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CASE STUDY

Developing a Cost-Benefit Analysis Tool: Experiences and Lessons from Malawi and Mozambique

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Abstract

This case study shares the experience of Opportunity International in designing a cost-benefit analysis tool to evaluate and compare microfinance delivery channels. It chronicles the tool's design and analysis features, the challenges faced, and offers practical experience to other microfinance institutions (MFIs) looking to design similar tools.

About Opportunity International and its Partners

Opportunity International (www.opportunity.org) is a global network of regulated microfinance institutions and nongovernmental organizations (NGOs). It was founded in 1971 and now operates in 27 countries on four continents, serving over 1.6 million clients worldwide. Opportunity is a global leader in building and operating regulated microfinance banks in the developing world. It has nearly $600 million in assets serving poor families with microloans, savings, insurance, and training in Africa, Asia, Eastern Europe, and Latin America. Opportunity has financed more than 3 million micro and small businesses over the last 15 years.

Opportunity International Bank of Malawi (OIBM) opened its doors as a regulated commercial bank in 2003. In 2008, the bank had nearly 34,000 active loan clients and 195,000 depositors. Banco Oportunidade de Moçambique (BOM), a commercial microfinance bank, opened in 2005. In 2008, it had nearly 8,000 active loan clients and over 18,000 depositors. Both banks are majority-owned and managed by Opportunity International.

About SEEP

The SEEP Network (www.seepnetwork.org) is an association of over 70 international NGOs that support micro- and small enterprise development programs around the world. SEEP's mission is to connect microenterprise practitioners in a global learning community. SEEP brings members and other practitioners together in a peer learning environment to produce practical, innovative solutions to key challenges in the industry. SEEP then disseminates these solutions through training, publications, professional development, and technical assistance.

About the IGP Learning Network

The Implementation Grant Program (IGP) is a competitive grant program coordinated by the USAID Microenterprise Development office. The program serves as a key mechanism for supporting international and local providers of microfinance and value chain development efforts. The IGP is designed to push the frontier of innovation in microfinance and enterprise development and provide USAID missions and the development community with case studies of "good practice." Since the first IGP grants were awarded in 1995, many of these practices have been copied, expanded upon, and/or integrated by USAID Missions and practitioner organizations around the world.

The Financial Services (FS) IGP aims to expand access to microfinance services and increase the financial viability of local institutions. The FS IGP Learning Network, managed by SEEP, brought together the five grantees of the 2006 Financial Services IGP to document and share their experiences in learning products. These products are written by and for practitioners in the field of financial services. For other learning products in this series, please visit http://seepnetwork.org/Pages/FinServicesIGP.aspx.

Overview

Which microfinance delivery models are most cost-effective? How can microfinance institutions identify the best use of limited resources to get the greatest outreach and highest impact? How can an organization be sure that it is applying consistent, appropriate metrics across its delivery channels to evaluate organizational productivity and make sound investment decisions?

In 2006, Opportunity International (hereafter "Opportunity") was grappling with these questions. The MFI wanted to ensure greater outreach to rural poor, typically the most underserved population in developing countries. As a result, Opportunity wanted to know how its microfinance service delivery models varied in terms of cost, income, outreach, and transformational impact among the urban, peri-urban, and rural communities where it operates. Which model was the most effective at meeting Opportunity's mission to serve the poorest of the economically active and to reach out into rural areas? Which would be the better use of funding: opening a new urban branch, a peri-urban satellite center, or a rural-focused mobile branch?

The desire for reliable metrics to help answer such questions led Opportunity to create a cost-benefit analysis tool to assess the best channels for delivering financial services, particularly to rural clients. The first phase of the work was conducted at Opportunity's microfinance banks in Malawi and Mozambique. The initial assignment took place in November 2006, with a follow-up visit six months later to update figures and refine the tool.

The following case study shares Opportunity's experience designing the tool, the challenges faced, and results and analysis from the tool. It also offers practical experience to other MFIs looking to design similar tools for analysis.

