

Technology Enabled Entrepreneurship under Poverty Alleviation Programme

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ABSTRACT

This paper talks about how technology can be used for generating livelihood in poverty alleviation programmes. Lending from microfinance to the farmers may not be utilized fully for production purposes. Lack of knowledge about the optimum price for their produce and the market where the produce has the maximum demand often drive the farmers to desperation. In their eagerness to sell the produce, they sell their products to commission agents or in the near by market which often, does not result in full market potential of their produce. This paper shows how farmers can invest in cellular phones and get the benefits of technology for getting the maximum profit and become entrepreneurs in a self-sustaining manner. To illustrate the viability of the approach, e-choupal has been used as an example. Using the same example, return on investment has been calculated which shows that the investment in technology actually results in surplus which helps in improving their living conditions and helps in poverty alleviation.

Key Words: *Small scale entrepreneurs, Livelihood, Mobile technology, Technology enabled livelihood, Poverty alleviation.*

INTRODUCTION

Technology has been changing its role. In the 1960s, organizations used to think IT as an overhead and spending on IT were critically appraised before getting the go ahead for investment. In the later stages, IT took an enabler role and helped the organizations to achieve their corporate objectives. In this decade, however IT has become a competitive tool and organizations have used IT to make strategic moves while introducing new products and services. In fact, in many industries, IT has made the organization to get competitive advantage over its competitors by simplifying the processes, re-engineering the entire business processes, introducing new business models and modifying the existing business models so that customer is delighted. Through automation of business processes, IT has helped to increase productivity with consistency which is sustainable and scalable resulting in satisfaction for all the stakeholders. Increasingly environment is becoming an important stakeholder in any business model and it becomes a critical factor that all the major players in environment are satisfied. In an agrarian society, rural citizens are important players as 'environment' stakeholders. However, due to various historical reasons, large numbers of rural citizens are economically backward and improvement of their living standard is necessary to improve the quality of various produce from rural areas and their purchase power. To ensure economic growth rate and market sustainability of produce, this player among other environment stakeholders needs to be integrated into the mainstream of development. In this research, IT has been used to arrive at a

sustainable and scalable model for helping farmers to improve their standard of living and purchase power.

In the above mentioned context, this research has been done to arrive at a sustainable and scalable business model for improving living standards of farmers and thus, provide justice to them bring in transparency into the business transactions which would improve credibility of the model have better control in project management which would help in consistency and predictability in all the projects.

BACKGROUND

India has a large agrarian population and post independence their importance has been challenged by industrial revolution. While the productivity from agriculture has increased, still it is far from being self sufficient. Exports from agriculture have increased, but still a vast population which depends on farming for its livelihood, has remained below poverty line. There are many factors that have contributed to their cause, notably among them are, (1) licence regime which has stopped the mass from thinking beyond their area of knowledge in farming, (2) and the farmers owning only small, often infertile and unproductive piece of land. Lack of literacy and lack of exposure to modern techniques in farming have compounded to their problems. In addition to this, the trade system in India has middlemen or commission agents (CA) who make most of the system by making money through unscrupulous means. For example, Soybeans is an important oilseed crop and is largely produced by farmers with small land holdings. The produce when harvested is sold by the farmers to traders or CAs. These transactions take place in a local market place called mandi; the prices of these transactions are usually decided by CAs in negotiation with farmers. However the farmers do not have full knowledge about the fair market price of the Soybeans and as a result

go by what the CAs decide. As a result, often innocence and lack of knowledge leads to less price realization for the farmers for their produce than what they could have got in a fair trading. So on the day of sale, the farmers accept the price offered to them by CAs in auction. As a result the CAs use the asynchronous knowledge between the farmers and market to exploit the situation and offer low price to the farmers.

The CAs however, make money by selling Soybeans in the city for consumption at a higher price and thus gain from the inefficiencies inherent in the trade system. The state of living standard does not change for the farmers as they do not get the possible fair value of Soybeans and in addition to this lack of knowledge about the modern farming techniques to improve agricultural productivity compounds their woes.

