporting.** In a decentralized MFI system, data from individual machines in branches must be manually consolidated at the branch level, and it must then be sent to the home office where it is again recompiled to create a consolidated report for the entire loan portfolio. A real-time centralized system such as Mifos eliminates the need for manual data consolidation and lowers the costs of preparing reports.
- **Lower cost of MIS system maintenance.** In a decentralized system, any software installation or update requires that staff from the head office update each computer individually. This consumes employee time and travel costs and delays the rollout of new products or features. With a centralized, web-based system, updates are applied to a single server at the head office. No travel to any branch is required, eliminating this expense entirely.
- **Reduced occurrence of fraud.** Money lost to fraud represents lost revenue from legitimate loans that are never disbursed or from repayments lost in transit. The long delays and error-filled data consolidations associated with distributed systems make it difficult to detect fraud. By contrast, a system like Mifos, with real-time consolidated data and the ability to create reports that identify suspicious transactions, makes detecting fraud much easier.
- **Better arrears management, resulting in less PAR.** Having easy access to information that is real-time and robust is critical for arrears management. First of all, PAR is better prevented with better client information, such as past performance and client profile. Second, arrears are collected more easily the

earlier they are detected. Real-time availability of data at the branch allows loan officers and branch managers to react faster. Further, because the data is visible from the head office, both management's response and the branch personnel's accountability are increased.

- **Lower license costs.** Most MIS systems require a separate license for each desktop or user, so license fees must be paid each time a new branch is given access. These costs are eliminated with Mifos. There are no license fees, and every new branch has access to the MIS as soon as the computers are plugged in. With Mifos, there are also no incremental costs when additional users are added.
- **Faster loan disbursement.** When clients apply for new loans, their applications must be reviewed, approved, and staged before cash or checks are disbursed. By using the workflow processes that a new MIS allows, many of these steps can be automated, reducing the staff costs usually associated with processing disbursements.

ROI METHODOLOGY

To make a realistic estimate of the ROI from using Mifos, an MFI must examine the results over a reasonable payback period. For the ROI framework recommended here, a period of five years is to be examined, following common industry practice. To get a clear picture of the impact of Mifos deployment, the analysis compares two alternate scenarios. First, we consider what the future will be if the MFI continues to use a decentralized or manual system, and then we consider what it will be if the estimated results from deploying Mifos are projected.

As mentioned, the first step in this analysis is to establish a baseline. This must reflect the key performance metrics for the MFI's existing operations *prior* to installing Mifos. The ROI tool developed for this analysis is structured as an 88-question survey. This survey asks the analyst to provide defined inputs, such as the number of loan officers, the caseload (average number of active borrowers per loan officer), average loan size, and average yield, among many others. The analyst should complete the survey by documenting how the MFI operates currently, *before* the new technology is implemented. These data will be saved

in the survey tool under the heading, "Year 0," meaning the year immediately before implementation. They are then used as the variables on which the model will base its projections. These initial inputs should be made with great care and should be well validated to ensure that they are legitimate and reasonable.

After the current operations are documented, the analyst should consider what impacts they expect the new technology to have on their operations. This should be reviewed in conjunction with the MFI's leadership. For example, if the leadership expects Mifos to relieve each loan officer of two hours per day of paperwork, how do they expect the loan officer to spend the newly available time? If they expect the loan officer to focus on client recruiting, what kind of caseload increase do they expect that loan officer to achieve with the two extra hours available? In this example, the estimated increase in caseload should be written into the survey responses, so that the tool can be used to estimate the financial impact of that efficiency gain. The tool offers guidance in ROI in the form of survey questions, offering 12 questions to capture the expected benefits of the new platform. Based on the analyst's inputs, the tool will generate financial benefits to be accrued in Years 1 through 5, the years upon which the actual net-present-value (NPV) calculations are based.

As with any ROI analysis, some assumptions are required in order to keep the model simple. These three assumptions are made throughout:

1. Average yield on loans, average cost of capital, interest rate on short-term borrowing, and applicable currency exchange rates all remain constant throughout.
2. Requirements for available cash (as a percentage of total assets), as well as the spread between actual and targeted cash amounts, are adjusted in the first year after deploying Mifos but then remain constant.
3. The impact of inflation on staff salaries and expenses is ignored.