Box 1. Delivery Channels

Full branches are non-urban outlets offering a full range of financial services, such as loans, deposits, insurance, and foreign exchange. They have 10 to 12 tellers, plus a branch manager and customer service manager. A full branch supports the operations of other, smaller branches.

Large urban branches are similar to full branches in size, product offerings, and support functions, but are located in urban areas.

Satellite branches have a smaller staff of about six tellers, one head teller, and a customer service manager. They offer only deposits and microloans. Satellites are located in peri-urban and rural areas and are becoming the agricultural hub of bank operations.

Kiosks are even smaller units, usually staffed by three people, and are used for loans and deposit-taking. Some kiosks have a large client base as a result of their strategic location near major markets.

Mobile branches are specially equipped vans or trucks that travel on a circuit within 120 kilometers of a central operating point to bring financial services, such as loans and deposits, to rural areas. The sustained success of some mobile village stops has led Opportunity banks to establish satellite branches in those areas and move the mobile to new locations, thus further extending rural outreach.

Tool Development

Cost-benefit analysis helps managers and other decision makers understand the cost and expected returns (in monetary terms) of a given decision. It can help them decide whether or not to undertake a proposed activity, or choose between different alternatives.[1] Cost-benefit analysis tools make this analysis easier and more straightforward, for example, by graphing different alternatives or presenting data for comparison. `

Opportunity's goal is to provide the rural and peri-urban poor with access to financial services. The organization uses different delivery channels—such as satellite and mobile branches—to achieve this goal. The cost-benefit analysis tool was therefore created to help decision-makers at Opportunity identify the most effective and cost-efficient ways of spending its resources to facilitate outreach to the poor.

1. WordNet Search – 3.0, Princeton University, http://wordnetweb.princeton.edu/perl/webwn?s=cost-benefit+analysis&sub=Search+WordNet&o2=&o0=1&o7=&o5=&o1=1&o6=&o4=&o3=&h=, (accessed August 2009).

The first version of the tool was developed by two senior staff members from Opportunity, one with considerable experience in Excel-based financial modeling and the other with in-depth understanding of bank operational issues. Combining these two skill sets was helpful in identifying data needs and defining terms, determining what information would be useful for managerial decision making, and constructing a good working model that offered meaningful outputs.

The developers spent approximately one week each in Malawi and Mozambique gathering data and designing the tool, and then several days refining it. Opportunity chose to launch the cost-benefit analysis tool with Opportunity International Bank of Malawi (OIBM) and Banco Oportunidade de Moçambique (BOM) due to their geographic proximity to one another, the maturity of Opportunity's business in these countries, and the mix of rural and urban clients at both banks. While in-country, the developers discussed management reporting needs with local bank staff to find out what kind of information the tool should provide. Bank managers were later given opportunity to work with the tool and give feedback and suggestions for improvements.

The initial fieldwork was invaluable for getting an understanding of what would be useful to the banks and, equally important, what input data was readily available. The development process was vital not only in producing the tool itself, but also in revealing some of the weaknesses and strengths of existing bank systems and reporting practices.

Guiding Principles for the Tool

Opportunity had several key objectives for the tool, which guided development:

Practicality. Opportunity wanted to be sure that this was not just an academic exercise, but that the tool added value to the banks using it and provided useful information to guide business decisions. The banks were already doing some of this type of analysis, but the cost-benefit study was intended to take it to a new level by developing a more comprehensive, standardized tool.

Measuring impact. Although Opportunity is concerned with client transformational and non-financial impacts, the developers decided not to incorporate impact assessment into this tool. To keep cost-benefit analysis straightforward, "benefit" was assessed in purely financial and outreach terms. (Opportunity has developed separate survey mechanisms to measure the transformational and non-financial impacts on clients.)

Ease of use. In order to minimize the time and effort required to use the tool, the development team looked at information already available at the banks, to make sure that no major adjustments would be needed to acquire input data. Fortunately, each distribution channel had already been set up as its own cost center. This made it easy to break down cost data by delivery channel.

