

System design to extend usage of mobile phones for microfinance services in India

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Abstract

With 72.2% of Indian population living in 5, 50, 000 villages [1], scope for the growth of microfinance services in India is enormous. Apart from regulatory and structuring challenges, the current system of microfinance faces the major challenge of increasing reach and overcoming the accessibility issues [2]. To make microfinance services accessible to the deprived population, devising a novel system model has paramount importance. In this paper we describe the method of extending the use of mobile phones to microfinance services. We propose two system models to incorporate mobile phones in the current microfinance system. Evaluate them based on various objective and subjective criteria and recommend the most suitable model in Indian scenario. The system model proposed in this paper will not only ensure better accessibility but will also warrant better security and ease of transaction without compromising the trust of user.

1. Introduction

In the past few years, Indian microfinance has seen unprecedented growth. For instance, during 2005-6, major Indian microfinance institutions (MFIs) were able to expand their active borrower base by about 110 per cent making the sector one of the fastest growing worldwide

[3]. Despite the growth, there is considerable unmet demand for credit in India. Research shows that poor people value financial services want more of them, worry when they don't have them, but are often frustrated by them when they do get them [4]. According to a World Bank report, only 9% of poor families in India are covered by microfinance. Also, there is a huge unmet demand; potential for credit estimated at \$6-\$8 billion [5].

One of the key identified reasons of this shortcoming is the uneven distribution of MFIs geography wise. About 60% of the total SHG credit linkages in the country are concentrated in the Southern States [6]. As Microfinance involves lending & collecting money by personally visiting the remote areas, it has quite a large dependency on accessibility to these areas. Mobile phones have been used in multiple domains to overcome the accessibility issues. But the usage of mobile phones in microfinance services still seems to be very limited.

The crux of microfinance domain lies in the trust of user with the lender. The role of designers comes in to understand the mental, behavioural and psychological aspects of the user and design a system that will be adapted smoothly. It is designers who can use the contemporary technological advances to model user friendly systems without compromising the trust of user in existing system.

2. Microfinance services in India

Microfinance refers to small-scale financial services for both credits and deposits that are provided to people who farm, fish or herd; operate small or microenterprises; provide services; work for wages or commissions; in developing countries, in both rural and urban area.

The Indian microfinance sector is characterized by a diversity of strategies, methodologies, organizations, partnerships and performance. In 2005, five leading Micro finance institutions (MFIs) from India ranked in the list of top 20 fastest growing MFIs in the world [7].

3. M-commerce

Mobile commerce (m-commerce) referred to the buying and selling of goods and services through wireless handheld devices. Mobile commerce involved the storage, payment, receiving and sending of "electronic currency" through the use of mobile phones.

The use of m-commerce has multiple advantages. Many merchants and poor people have mobile phones, and the number is growing fast due to very low rates of operation of mobile phones in India. Many poor people already use mobile phones for voice calls and text messages, thus increasing the likelihood that they will need only a limited amount of training to be able use it for banking. Another aspect that bolsters the use of m-commerce is that mobile phones are "always" on, because mobile phones generally are always connected to the network, banks can receive transaction details as soon as the transaction takes place, reducing its uncertainty. Clients can use their own phone, anytime, to find out their account balance. And most importantly mobile phone operators already know how to handle cash transactions for customers (airtime). As m-commerce is technologically solved problem, there is minimal monetary and time investment

required for the implementation of m-commerce based system.

As microfinance involves carrying cash to and from multiple remote locations, security is always a concern. Mobile phones based transactions provide an advantage of reduced risk of carrying cash and reduced time spent on counting money which saves human hours and errors.

3.1. Challenges for implementation

The domain of m-commerce has certain limitations and challenges. Though there are recent rosy developments of interoperability of mobile phones, mobile banking applications are not yet inter operable. In India, it is not yet possible to send money between any two mobile phones easily and at low cost. Until these restrictions are overcome, mobile phone banking may not achieve the "network effect" that has caused mobile phones to spread as quickly as they have. Various applications developed for mobile phones work on sophisticated mobile phones, which are rarely used in rural areas. For banks, a "mobile phone only" channel has not yet proved profitable. So far, most mobile banking services offer only a limited range of products. Until customers pay for a range of financial services through their phone, the channel is unlikely to make money. Mobile phone banking may not be able to reach the most remote and poor areas. So far, most self employed or informally employed poor people have not used mobile phone banking because providers don't have large networks where they can deposit and withdraw cash easily. Mobile phone banking may not be easy to use for illiterate and older users. Most mobile banking interfaces and processes require literacy. Further adaptation and training will be required for all customers, particularly illiterate and older customers, to adopt this system. Key issues include how to protect customers who deposit cash at retail outlets; how to regulate providers that are outside the banking domain, such as mobile operators that issue e-money;

and how to apply stringent “know your customer” requirements to providers opening accounts for poor people.