Certainly, if the amounts kept constant by those assumptions were adjusted for possible fluctuations the model would be more accurate. But since the current analysis is only intended to give an idea of the potential returns to an investment in Mifos, adding complexity by modeling changes in the surrounding financial environment does not seem justified.

Once the survey has been completed, the tool generates a five-year NPV, forecasting the financial benefits that Mifos should provide to the MFI. MFIs can also generate their own forecasts based on existing business plans, but we recommend that the analyst model alternative growth patterns to illustrate the impact of changes in business practices or simply to be more conservative, that is, to yield a forecast with greater credibility. For example, one alternative scenario might be based on the question, What will happen if our loan officers use their free time to follow up on arrears instead of recruiting new clients? Another alternative might stem from asking, What will happen if they spend their free time on social performance surveys instead of anything financial? By examining a variety of scenarios, MFI leadership will be empowered to make purposeful, strategic decisions about how best to make use of the efficiency gains offered by Mifos.

Intuitively, there should be a strong link between an MFI's growth and the advantages offered by a scalable, robust system to remove friction from MFI processes and operations. However, the link is usually indirect and partial. Although a good MIS system may be a necessary condition of growth, it is not alone sufficient. MFI growth clearly requires other contributing factors, including at least a management and business plan focused on growth and innovations in products and processes that follow. Accordingly, the ROI tool described here takes a conservative approach, attributing only a portion of any observed improvements to Mifos.

The tool was developed using Microsoft Excel. Since Excel is widely used and most MFIs are very familiar with it, this means the ROI model can easily be maintained and used by MFIs going into the future.

CAPTURING THE BENEFITS OF INCREASED REVENUE

Introducing a new technology like Mifos will result in a variety of financial and nonfinancial benefits. The ROI tool only intends to capture financial benefits. It splits those benefits into two general categories: those that bring increased revenue for the MFI, and those that bring cost savings in the form of reduced expenses or staff time saved. Here we outline the logic behind calculating the first category, benefits that result in increased revenue.

LOAN OFFICER EFFICIENCY

Reducing the time spent on bookkeeping and other activities increases the efficiency of the loan officers as measured by caseload. Increasing the caseload generates incremental interest income without adding expenses. Of course, we cannot attribute all improvement in loan officer caseload to Mifos. Better training and other business process improvements also play a large role, and as a result we only attribute a percentage of the overall caseload increase to the benefits afforded by the MIS. This percentage is decided by what the MFI is comfortable with and depends on how the MFI leadership wishes its loan officers to spend their additional free time.

To evaluate returns from more efficient loan officer activity, we look at the incremental change in loan officer caseload (measured before and after Mifos installation) attributed to the efficiency provided by Mifos, the overall number of loan officers in a given year (based on year-over-year business projections), and the average loan size and average annual yield.

CASH MANAGEMENT

MFIs must maintain adequate cash reserves to fund loans. Holding more cash than necessary means issuing fewer loans and earning less interest income. Holding less cash than necessary means unnecessary short-term borrowing and additional interest expense. Because Mifos provides real-time data on the loan portfolio, it enables better cash management, which is indicated by actual cash reserves that move closer to reserve targets.

We start the analysis by identifying the historical average difference between the target cash amount and the actual cash held for the period immediately before Mifos deployment (Year 0). This difference, or spread, is also expressed as a percentage of total short-term assets. If the spread is positive, the MFI is holding more cash than needed, which means it is missing revenue it could be earning because it is holding cash it could have disbursed as loans. If the spread is negative, the MFI must be using short-term borrowing to cover the difference.

We convert the spread into actual monetary values by multiplying the spread percent by the total assets to get a dollar amount. In the case of a shortfall, we assume that short-term borrowing is necessary and calculate the interest being paid on that borrowing. In the case of foregone revenue because the MFI is holding too much cash, we assume that only some of that extra cash would be converted into new loans at the prevailing yield, and multiply that assumption (we recommend using the portfolio-to-asset ratio) by the current yield.