Box 2. Data Inputs to the Cost-benefit Tool

Financial Income
Head office expenses
Interest on loans
Charges and fees (loans)
Charges on accounts
Income on deposits and investments
Total Financial Income
(Less interest expense)
(Less provision for bad & doubtful debts)
Net Financial Margin
Other income
Total income
Operating Expenses
Personnel expenses
Administrative expenses
Depreciation expense
HQ expense allocation (by # staff members)
Total Expenses
Total Net Gain / Loss
Other Indicators
Total assets
Current liabilities
Total staff
Number of loan clients – (all loans)
Loan portfolio – (all loans)
Number of savers
Amount of client deposits
Total number of clients
Total number of client transactions

The initial tool was a collection of linked Excel spreadsheets. The graphs it generated were clear and easy to understand, but the input side of the first version was too complicated for a new user. This did not fit with Opportunity's goal of creating a tool that its partner banks could use without assistance, so the developers knew they would have to simplify and make it more user-friendly.

Comparative analysis. One decision the developers faced was whether to analyze delivery channels individually (for example, Satellite Branch A compared to Satellite Branch B, and so on) or by category (all satellite branches together, compared to all mobile branches together). Although Opportunity had tracked data for each individual delivery channel (for example, each urban branch had its own unique data set), the outputs were grouped by generic type of delivery channel.

Thus, all satellite centers were looked at together, as were all rural branches. This provided a more useful way to look at the data and helped Opportunity to analyze data at an aggregate level, allowing the microfinance banks to compare different *kinds* of delivery channels.

Box 3. Key Ratios and Indicators Produced by the Tool

Opportunity International selected 12 ratios and indicators as the most important for evaluating the profitability and productivity of different delivery channels:

- Net income
- Cumulative net income
- Profitability
- Cumulative profitability
- Return on assets
- Return on capital employed
- Net income per active client
- Net income per transaction
- Net income per staff member
- Operating cost per active client
- Operating cost per transaction
- Operating cost per staff member

The team also needed to decide what kind of information would be most useful for the tool to generate, bearing in mind that the goal was to produce reports that would help guide management decision-making. The team worked backward: first figuring out the desired outputs, and then identifying which inputs would be necessary to generate that information.

The outputs that the team selected included both financial and non-accounting ratios, the latter related to staff, clients, and transaction numbers. These ratios are provided in box 3. The analysis required 14 financial inputs, to which 5 pieces of portfolio data were added, as listed in box 2. Two other crucial inputs were also included: the number of client transactions processed per delivery channel and the number of staff employed at each outlet.

Supplementary guidebook. The team working on the initial version of the tool realized that a written guide to the tool would add value. They therefore produced a guidebook with geographic and demographic information, as well as business strategy and business models, and a glossary of terms. Opportunity also added brief descriptions of locations that the banks served and the products offered. This 15-page booklet was designed primarily for "out-of–country" staff, such as regional and international managers. The guide has been well received by analysts, who find it useful for quick general reference.

Challenges in Developing the Cost-benefit Tool

The development team faced a number of challenges as they were creating the cost-benefit analysis tool. These challenges included solving problems of data availability, figuring out how to allocate costs, and comparing urban and rural delivery channels, among others. Often there was no clear-cut basis on which to make decisions, so the team had to use experience and best judgment to resolve these issues. Some of the most significant challenges and subsequent decisions are highlighted below:

1. **Geographic classification.** Opportunity wanted to compare delivery channels for urban, peri-urban, and rural areas. Therefore each channel had to be assessed as either urban, rural, or peri-urban, based on its predominant

geographic outreach. However, the development team observed that some outlets served both urban and rural clients, making each designation a judgment call based on the best understanding of typical client characteristics.

Decision: The team decided that, while some outlets were situated in what at first sight were urban locations, their lending business primarily took place away from the branches in more rural locations. Also, the urban core of these communities was generally small, with many clients traveling regularly from rural areas into the town center to trade. These observations led to the decision to designate certain seemingly urban channels as rural, based on their predominantly rural clientele. This took analysis and a deeper understanding of each outlet's clientele and businesses.

