Recital analysis of management information system of selected Indian microfinance institutions

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Abstract

Management Information System (MIS) lays a strong foundation on which any institution dealing with finance as a department relies on. Expansion of business, serving their existing client base, adding new customers to their family and to generate an aura of competition amongst the market are some of the key reasons firms across globe are using MIS systems. Microfinance sector needs MIS for gearing up economic stability, increasing performances and manage flow of funds because a high outflow of funds might fluctuate the economics of loan disbursement. This research paper focuses on the current structure of MIS systems in Micro finance sector and research on the existing scenario of competition with respect to various vendors offering similar services. The findings of the research indicate that currently there is diversity in the services and packages offered by vendors and there is a need to build up common software for all the microfinance institutions to bring in uniformity.

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1. Introduction

Microfinance services as defined by Microfinance Services Regulation Bill “providing financial assistance to an individual or an eligible client, either directly or through a group mechanism” The importance of this sector can be judged by the fact that this basket has people winning Nobel Prize. With the tremendous amount of efforts laid by Prof. Yunus in Bangladesh, South Asia became a hub for research and advancements in microfinance. Studies have
depicted that there are more than 12,000 microfinance institutions having close to 700 million active borrowers. There are still over 5 billion in the unbanked sector which thereby forms a huge chunk of people.

When compared to banks it is seen that because of high transaction of money by a large number of people the overall operations costs come down. (Ashta, 2009) Bankers were unable to offer loans with low amount and a relatively high operations cost to the people. The issues further piled up when the problem of fulfilling Know your customer (KYC) norms were not fulfilled. The customers under this head were mostly new to this system of saving money or getting a loan from a certified institution. Absence of proper information, credit history and lack of collateral became the dependent variables for increased risk. Lending at higher rates was the only option to solve this problem for which group lending was a probable solution. This idea of group lending led to weekly repayments of amounts to have a uniform track of payments (Yunus, 2003). Various models were formed with the idea revolving around group lending by various firms like BRAC, Accion, and FINCA etc.

Once the models were made many third party products were also introduced to the poor out of which insurance is one of the most successful of all. Many MFI are converting themselves into banks or finding loopholes to be able to accept deposits either from public or through clients/borrowers (Ashta, 2010). Out of the existing MFIs, less than 200 are profitable (Ashta, 2010). The transaction size of the loan is small which thereby decreases the profit margin of these MFI’s (Rosenberg et all, 2009). Technology will have to play a major role in solving this problem. Although innovation has kick started the thoughts of existing players to enter microfinance yet this research focuses on how a sector of technology can play a vital role in changing the face of microfinance in any country.

2. Review of Literature

Management Information System (MIS) is one of the key to any organization. Once any organization has laid its principles, values and has defined how are they looking forward to gain profit, MIS systems becomes an integral part of the decision making process. For any strategic decisions to be made by the firm, MIS are always referred (Edstrom, 1973). MIS therefore is a tool which can shape any raw values into meaningful and readily used data. Earlier studies show that a better and efficient implementation of MIS leads to low risk levels and better decisions. (Baura et al.,1991). Information Technology as a sector whether outsourced or developed in house is a necessity for modern era and is required for the success of any institution (Clemons & Row, 1991).

Recent studies in Microfinance sector indicate that in order to implement a better, efficient MIS in microfinance arena, we need to understand the basic requirements of the sector. In addition to the basic requirements previous researches (Iyenger et all, 2010) has also shown that IT support and Standardization are equally important if microfinance models have to compete with the existing models of bank. Due to lack of proper legal documents and laws in place, financial institutions are not categorized. This has also led to downscaling of banks. Banks have even opened subsidiaries to take care of microfinance and generate profits keeping them under the tag of Non Profit organizations (Iyenger et all, 2010). As microfinance deals with below poverty line people, capturing data through business correspondents (BC’s) and Business Facilitators (BF’s) are difficult. Census database depicts that India with a literacy rate of approx. 74% has its 80% illiterate population in the villages falls below poverty line bracket. Thus, centralization in MF is not linked to become conservative (Tavakolian, 1989) but due to a major part of illiterate decentralized users. Secondly, the problem of infrastructure in rural areas is also a major area of concern. Any MFI which sets up a centre in these areas face problems of infrastructure support from the neighboring area and this in turn kills the motivation of doing business and surviving there(Iyenger et al., 2010).