For the sake of simplicity, we assume that cash requirements (as a percentage of assets) will remain the same over time and so will the yield on new loans or the cost of short-term borrowing. Next we compare the spreads for the period immediately before Mifos with the spreads observed in the period immediately following deployment. Then we project the results into the future based on the assumption that the spread observed after Mifos deployment will be maintained consistently over time. In other words, we compare the impact over time of a one-time improvement in cash management to the results we would have observed over the same period without that improvement. And again, we conservatively assume that only a percentage (defined by the MFI) of any cash saved would be mobilized as new loans. We recommend using portfolio-to-asset ratio.

PRODUCT DEVELOPMENT

To be successful, it is essential for an MFI to evolve its product line over time. The ability to develop new products quickly not only yields good customer service but also creates opportunities to capture incremental revenue. In a decentralized system, each time a new product is rolled out, staff from the home office must visit every branch to update local computers with the new product offering. This takes a lot of time. During that time, no new revenue from those products is being produced. With Mifos, on the other hand, the rollout is immediate, and new products begin to generate revenue right away.

We capture the value of this incremental revenue by projecting the number of new products to be introduced (provided by the MFI) and estimating the number of days required to complete the configuration of the new product at all branches. Because new products are not adopted by all MFI clients, we make an assumption about the number of clients who would typically adopt a new product in the first year (again based on past experience as reported by the MFI). Using these data we can calculate the number of days it takes for a new product to actually reach customers under the old decentralized system. With Mifos, because new products are available immediately upon release, those days are now days that the product is generating incremental revenue.

CAPTURING THE BENEFITS OF DECREASED COSTS

Introducing a technology solution like Mifos will not only increase revenue. As long as the associated operational processes are updated to take advantage of the new efficiencies of the system, it should certainly also decrease costs. Here we outline the logic behind calculating the various ways an MFI will reduce costs both directly and indirectly.

SIMPLIFIED REPORTING

Like any financial institution, an MFI must routinely consolidate information and close its account books to obtain a picture of the current state of the business. Because MFIs largely operate through branch networks, results from each branch must be calculated, and then the results from all branches must be consolidated at the home office. This can require significant time each month for branch employees to prepare reports, time that could be better spent recruiting new customers or working with existing ones. To assess the impact of Mifos on reporting, we evaluate the average number of person-days required to prepare monthly reports at the branches and to consolidate them at the home office. We then compare the total person-days spent annually on this task across the institution before and after Mifos. We expect to

see a reduction in time spent, since Mifos automates and simplifies reporting and eliminates manual consolidation of data. Any reduction will be reflected in our financial analysis as labor cost saved.

CENTRALIZED SYSTEM MAINTENANCE

In a decentralized system, a support person must visit each new branch to set up the MIS, and during the year an MFI will send IT staff to each branch location to conduct upgrades or apply routine or special maintenance patches. These costs are eliminated with Mifos, because all branches can have access to the most updated version of the system as soon as they plug in their computers and access the Internet.

To calculate the savings in setting up new branches, we simply multiply the number of new branches expected per year by the days required to set up the old IT system at each new branch and convert that to an IT staff daily rate for salary saved. To calculate the savings for routine maintenance, we determine how many trips IT staff took to visit network branches each year to maintain the old IT system (for example, two maintenance trips per year) and

then calculate the daily rates of the IT staff involved. Finally, we make a similar calculation to identify savings in new product configuration. Taking the number of new products to be introduced per year and the estimated time necessary to configure each product both before and after Mifos, and then using the IT staff daily rate to calculate saved salary, we estimate a monetary savings.

In cases where the MFI does not have internal IT staff, the daily rate of the IT consultant or vendor that performs this function is used.

EASIER FRAUD DETECTION

When fraud cannot be prevented in advance, the best defense is an MIS that allows it to be detected quickly, for example by observing a pattern of irregular transactions or suspect financial imbalances. The long delays and error-prone data consolidation that distributed systems employ make it difficult to detect fraud. By contrast, a system like Mifos, which provides real-time consolidated data and can create reports that identify suspect transactions, makes fraud detection much easier.

Money lost to fraud represents lost revenue, either from legitimate loans not made or from repayments lost in transit. So any reduction in the amount of fraud translates into cost savings.