2. **Transfer pricing.** In the process of discussing the tool with bank management, the developers learned that the banks had not established a consistent approach to transfer pricing among their various business units. Transfer pricing is an internal mechanism that, in effect, shows the credit business "buying" the balances from the deposit-taking business. On a consolidated account these figures cancel each other out, but transfer prices can give financial recognition to outlets with a strong deposit base.

   To some degree, these figures are based on judgment: for example, a bank might weight the transfer price for deposits more heavily if management believed that savings had particular empowerment or transformational value for clients. There is a maxim in microfinance that rural savers finance urban borrowers. Without debating this point fully here, ignoring transfer prices fails to reward the successful deposit-taking outlet that incurs the high cost of gathering deposits without reaping a compensatory return on its credit portfolio.

Decision: The development team discussed the value of a consistent transfer pricing policy with local bank managers, who agreed to review their approach to this issue. Because a policy was not in place at this point, transfer pricing was not incorporated in the first version of the tool, but is planned for future versions.

3. **Interlinked channels.** Looking at delivery channels by type (e.g., full branch, satellite, mobile branch, etc.) does not take into account the fact that, by definition, a satellite branch is necessarily linked to a hub branch, and a mobile branch is attached to a base branch. In other words, none of the channels work in isolation, but are interlinked with one another in terms of support provided and resources shared. It is difficult to disaggregate these factors, which obscures individual channel data somewhat.

Decision: Opportunity and local bank staff understand the limitations of the data and the interconnected nature of the channels. They recognize that, while the tool provides valuable information, conclusions should be tempered by awareness that support and resource interdependencies affect the results.

4. **Allocation of staff and management costs.** At first glance, the smaller outlets, such as kiosks and satellite branches, appeared to be very successful based on their performance ratios and key indicators. This is partly because these outlets tend to have fewer and relatively lower-paid staff, compared to other channels. Staff normally form the major expense of any outlet, representing perhaps 80 percent of total costs. Furthermore, head office expenses are allocated to outlets based on the number of staff they have, which does not necessarily account for all the supervisory attention given to any particular branch. The development team also observed that senior management tended to dedicate more time to innovative channels such as mobile branches, because new ventures generally require greater attention and are often more exciting. This posed the question of how the tool could ensure that management costs were properly reflected.

Decision: After some deliberation, the team concluded that, despite its limitations, the simplest and most straightforward way to allocate management costs would be on a "per staff" basis. The "extra" interest of senior management in innovative channels has not been reflected in the tool and would be very hard to quantify. It should be noted, however, that innovative channels may have higher management costs than the model is currently able to account for.

5. **Management information system (MIS) configuration for data retrieval.** The banks' MIS was not configured to provide all the required information easily, especially the non-accounting data. One example is the number of client transactions per delivery channel, which had a large manual element to the data gathering. Opportunity views the number of transactions as a key supplement to the outreach figures and of huge value when comparing the different behaviors of rural and urban clients. Extrapolating this information on to cost per transaction and transactions processed per staff member deepens insight into outreach and consumer behavior and needs.

Decision: For the first version of the tool, the developers determined that it would be too difficult and costly to reconfigure the MIS. Fortunately, most of the required information was accounting data that could be easily retrieved from the system. The manual component of organizing the non-accounting data was not ideal, but still workable. Their recommendation was to build in these new data retrieval needs during major upgrades, or when an MIS was installed for new MFIs.

6. **Allocation of start-up costs.** The initial version of the tool omitted the total investment made from the outset of each outlet and the source of funds. This means that the tool's analysis does not reflect full costing, which hampers comparisons between different types of outlets.

Decision: In the next revision of the tool, total investment costs will be added to the financial information. The tool's narrative report will also list the source of funding and initial investment, while ensuring that donor information is handled with discretion.