ISSUES WITH THE PRESENT SYSTEM

- The farmer does not have enough knowledge about the price and demand trend of Soybeans. Hence he does not know the right season to harvest the agro products so as to meet the peak demand season. At present the timing of the harvest and subsequent selling might not meet the consumer demand trend resulting in less realization of price.
- Mandis are local trading places used for auctioning of agro products. Mandis are usually located at distance from each other and cater to the demand of near by locality. The prices of agro products vary from one mandi to another based on several local conditions and farmers do not have knowledge of this variation of this price. As a result of this lack of knowledge about different pricing in different mandis, the farmers do not

travel and sell in the mandis where there could be greater realisation of prices.

- CAs exploit the situation at the seller side (farmers side). Asynchronous knowledge on the part of farmers related to fair market price, results in CAs buying the agro produce at a lesser price.
- On the other hand, CAs inflate the price while selling to the consuming organization (ex: ITC, Godrej or any other such organization which used this produce as an input for further processing). The buyer has no option but to accept the prices and the difference is pocketed by these middle men.
- Depending on the demand and supply, there could be fluctuation of price in day and this information related to intraday price fluctuation was available to CAs only. These CAs used it to their advantage it was not passed onto the farmers.
- The crop produced are usually of different grades, meaning in one harvest there can be a high grade of Soybeans as well as a lesser grade of agro produce. These grades need to be packaged separately by the processing organizations based on their grades as each grade need a different treatment. Subsequently the pricing strategies of these processing organizations are dependent on the quality or grades of the produce. This implies that the produce need to be packaged separately. In the present mandi system this is not possible. In mandi system, all the produce need to travel long distances through different CAs and this implies that from the beginning all the grades are mixed together and packaged together. At the end, this is not possible to unpack these produce and then again repack them as per

their grades. In addition this flaw in the system leads to incorrect realization of higher price for higher grades of produce for the farmers. So the farmer does to get motivated to produce high quality of produce.

- These flaws also ensured that there could not be direct interaction between processing organizations (end users) and the original sellers (farmers). As a result, end users did not have good knowledge about the issues faced by farmers, were not well versed with risks associated with the entire supply chain system. Because of lack interaction modern techniques could not be used for farming as there were no way these types of feedback from end users could reach farmers.

Because of these issues, the farmers could never benefit from their own farming and the living standard remained at the same level. The self sustaining entrepreneurship seldom became successful, which resulted in labour migration. In particular, where local knowledge was used such as handicraft etc., the business became non remunerative and the artisans, instead of becoming entrepreneurs, started looking out for jobs to earn livelihood.

To address these issues, solution from Microfinance was considered as an option of reducing poverty by providing requisite funds to the farmers as credit to sustain their business and making them independent through entrepreneurship ability. Throughout the developing countries, microfinance route has been taken as a poverty reduction strategy. Here, it is assumed that to increase living standards, there should be investment for productive purposes. The finance obtained from microfinance route should be used more for the productive purposes. Even though it can be argued that by using finance for consumption can result in investment in human capital and

this will help in the long run, still this paper addresses the reality of existence from a sustainable point of view. The sustainability implies that the investment in production helps in short as well as in the long term (Chavan and Ramkumar, 2001). These investments have the potential of income generation, providing self employment opportunities, which lead to poverty alleviation and entrepreneurships. Thus, a permanent improvement of living standard can be possible if the borrowed money is used for productive purposes and the investment is self sustaining.

Self sustaining investment helps to generate profit from business transaction which can be reinvested (Sisodia, 2007). This ensures that poverty reduction becomes self sustainable and farmers become entrepreneurs. The present study looks into e-choupal as an example. In this example, using the proposed framework, it has been shown that a farmer can become an entrepreneur if mobile technology is used as an aid. In a study, Khandker (1998) found that microcredit had a good impact on some of the small entrepreneurs, where the recipients of the credit could lift their living conditions and out of poverty level by investing in productive purposes. But the study also revealed that there was a question mark on the sustainability of these programmes. The reasons attributed to these were lack of knowledge related to market potential, pricing strategy and new technology. As a result, in the long run, poverty reduction through micro credit alone became difficult. Similarly, recovery rate of the loan becomes a deterrent in poverty alleviation and making farmers self sustaining entrepreneurs (Rahman, 1999). If the recovery rate is high, then the farmers take recourse to loan recycling, which increases their debt burden. This method goes into a vicious cycle and does not help in becoming entrepreneurs. If the farmers are able to sell their produce at the optimum price and at the market where there is a demand for their produce, and then there is a good chance that they would earn enough

profit to pay off their debts rather than recycle the loans. Similar views are also expressed by Hulme et al. (1996) and Mahajan (1997).