In the ROI model, we ask for the average number of "ghost loans" and the average number of repayments lost or stolen per year. It is advisable for the MFI to take the average of the last three years, if this data is available. In some cases, the MFI is not aware that fraud is happening. When that occurs, it will result in an understatement of this potential benefit.

IMPROVED ARREARS MANAGEMENT

Past-due loans are a key measure of the financial health of an MFI. Loan officers who are freed from the burdensome tasks of data entry and manual ledger updating gain more time to follow up on payments in arrears. Further, centralized real-time reporting makes at-risk accounts visible earlier in the process, giving loan officers more time to reduce payments in arrears and increase their recovery rates.

Reducing past-due loans can result in both cost savings and increased revenue for an MFI. To monetize these benefits, we make two calculations: First, we calculate the difference in net annual write-offs (write-offs minus recoveries) before and after Mifos. This reduction in write-offs equates to an actual cost savings for the MFI. Second, we add that savings to the revenue benefits gained by reducing total loan loss provisions. Reducing the cash reserved for loan loss provisions frees new funds for loan disbursement. However, we assume that only some of the extra cash made available by that reduction would be converted into new loans at the prevailing yield, so we multiply that assumption (we recommend using the portfolio to asset ratio) by the reduction in annual total loan loss provision, and we then multiply that by the current yield.

REDUCTION IN LICENSE COSTS

Most MIS systems require a separate license for each desktop or user defined in the system, so license fees must be paid when setting up each new branch. These costs are eliminated with Mifos. It requires no license fees, and every new branch has access to the MIS as soon as the computers are plugged in and Internet-ready.

FASTER LOAN DISBURSEMENT

When clients apply for new loans, their applications must be reviewed, approved, and staged before cash or checks are disbursed. By using the workflow processing that a new MIS allows, many of these steps can be automated, reducing the time between loan application and disbursement.

Shortening the time it takes to process a loan application through disbursement affects both customer satisfaction and staff time. We capture this cost savings using an estimate of the number of days required to bring a customer on board and complete the application processing, approval, and disbursement for a new loan under the old decentralized system. Under Mifos, because the time necessary for disbursement is reduced, we capture the labor costs saved.

CAPTURING PROJECT EXPENSES

Although it requires no software license fee, Mifos is not free. It certainly should help an MFI reduce costs and increase revenue, but adopting Mifos costs money. To accurately reflect the real financial benefits of Mifos, these costs must be accounted for. Our analysis survey does this by itemizing all routine expenses such as hardware, connectivity, data hosting fees, technical support staff,

and training for end users. Throughout, we include only the expenses incrementally added due to Mifos adoption. For example, if the MFI already has Internet connectivity at all its branches, we exclude the connectivity cost, but if connectivity must be installed as a condition of launching Mifos, we include it.

OTHER FACTOR IMPACTING ROI

As stated previously, the direct financial returns from investing in Mifos are not the only or even the most important benefits that result. Legacy Mifos customers have benefited significantly from their respective investments, and all have experienced differing levels of financial return. Our experience applying this ROI model to several MFIs using Mifos has led us to several important conclusions about the ROI approach in general.

- **Prior MIS.** It matters what kind of MIS, if any, is in place when Mifos is introduced. Moving from a decentralized to a centralized system has very significant benefits. Moving from a manual, paper- or spreadsheet-based system directly to a centralized system like Mifos would have even greater benefits.
- **Overall growth.** The ROI model is very sensitive to overall growth in clients, branches, staff, new loan products, and so forth. Installing an MIS is a necessary but not sufficient condition of growth. It enables growth but does not guarantee it. MFI managers must balance different considerations in their business planning, and there are many good reasons why an MFI may want to halt growth, at least temporarily, in order to address other issues in its operations. Mifos gives MFIs the capacity to grow when they seek to, but it is not a reflection on Mifos that growth does not automatically accelerate when it is introduced at an MFI.
- **Business model.** The financial returns made possible by Mifos clearly depend on the core business model of an MFI. Most importantly, major differences in returns are associated with the choice of lending model — between group lending and individual lending — because the role of loan officers is quite different in each case. Loan officers are the front-line interface with an MFI's customers and, therefore, are the primary engines of both new business and customer loyalty. Loan officers are also an MFI's single largest operating expense. For these reasons, the differences between the individual and group lending models will always affect the ROI from any MIS.
- **Process improvement.** The financial returns and other benefits of Mifos are not in any sense automatic. Deploying Mifos is not enough — an MFI must also take steps to integrate Mifos into its business operations and must exploit Mifos to advantage by making adjustments to its business goals and processes. Although Mifos can free loan officers from