4. Existing Model

The Indian microfinance sector can be divided into two main categories depending on the core system functionality [6]. The first category are called the Self Help Groups (SHG) and work on the concept of local saving and borrowing, where individuals in the SHG save money over a period of time and this capital is used to finance loans for others in the SHG. The second category is that of Micro-Finance Institutions (MFIs) which are credit institutions who borrow money from large commercial banks and disburse them into villagers at higher interest rates. The MFIs have a Field Officer who is given the task of collecting and disbursing loans to individuals by personally travelling to remote areas. Also, some of the SHGs have started acting as a unit which the MFIs finance as a unit rather than individuals.

4.1. Shortcomings of the current system

In the current system all the transactions for rural people are carried out by the field officer. Apart from maintaining customer relations, the field officer has multiple other roles to play. He/ She has to keep accounts for credit and debit, carry money to and from the remote site, promote various service offerings and most importantly conduct awareness sessions about micro businesses for youth and females [8].

As the current system relies heavily on human competence, there is always a scope for errors and time delay. Carrying money while travelling also has a greater security threat. As the field officer has multiple responsibilities, his focus on customer relationship is diverted which is harmful for the spirit of microfinance.

5. Proposed system to integrate mobile phones with microfinance services

As the field officer has to report to the central branch he/she is generally a city based personnel. We realized that giving all the responsibilities to city-based field officers in these areas would not be a workable option as local people would not get sufficient time and opportunity to talk to the field officers. This would result in lack of trust and comfort with a non-native person [9]. So we devised a strategy which relied heavily on local partners.

It was extremely important for us to work with the existing eco-system prevailing in the vicinity as opposed to trying to create a new or parallel structure. It was essential for us to look out for a partner which has already reached the rural areas.

The Indian Postal Service, with 155,333 post offices, is the most widely distributed post office system in the world [10]. The post office has also traditionally served as a financial institution for millions of people in rural India. Currently a number of activities are being supported like Public Provident Fund, National Savings Certificate, Kisan Vikas Patra, Savings Bank Account, Monthly Income Scheme, Recurring Deposit Account, National Savings Scheme 1992 - discontinued from 2002, Post Office Time Deposit.

We propose systems with post office as an actor which complements m-commerce for the monetary transactions. Like in all m-commerce activities, the major flow of capital will be in the form of Virtual Cash (VCash). Transactions take place by using a secured mobile application through which the transfer of virtual cash takes place. This strategy will help the field officer to focus more on talking to rural people to achieve financial inclusion of the rural masses while creating a new breed of local entrepreneurs. Also as post office has traditionally served as financial institution for Indian villagers, inclusion of post office in the system will enhance the trust.

From the perspectives of MFI, it would be beneficial if the field officer gets more time advising locals on financial investments. This would help them sell the appropriate financial products in an extremely beneficial manner.

5.1.1 Model 1

The first model microfinance m-commerce model works by extending the coalition of SHGs and MFIs. The members of the SHG each have a unique account number and form a small SHG which has a Chief. The Chief acts like a liaison between the individual members and the MFIs. Requests for loan sanctioning and dispersal to a unique account number can be made via Mobile phones,. This request is delivered to the Field officer which he can reply in affirmative or negative. The officer can also fix the amount that can be dispersed as a loan. This is like assigning virtual cash (VCash) for the Chief to distribute.