These discussions lead to the point that for self sustaining entrepreneurs, micro credit should be coupled with “knowledge enablers”. These “knowledge enablers” will provide sufficient information to the entrepreneurs so that they can develop their pricing as well as marketing strategy. This will provide opportunities to them for growth and make their investments profitable. The profitability will ensure that they can repay the loan and improve their living standards. A technology based framework can be developed, which will link farmers to the end users through usage of technology. The framework will also bring transparency in price by providing related information through computers. In earlier mandi system, the farmer travels all the way to mandi to find the price for his produce. The e-choupal system ensured that the farmer gets this information before hand so that he can take a decision related to choice of day for the sale of his produce. Thus, farmer’s transportation cost and handling cost reduce to a great extent and he is not at the mercy of CAs. In this case, the IT based model helped to achieve parity in the environment by helping the farmers to achieve a better living standard.

In the following section, issues involved with poverty alleviation are discussed so that root cause analysis of all the issues can be discussed. This will help in fine tuning the framework. In poverty alleviation programmes, there are different stakeholders, namely, Entrepreneurs (farmers), Government, Sponsors (who usually buy the produce from entrepreneurs), micro-credit agencies (who provide loans). In the present framework, one more stakeholder has been added, i.e. mobile service provider. At present all the stakeholders have different issues and problems. These problems are depicted in a fish bone diagram in Figure 1.

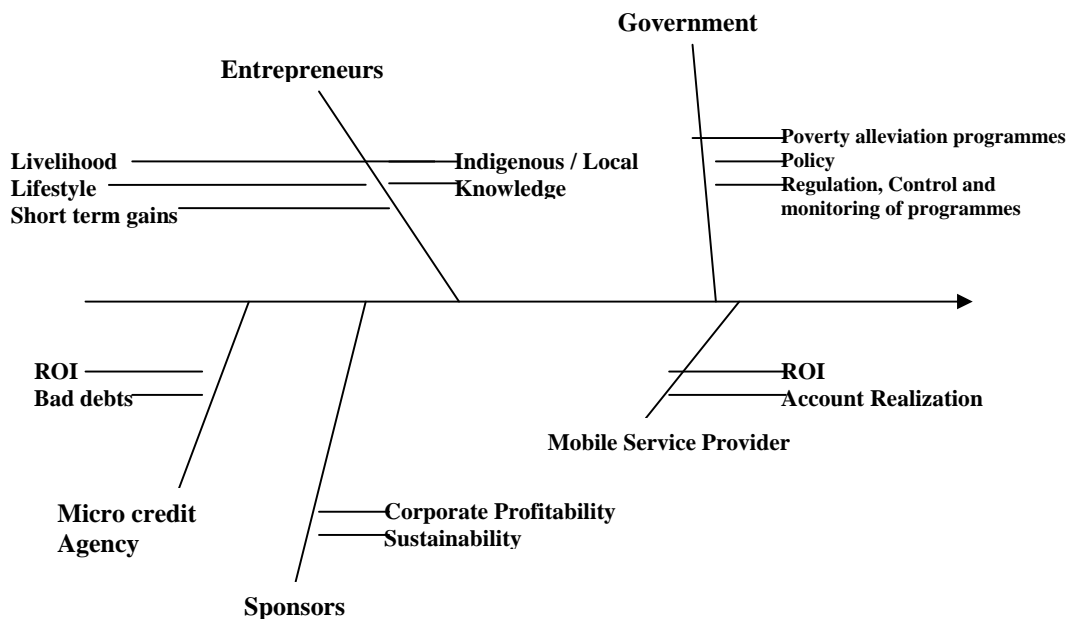


Figure 1. Causal analysis of issues with poverty alleviation

Each stake holder has problems which seem to be mutually exclusive, however in reality they are all inter linked. If a solution can be arrived which can take care of problems related to all the stakeholders, then the solution can be sustainable in the long run. In the following section an approach has been discussed as to the way the solution can have impact on all the stakeholders giving them benefits. This solution can be then replicated in different geographical locations with minor changes in the approach to suit the local culture and conditions.