reporting tasks, for example, this will not translate into a solid ROI unless the time saved is effectively converted into increased caseloads or an improvement in the quality of the loan portfolio (for example, by reducing arrears). Making that conversion might require adjustments in other processes or better training.

- **Data availability and accuracy.** The MFI's ability to provide relevant and accurate inputs to the ROI model

will directly affect the credibility of the study results. Sometimes, lacking an updated business plan, an MFI may be unable to provide the variables the model heavily relies on. As mentioned above, the model is very sensitive to growth variables, such as the number of clients, branches, and new products and the estimated increase in loan officer caseloads. In order to increase the model's reliability, these inputs should be validated by management and reviewed occasionally for their relevance.

CONCLUSION

Quantifying the value that an IT system could have for an organization is very challenging. But the objective analysis that ROI modeling brings to other business investment decisions can and should be applied to technology investments, which can help an MFI reach its social and financial goals as much as investing in a new market or product can. In fact, IT is one of the most important investments an MFI can make, because it can enable all the organization's other strategic investments to succeed.

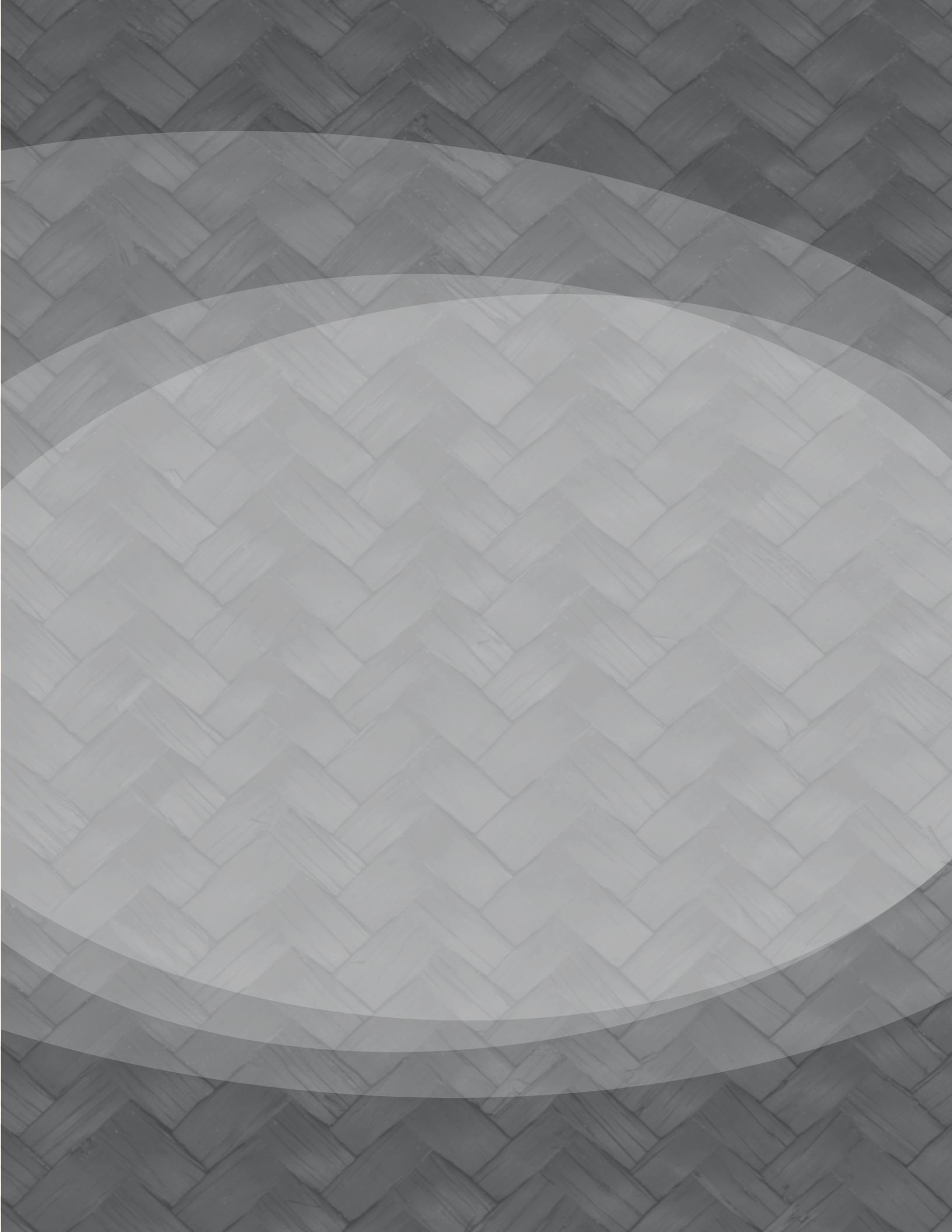
The ROI tool should not be treated as a fixed model. It should be used as a dynamic tool, one that is updated to reflect changing conditions. If new quantifiable benefits are recognized during the implementation of Mifos, the model should be revised to reflect them. Updating the model will ensure that the ROI model reflects real situations.