Thirdly a dedicated IT support and a proper structure for disbursement of loans and recovery thereafter are also important. Recovery seems to a major issue for any MFI.

3. Objectives

The above issues reflect that there is a scope of various questions related to MFI and implementation of MIS in MFIs. This research paper aims at:

- To understand the state of Management Information System used by MFI
- To study the diversified software support and its linkage to specificities of Microfinance market.
- To study the relationship between the drivers of MIS used by MFI
The latter question is a part of Shared Information System (Barret & Konsynski, 1982) where a high quality MIS is shared by various organizations depending on their usage. Thus the cost can be saved and eventually distributed amongst all the end users, thereby reducing the operations cost for MFI.

4. Theoretical Framework

The comparison of the software will therefore bring out the complicated diversity of the Microfinance Market as well as the wide variety of the software in the market to address this diversity. The comparison will not help in choosing any particular software, because after understanding the diversity and the segmentation, this would be the next step: which particular software to choose among the ones competing for that niche.

A second area of research will highlighted earlier is to establish whether some microfinance global networks use the same software and whether the software is controlled by the microfinance institution, such as the control of Mifos by Grameen. The answer is not obvious because recently one large microfinance agency decided that it should not be in the software business because the software industry was very different from the Microfinance sector.

This paper could help the research go more into the details of the Software as A Service Offering which seems to be an answer to the needs of the sector. If this is so, why are the other software’s doing as well? Can the services be outsourced to a third party software company so that experts can tackle the problem of maintaining standards across MFIs?

5. Research Methodology

The research methodology starts from database from CGAP (Consultative Group to Assist the Poor) which gives reviews on the software used by MFI to manage their information systems. More than 100 softwares have been reviewed by the organization across various geographical boundaries. Our research is based on South Asian Microfinance organizations i.e. from countries like India, Bangladesh, Sri Lanka etc. and thus the target technology providers boil down our number to 24. We have taken 25% of the service providers as our sample size, therefore 6 technology partners are used for our research.

A brief description of software and its manufacturer is provided in Table 1. The software release dates indicate that some of them have been in the market for more than 5 years while others are relatively new to this arena of competition. The first column denotes the currently used version of the software in the market by the provider and therefore it also signifies the need for updates in the current version. Management Information Systems are directly proportional to organizational growth, thus advancements and changes in software systems would definitely be values add for any MFI. (Brancheau et al., 1996) denotes that a responsive IT is one of the major concerns of managers.

| Product Name                                      | Parent Company                                      | Latest Version |
|---------------------------------------------------|-----------------------------------------------------|----------------|
| Matrix                                            | Elitser IT solutions India Pvt Ltd                  | 2.01           |
| MF Resolve                                        | Grandatim IT Ventures                               | 1.12           |
| Omni Enterprise Microfinance Solution             | Infrasoft Technologies Limited                      | 3.01           |
| Delphix                                           | Sathguru Management Consultants Pvt Ltd / Basics Limited | 7             |
| MFASYS (Mobile Enabled Micro Finance Accounting System) | Snowwood Infocom Technologies Pvt Ltd               | 3.0            |
| Southtech Ascend Banking                          | Southtech Ltd.                                     | 5.0            |

Some of the major areas where MIS systems are practically useful are customer relationship management (CRM), shares management, tracking loan and deposits, Payroll etc. Table 2 signifies that almost all perform the basic functions like Accounting, CRM, Tracking loans and deposits. Payroll is one of the neglected areas which often technology providers miss out. Checking out their support in different regions, English is found to be used as a
global language for interaction, while a few of them even used French and Spanish to cater their clients across other countries as well. Research also found that every technology partner has a different area of building clients i.e. some of them have for-profit organizations as their client base while others have non-profit organizations as their client base. The pattern of lending can also be traced and can be sub divided into individual lending and group lending.