7. **Mobile branch flexibility**. Mobile branches can stop at different locations, alter routes, and change the days of their visits, which makes them harder to analyze. The exceptional benefit offered by this channel is its flexibility, but ironically this poses a challenge when assessing performance. The banks also operate more than one type of van, which further complicates the issue.

Decision: The team decided that, given the mandate for user-friendliness, it would be unduly complicated to account for mobile branch schedule changes and route alterations. The data is tracked on a monthly basis, so management can account for extraordinary events and ensuing variances in the accompanying narrative. In addition, the team ascertained that managers wanted to know the difference in outcomes between a van and a satellite branch, not the difference between different kinds of vans. Opportunity therefore decided to simplify and focus on the most essential management information, treating all vans as one kind of channel.

Left, OIBM's mobile branch visits a rural village. Right, a newly-opened kiosk in one of the most undeveloped areas in Malawi. Strong response to a mobile branch can lead to the establishment of a satellite branch or kiosk. (Photos: Opportunity International.)

8. **Accounting for different product mixes.** Although not the case when the tool was initially developed, in the future, different branches might have different product mixes, which could affect profitability measures. Opportunity will shortly face this issue as it moves into newer product offerings, including education and agricultural lending.

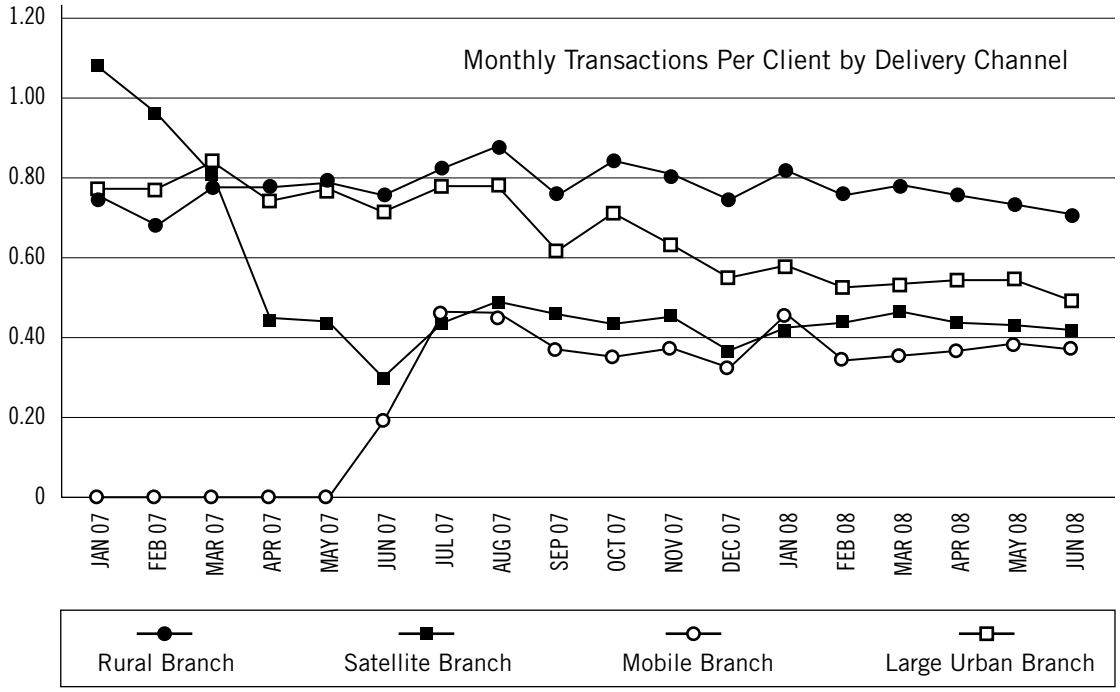
Decision: The cost-benefit tool does not, in its present iteration, break down income by product. As Opportunity's businesses grow in complexity, the organization will need to weigh the benefits of the current, relatively simple version of the tool versus the cost of more complicated data input in order to gain additional benefits from showing products individually.