Some systems that may be considered "fundamental" to the core operations of an MFI, such as loan portfolio management and accounting systems, do not need to yield high returns in order to be justifiable. In order for an MFI to enable future growth, such core systems simply must be in place. Reliable MIS technology is an example of such a system. Therefore, while the ROI model provides an excellent quantitative view of the benefits that Mifos can return, the decision to deploy Mifos should not be based on the ROI model alone. A thorough analysis will also include an examination of the intangible benefits as well.

Lastly, it is worth remembering that the ROI model is a great learning tool for MFIs. Once the concept of ROI modeling is understood, it can be effectively used to evaluate and prioritize future IT initiatives as well.

See the ROI model next page.

<p>Return on Investment (ROI)</p>	<p>ROI is the ratio of money gained or lost on an investment relative to the amount of money invested. ROI is usually expressed as a percentage.</p> <p>As a general rule, the higher the ROI, the more desirable the project is.</p> <p>If an ROI is greater than 0, this means the investment returns more than it costs. However, the calculated ROI by itself says nothing about the likelihood that expected returns and costs will appear as predicted (does not measure risk). ROI simply shows how returns compare to costs if the action or investment brings the results hoped for.</p> <p>Simple ROI is computed as follows:</p> $\text{ROI (\%)} = \frac{\text{Total Project Revenues} - \text{Total Project Cost}}{\text{Total Project Cost}} \times 100$
<p>Payback Period</p>	<p>Payback period is the length of time it takes to recover funds invested in a project. It answers the question, "How long does it take for an investment to pay for itself?" In general, choose projects with the quickest payback (assuming all other factors are equal).</p>
<p>Present Value (PV)</p>	<p>PV is what future money is worth today. A series of cash inflows or outflows coming at different future times is called a cash flow stream. Each future cash flow has its own value today (its own PV). Present value is the value on a given date of a future payment or series of future payments, discounted to reflect the time value of money.</p> <p>Present value answers the question "What is \$1,000 that I receive in two years' time worth today?" PV is computed as:</p> $\text{PV} = \frac{\text{Future value}}{(1 + i)^n}$ <p>where:</p> <p>i = rate of inflation or interest rate of a competing investment (in the ROI model, the current average loan yield is used)</p> <p>n = the number of time periods the interest is paid (in the ROI model, the PV for 5 years is computed)</p>
<p>Net Present Value (NPV)</p>	<p>NPV is the value of the project in today's dollars. It is the sum of the present values (PVs) for the cash flow stream. In general, if the NPV > 0, the project is acceptable, otherwise the project may not be viable. In the ROI model, the NPV reflects the sum of the PVs from years 1 to 5.</p>





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