| Product Name | Language used | Features in Latest Version |
|--------------|---------------|----------------------------|
| Matrix       | English, Hindi and Indonesian apart from languages of India and Indonesia | deposits, loans, customer management, and accounting |
| MF Resolve   | English       | Deposits, loans, customer management, and accounting and reporting |
| Omni Enterprise Microfinance Solution | Arabic, English, Spanish | Group and individual loans, savings, guarantees, insurance fund, and transfers. Transaction and accounting management |
| Delphix      | English       | Loans and savings/deposits products, check book and cards payment, budget, payroll, assets, and cost management |
| MFASYS (Mobile Enabled Micro Finance Accounting System) | English, French, Portuguese, Spanish | Loans, savings and linked insurance accounts management for Individual Lending, Self Help (Solidarity) Group and Joint Liability Group models, HR and Payroll modules |
| Southtech Ascend Banking | English | Multi-currency accounting, Teller and cheque management, Customization of loans/advances and savings/deposits products |

Table 3 indicates the outreach of each technology. The customer base is not very high for any of the technology providers. Globalization has not occurred much for them. It is evident from table 3 that they neither made a high impact in their respective country and nor have they tried to have a global presence.

One hypothesis which may explain global strategies of some software manufactures and which may influence customer adoption of the software is that other similar companies, belonging to the same MFI network, across the world are using the same software (Ashta, 2011). Thus if in some country a model is being replicated, a similar software or the exact software vendor should be used in order to ease up things but it’s not happening. This in turn give chances for new software developer to even replicate the existing model with little bit alterations to suit the needs to this tailor made model from the already existing one.

| Product Name | Total number of clients | Number of technical staff | Location of technical support | Variety of zones where they have presence |
|--------------|-------------------------|---------------------------|------------------------------|-----------------------------------------|
| Matrix       | 18                      | 6                         | 3                            | 2                                       |
| MF Resolve   | 7                       | 3                         | 1                            | 1                                       |
| Omni Enterprise Microfinance Solution | 26         | 10                        | 6                            | 4                                       |
| Delphix      | 3                       | NA                        | 1                            | 1                                       |
| MFASYS (Mobile Enabled Micro Finance Accounting System) | 6 | NA                        | 3                            | 1                                       |
| Southtech Ascend Banking | 9 | 11                        | 4                            | 2                                       |

The next important thing to be discussed is the pricing information. As we know pricing is one area which
leads to charging of high interest rates by MFIs. The findings from the research reveals that there is a variation in the aggregate fees accumulated from various divisions viz licensing fees, maintenance fees, general consulting fees and training fees. Maintenance cost is basically a percentage of licensing cost and its expressed in terms of dollars when licensing costs is negligible which happens for fresh and relatively new technology partners. MOSTFIT is an exception in the entire study. The data in Table 4 for the same reveal that 10 cents per borrower becomes 1000 dollars for 10,000 borrowers. Its general consulting fees is relatively higher when compared to others who offer same services at $1-2 per day.

| Product Name                           | Minimum Licensing Cost                                                                 | Annual Maintenance Cost | Implementation cost                                                                 | Training Cost ( per day)                                                        |
|----------------------------------------|----------------------------------------------------------------------------------------|--------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| Matrix                                 | USD 2291 per license (discount per number and volume of customers) with 15% annual maintenance | Variable                 | Not disclosed                                                                       | 2 weeks of user training, 2 weeks of system administrator training             |
| MF Resolve                             | $20,000 for every headquarter, $500 for every additional branch up to 10 branches, $0.5 for every additional customer | 15% per year             | 10%-20%                                                                            | Included in implementation fee                                                  |
| Omni Enterprise Microfinance Solution  | Standard license price is between $70,000 and $250,000 and depends upon factors such as size, country PPI, and usage model | 20% for purchased license volume. Cost of programming varies from $250 to $750 per day depending upon the countries PPI | Implementation cost varies from 45% to 85% of license cost and depends upon complexity and country PPI | Cost is included in the implementation budget                                    |
| Delphix                                | Delphix core module: $1,300 / user (up to 25 Users); Special pricing if more than 25 users. Per additional module: $200 / user Oracle Database: from $2,000 to $7,000 $43,500, for large customers $550 per branch $0.022 per active client per month (no active customers yet) $20,000 per additional module Client specific customization is charged at $15 per man hour | 18% of the total license cost | Not exceeding 25% of the total license cost | $300 / day (2 weeks required for users, and 2-3 days for system administrator) |
| MFASYS (Mobile Enabled Microfinance Accounting System) | Installation including simple software license per year 15% of application software license per year | Installation including simple migration is done free of charge, while more complex data migration is charged for at $15 per man hour. | $12 per hour per technician. Typically totals $720 based on 3 trainers for 2 days, 10 hours each. Onsite user training of users in English and local language is provided | $8,000 for two week training session for users (average of 15 users) $4,000 for one week system admin training session (average of 4 users) |