Displaying the Data: Analysis Charts

The cost-benefit tool provides particular value by producing charts to examine trends and compare delivery channels. The charts offer a graphic view of key indicators for different delivery channels over time and are drawn both by calendar month and by the number of months in operation. Historical data was not always available for the second category, resulting in gaps in some charts.

Analysis by calendar month offers the value of revealing seasonal trends. However, analysis on calendar month basis fails to recognize the maturity of any given delivery channel, which can distort results. This occurs because one delivery channel may include both "mature" outlets (e.g., mobile branch vans that have been in operation for six months or more with an established client base) and "brand-new" outlets (e.g., a van that just began operating and acquiring clients). To compensate for this factor, the tool also produces charts by month of operation or "age," which isolates and tracks channel results based on maturity. The ability to analyze trends on the basis of both calendar month and month of operation allows managers to make better forecasts of customer behavior, resource needs, and profitability.

Figure 1. Example of a graph generated by cost-benefit tool



The charts showing trends by month of operation revealed some interesting patterns. For example, the graphs displayed huge peaks and troughs during the first few months of a new channel, when business was "settling down." This distorted the scale of the charts, because the large variances in the early months made smaller, more normal—but still important—movements in later months look unimportant by comparison. The team also noticed that trends established by around the 24th month seemed to stabilize. In order not to overwhelm the viewer with unimportant data, the developers therefore decided to drop the first two months (to exclude the large swings) and display information from the 3rd until the 24th month of operation.

Although preselected charts are the easiest and fastest way to display several variables, the Opportunity team also wanted bank managers to be able to get more detail on areas of particular interest. A future version of the tool is planned to have a "free format" section where managers can choose the information they wish to view.

Observations on Analysis Results

The cost-benefit tool is still being refined with respect to its structure and data gathering. Nonetheless, the early results already provide some fruitful information for management. While results may be different for different MFIs, the findings for the Opportunity banks included:

- The full branch, large urban branch, and mobile branch channels are converging in their performance on operating cost ratios, while the satellite branch appears to be less cost-efficient. However, there was only one satellite branch when the tool was launched. The limited data available for this channel means that management needs to investigate whether the apparent lack of efficiency is inherent in satellites across the board, or whether this particular outlet has organizational issues that can be corrected, leading to improved results.
- Return on capital is lower on the more substantial (and therefore more expensive) branch buildings than on the cheaper satellite structure. The highest return on capital was earned by the mobile units. This may be because these units visit various communities during the week. The arrival of a van is a big event in a community and, since a van can move from place to place, it suffers less than fixed branches from lulls in business.

- Analysis of monthly transactions per client per channel shows that rural branches have the highest per client use, while transactions per client are significantly lower in satellite and urban branches. (It could be valuable for the banks to investigate the reasons for this difference in client behavior.) Interestingly, all the different channels track each other with respect to seasonal fluctuations in client transaction activity. This information has helped the CEO of OIBM, for example, to determine staff composition for each outlet and manage for periods of high and low activity, based on the seasonal patterns shown.

Initial observations from the tool have started to inform Opportunity's strategic thinking on how best to achieve large outreach and scale. One promising approach appears to be developing many small-scale units in a geographic region, supported by a larger, centrally located hub branch. In addition, the tool can help improve operations by, for example, identifying lower-performing outlets. Management can then research the reasons for the lower performance—which could relate to issues such as staff training, location, product offerings, etc.—and take appropriate measures to improve outlet productivity.

Box 4. Graphs and Ratios

The cost-benefit analysis tool is flexible enough to display many different combinations of data in graph form. Some of the graphs that managers can display include:

- ✓ Return on assets, by delivery channel per month
- ✓ Net income per staff member, by delivery channel per month
- ✓ Operating cost per active client, by delivery channel per month
- ✓ Monthly transactions per client, by delivery channel per month
- ✓ …and more!