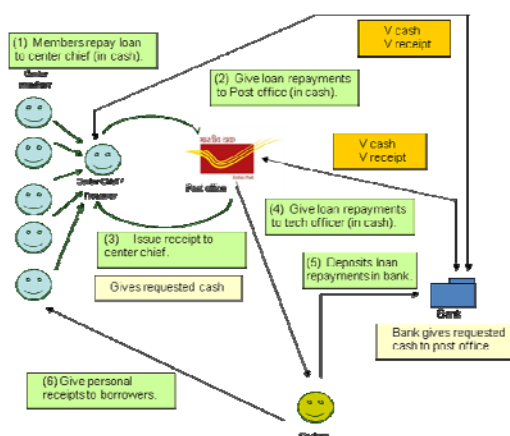


Figure 1. The flow of transactions that take place in Model 1 between different actors.

Once the steps for sanctioning are complete the Chief can disburse the loan himself, if he has enough cash reserves, or will travel to the Post office to collect liquid cash. If loans are met by reserves only account numbers are updated while if capital is taken from the Post Office, the central database which keeps account of transactions with the Post Office gets

updated. Cash balance of the Post Office is done by direct transactions with the Field Officer once in a while (this may include payment to the Field officer or receiving payments).

Similarly when remittances are received the Chief informs the Field Officer and the unique account details are updated. The Chief can choose whether to travel to the Post Office immediately or keep the remittance as a reserve to fund future loans.

5.1.2. Model 2

The second model works on a similar concept but removes the concept of an intermediary Chief. This means that individuals with unique account numbers can directly interact with Post Office for loan sanctions and payment. The Post office can ask/inform the Field officer immediately using a mobile phone application. Depending on the response of the officer loan can be disbursed or rejected. The Field officer can update balances with the Post offices once in a while.

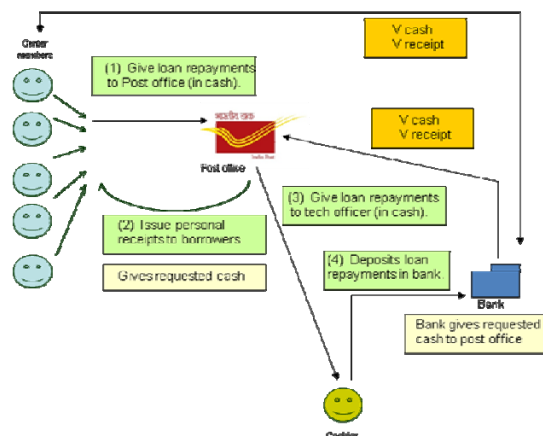


Figure 2. The flow of transactions that take place in Model 2 between different actors (without chief).

The advantage of this model is that it greatly reduces the hassle of a third party actor (Chief) and makes transactions directly through the Post office. This also ensures that the fraudulent activities at the level of Chief do not occur. Clear

disadvantages include increased pressure on Post offices for microfinance activities and lack of trust on the individual account holders.

5.1.3. Comparison

Both models include direct advantages of safer transactions (virtual for most part), reduction in time for dispersal of credit, lesser operating cost for MFIs and significant reduction in hassle of individuals to get loans.

We evaluated both the models based on interactions with 7 field officers working for MFIs and 12 microfinance customer interviews in Assam. The models were evaluated on the criteria which are same as the advantages they provide to assess the superiority of one over other. Criteria included safe transfer of liquid cash, time required for each transaction, ease of borrowing and operational cost for the MFIs. Apart from these two other criteria were included to accommodate the trust factor in microfinance [9] and extra burden on the new actor, Post offices. These included face to face interactions (criteria for greater trust) and ease of transaction for Post offices.

Based on the mentioned criteria Model 1 had small but significant advantage over Model 2, especially because of higher trust factor (more face to face communications with Chief) and lower pressure of Post offices. Also, this model seems to be a reflection of the SHG, MFI coalition which is already being followed.

6. Conclusion

While microfinance services in India continue to grow at a rapid pace there are challenges which are still unmet. While some of these challenges occur due to improper structuring of the micro finance institutions much has to do with slow pace of credit dispersal, collection and inaccessibility to remote areas. These challenges of the microfinance sector can be overcome by harnessing the ubiquitous

power of mobile phones. The models described in the paper are yet to be put into a field testing but was able to grasp the attention of the interviewed customers and field officers, each of them reacting positively to the idea.

To make the plan of mobile microfinance work it will take a combined effort from the MFIs as well as government initiatives. Special partnerships need to be formed with the Postal Services as well as mobile operators. Once the actors in the model come to an agreement microfinance services will become easier.

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