Looking at Table 5 we cannot compare the pricing strategies to judge which software is doing well and which is underperforming. Also, every software might be made with different kind of customers or clients is mind thus the pricing strategies are bound to vary due to different technology and different features imparted by the same.
Table 5: Variability of cost for Sample Products

| Product Name                  | Cost for 15,000 clients | Cost for 40,000 clients | Cost for 100,000 clients |
|------------------------------|-------------------------|-------------------------|--------------------------|
| Matrix                       | NA                      | NA                      | NA                       |
| MF Resolve                   | $44,250                 | $44,250                 | $46,250                  |
| Omni Enterprise Microfinance Solution | $112,000               | $212,000               | $312,000                 |
| Delphi                       | Not disclosed           | Not disclosed           | $74,720                  |
| MFASYS (Mobile Enabled Micro Finance Accounting System) | $29,820                | $74,220                | $146,220                 |
| Southtech Ascend Banking     | $194,000                | $251,000                | $483,000                 |

6. Results and Discussion

Using the above data for our sample of six software packages, we calculated for correlation coefficients and tested for significance. These are presented in a correlation matrix in Appendix. To understand this, a few adjustments have to be kept in mind. The years in use to date is calculated based on the release date till 2010. For number of languages, two softwares are multilingual Unicode and we have taken a figure of 100. A lower number does not make any material difference to correlation coefficients as long as it is above 4 (the highest number of languages in our sample).

For the size of institutions served, the data used is essentially the number of segments that the institution is serving out of the four ranges that CGAP has defined. This is our measure of scalability. If an MIS is capable of serving only the small segment, it is not considered as scalable. For location of clients and for location of technical staff, we have used the number of zones in which the clients and technical staff are present, respectively. Therefore, a high number would indicate that all six zones are being served and a low number would indicate that only one zone is being served. The same zones are used for the presence of technical experts. The comments are restricted on the significant relationships only, unless the lack of significance is important. The level of significance on every aspect is mentioned clearly from the Appendix 1. The first column indicates that the number of years of presence has a strong negative correlation to the number of loan options allowed (individual lending, group lending and village banking). Thus, a hypothesis could be that older software manufacturers offered only individual lending and that more recent ones have had to offer more lending methodology options such as the group lending/village banking feature to get into un-served niches.

The second column indicates a high positive correlation between the number of applications and the number of technical staff. However, the correlations could be both ways. More technical staff are needed if the product is more complex. At the same time, more technical staff may allow offering more applications within the product because the technical staff could resolve customers’ problems and ensure client satisfaction. Thus, software manufacturers who do not want to engage technical staff would offer fewer applications with more reliability to avoid client dissatisfaction. The third column indicates that the number of languages offered is inversely related to the number of clients. This near perfect inverse correlation is affected by the multilingual Unicode function. It may mean that manufacturers with few customers are looking for customers in other languages. The fact that this column is inversely related to the number of zones in which technical staff is located seems to be prima facie strange. However, if one keeps in mind that the multi-lingual operators are present in the Indian sub-continental, it becomes evident that the Unicode offering is to take account of the multiplicity of local languages.

The types of institutions being served seems to be unrelated significantly to any other factor analyzed here. This is an important finding because it goes against the first specificity mentioned by (Iyengar et al., 2010) that sector specific mutations between for-profits and not-for profits and banks and NGOs complicate the MIS market. We do not find support for this proposition based on our analysis. However, the fact those CGAP reviewers considered it important enough to report reflects that industry observer’s support the (Iyengar et al, 2010) view.

The number of customers for the software and number of customers for this particular product version are perfectly correlated and, therefore, the other variables are all correlated to similar extent to these two variables. So, one set of comments for the two columns would be sufficient. We can see that number of clients is very highly positively correlated with number of zones in which clients are located, number of zones in which technical staff are located and, curiously, with prices for the segment served (in number of clients). A possible explanation to account for all of this could be that software manufacturers are looking for worldwide markets to get economies of scale
rather than searching for intensive capturing of a local market. For this, they are offering technical services in more countries. Perhaps, the offering of technical support in more countries, is driving up costs and, therefore, prices. Clients, however, are willing to pay the higher prices because they are reassured that it is a globally desired solution or perhaps because they are obliged by a parent in their network to take this solution.