Bank managers have found the first version of the tool to be useful for tracking branch performance and helping with decisions such as staffing requirements and where to locate new outlets. One additional piece of information that managers have requested is to add calculations for break-even revenues for each channel. The next step for Opportunity will be to incorporate these requests with the improvements that are outlined in the following section.

Potential Tool Upgrades

Opportunity is currently planning a number of upgrades that will improve the value that the tool delivers to its banks. MFIs considering upgrading their own cost-benefit analysis tools, or that have the time and resources to develop a more sophisticated tool from the start, may wish to consider the following:

User-friendly design improvements. Opportunity plans to have an information technology (IT) specialist adapt the tool to make it easier to update and allow users to add analysis of variables of special interest to them. The specialist will also improve the visual display by hiding tool workings "behind the scenes." These changes will make the tool look less daunting and be more user friendly.

MIS data capture. The development team is actively discussing the production of certain reports with Opportunity's MIS experts, so that valuable data is in the future captured by the computer and easily accessible in a convenient format. A number of Opportunity's banks are in the process of upgrading their portfolio management systems, during which time they may introduce changes that accommodate the tool's information needs.

Stakeholder input. The developers of the first version of the tool focused on quick and inexpensive implementation. However, this involved a tradeoff with extensive stakeholder involvement. For future versions, stakeholders—including microfinance bank managers, branch managers, country and regional directors, and Opportunity global management—are being consulted at each stage, to ensure that the next version of the cost-benefit analysis tool meets as many needs and is as useful as possible.

Recommendations for Other MFIs

For other MFIs or microfinance banks considering setting up their own cost-benefit analysis tools, Opportunity recommends the following:

1. **Establish separate cost centers.** From the very start of operations, establish all delivery channels as separate cost centers. This will make it easier to analyze different delivery channels when a cost-benefit tool is eventually implemented. If operations have already begun and delivery channels are not set up as separate cost centers, make this adjustment as soon as possible, and understand that analysis can only start from that point.
2. **Integrate the tool with MIS.** Invest time setting up the MIS to make sure that it captures all factors that management might wish to analyze or compare (for example, number of transactions, total cost, number of clients, number of staff, etc.). If the MIS is already established and the MFI is not considering reconfiguring it (an expensive and time-consuming process), then limit the cost-benefit analysis tool as much as possible to only those ratios and indicators that can be calculated from data that the MIS is already capturing.
3. **Address transfer pricing.** MFIs and banks that mobilize deposits will need to decide on an approach to transfer pricing and build this into management accounting. This will result in more accurate comparison between outlets that tend to have more credit business and outlets that capture large amounts of deposits.
4. **Account for the cost of management time.** Be aware of the often hidden amount (and hence cost) of management time devoted to the supervision of remote outlets and development of innovative delivery channels. Identify a consistent and accurate way to quantify, or at least estimate, these costs. If this is not possible, understand the limitations of the tool and the fact that new, smaller or satellite outlets will look artificially "cheap" from an operating cost standpoint and therefore will appear to have a higher operating efficiency ratio than is really the case. Be sure to note these factors in any accompanying explanatory narrative.
5. **Use both calendar month and month of operation as bases for trend analysis.** Recognize the benefits and limitations of analysis by calendar month and by "age" or number of months of operation, and build both approaches into the charts that your tool generates. Remember that analysis by calendar month is useful for showing seasonal trends, but does not take differences in channel maturity into account. The latter approach helps you to understand and forecast financial returns and customer behavior patterns over time after a new channel is established. Both approaches can provide valuable information for planning and resource deployment.

Conclusion

Developing the cost-benefit analysis tool turned out to be beneficial in both intended and unexpected ways. As Opportunity had planned, the tool helped bring to light issues such as return on investment and client transaction patterns, and aided new investment decisions based on that information. It also had the unintended beneficial consequence of revealing valuable policy issues and needs, such as the need to set a consistent transfer pricing policy for better comparability among channels. Despite the limitations of the first version of the tool, the information it provided showed that the cost of investing in this type of analytical instrument can yield significant benefit in helping an MFI to achieve its mission through more efficient use of its resources.