Scalability, or the number of segments of institution size for which the software is offered, is highly correlated with price for the smaller MFI segment. Thus, offering scalability has a cost, which is noticeable compared to cheap basic software targeting only smaller customers. However, once we move to larger segments, offering scalability does not make any significant difference (the small non-significant correlations are even negative). Scalability also requires more technical staff. Finally, there is significant correlation of scalability with the flexibility of lending methodologies.

7. Conclusion

Microfinance is a fast growing sector where MIS is a strategic need for up scaling to get both economic sustainability and social outreach and performance. It should help in lowering transaction costs and interest rates. A study of the MIS for this sector is therefore crucial. Partly, this diversity is owing to the need for the software to differentiate themselves from others positioning in the same niche. We can see that this part of the diversity is based on commercial strategies, notably pricing.

The evolution of the software market may be based on the evolution of the microfinance sector. Many of the successful microfinance models get replicated across the world and compete with each other. It is possible that they networks use the same software in different countries. This would explain further why many clients are willing to pay higher prices for software which is being offered in more global zones: there may be a forced lock-in once the parent organization uses software for all the other replicating MFIs. Therefore, a key success element of the marketing plan of software vendors would be to satisfactorily implement their software for the first such client and then use this success to diffuse to the rest of the network.

Today, there are hundreds of software vendors chasing thousands of MFIs. The microfinance market, as we have indicated, is far from saturation and there are billions of unbanked. However, growth is taking place at a fast rate and some markets such as Peru and Bangladesh, and some States in India (Andhra Pradesh and Karnataka) are nearing saturation. Therefore, further growth will depend on mergers and alliances. This would also lead to a limitation, in turn, of the number of software vendors specialized in this sector who would survive.

### Appendix 1

| Features (application) | Languages used | Type of Institutions | Total no. of clients | Number of clients using this product | Scalability | Number of technical support staff | Cost of 100,000 clients | Cost of 40,000 clients | Cost of 15,000 clients |
|------------------------|----------------|----------------------|----------------------|--------------------------------------|-------------|-----------------------------------|------------------------|-----------------------|-----------------------|
| Years in use to date   |                |                      |                      |                                      |             |                                   |                        |                       |                       |
| 1.000                  | 0.400          | 1.000                |                      |                                      |             |                                   |                        |                       |                       |
| Languages used         | -0.045         | -0.101               | 1.000                |                                      |             |                                   |                        |                       |                       |
| Type of Institutions   | -0.489         | 0.241                | -0.015               | 1.000                               |             |                                   |                        |                       |                       |
| Total no. of clients   | -0.472         | 0.240                | -0.998               | 0.505                               | 1.000       |                                   |                        |                       |                       |
| Number of clients using this product | -0.454 | 0.230 | -0.990 | 0.601 | 1.000 | 1.000 |
Scalability

|                      | 0.589 | 0.181 | 0.220 | 0.555 | 0.540 | 0.573 | 1.000 |
|----------------------|-------|-------|-------|-------|-------|-------|-------|
| Number of            | -0.121| 0.888 | 0.207 | 0.577 | 0.135 | 0.156 | 0.700 | 1.000 |
| technical support    |       |       |       |       |       |       |       |
| staff                |       |       |       |       |       |       |       |
| Cost of              | -0.241| -0.007| -0.425| -0.116| 0.889 | 0.896 | -0.089| -0.015| 1.000 |
| 100,000 clients      |       |       |       |       |       |       |       |       |
| Cost of              | 0.005 | 0.428 | -0.267| 0.089 | 0.867 | 0.305 | 0.314 | 0.269 | 0.637 | 1.000 |
| 40,000 clients       |       |       |       |       |       |       |       |       |       |
| Cost of              | -0.499| 0.304 | 0.007 | 0.550 | 0.842 | 0.867 | 0.891 | 0.612 | -0.267| -0.211| 1.000 |
| 15,000 clients       |       |       |       |       |       |       |       |       |       |       |

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