THE FRAMEWORK

There lies a huge gap between the demand and supply of microfinance services in many countries. Successful microfinance operations in many countries have proved that lending in the rural India can be remunerative to the commercial banks, developmental banks and other financial institutions. Two broad types of lending strategies can be useful in the Indian context, asset based lending and cash flow based lending. Examples of asset based lending include advances against inventory, accounts receivable, saving deposits or shares of stock. The size of an asset based loan is determined by the value of the asset pledged as collateral. Cash flow loans are not based on collateral, although they are often secured to prevent the borrower from pledging assets to other creditors and as a test of the borrower's commitment to repayment. The size of cash flow loans is determined by the projected cash flow generated by the loan usage. The repayment capacity of the farmers is quite low. This poses a major threat for financial interventions in the rural India.

There are two distinct ways to deal with the problem of low repayment capacity: First, is to devise instruments for which the - repayment capacity is not prohibitively high and second more productive way is to enhance repayment capacity at the frontier. Grameen bank is an example of the first approach whereby it is providing credit to borrowers with very small capacity. Financial initiatives create debt capacity by lengthening term structures, by reducing transaction costs, by refining valuation process and by increasing the supply of loan-able funds by mobilizing local resources. In the given scenario, when there is likelihood of 'e' (Information Communication Technology) further penetrating in rural India. In this context, e-microfinance Business model can be considered as a strong business model, which a company like ITC can take forward and use for the development. Here, e hub

can be used for interacting with farmers on SHG issues. At the e-hub SHG members as well as field worker can come and avail the information available on health, education, technical knows of the product/services of their interest. e-hub again can act as procurement centre of various products which can be further packaged and sold in various domestic retail chains. Saving which is the forgotten part of microfinance can be taken care of by this initiative. A mobile handset can be provided for each SHG. This mobile can be used to get quotes and information from the e-hub; the quotes and information related to stock demand, rates at which the commodities are being sold, prices quoted by different buyers can be obtained through mobile. The updated information will help the SHG members to select the buyers for their produce and they can decide on the most profitable market players. This way the SHG can not only do away with the CAs (Commissioning Agents), but also will not be dictated by one buyer alone. However the paper suggests an approach called 'opinion leader' based approach which will ensure acceptability of the business practices through mobile based trading.

The solution suggests that each SHG appoints an opinion leader among them. The opinion leader is to be selected based on combination of factors, viz. experience, level of education, age, social standing. The process of selecting the opinion leader is to be completely decided by the SHG so that higher level of compliance to decision making process within SHG can be found.

The SHG will also appoint one 'mobile leader' who will be the person responsible for getting information related to demand for commodities, prices at which the commodities are being sold in different markets. This information is fed to the opinion leader for final decision making. The mobile leader is however is not a fixed position and is rotated among each SHG member every week; this not only results in

participation among each SHG member, each member is trained in usage of mobile, gets a feel of market and the prices, sees the bigger picture as to have his or her produce fit in. This way the member can also give his or her suggestion related to the product mix that can be sold in that week. Using these information and knowledge, the opinion leader will interact with outside agencies and would decide for the entire SHG as to the buyer to whom they would sell the entire produce, their credit policy. He can also take decision regarding the investment required for furthering their business and improve their lifestyle. The mobile handset will be provided by ITC at a subsidized rate and can be used for only receiving quotes and market related information thus reducing any chances of misuse and high monthly running cost. The quotes can be obtained from e-hub through SMS which has already been set up in e-choupal. However proper training on usage of mobiles should be provided by ISPs (which provides the network services to e-choupal); this will facilitate ease of use for mobiles for each SHG and can ensure effective utilization of mobiles for information gathering.

PILOTING THE MODEL

It is suggested that the model be piloted in one e-choupal and depending on the success the model can be replicated in all e-choupals. While piloting care will be taken to ensure that proper monitoring of the progress of the model implementation is carried out, success criteria for pilot implementation is defined and roles and responsibilities of SHG member is clearly communicated to the team members (SHG team). The pilot study should be conducted in a project mode with milestones being defined for every activity; also there should be defined project organization structure. Suggested project organization structure for pilot implementation is shown here.

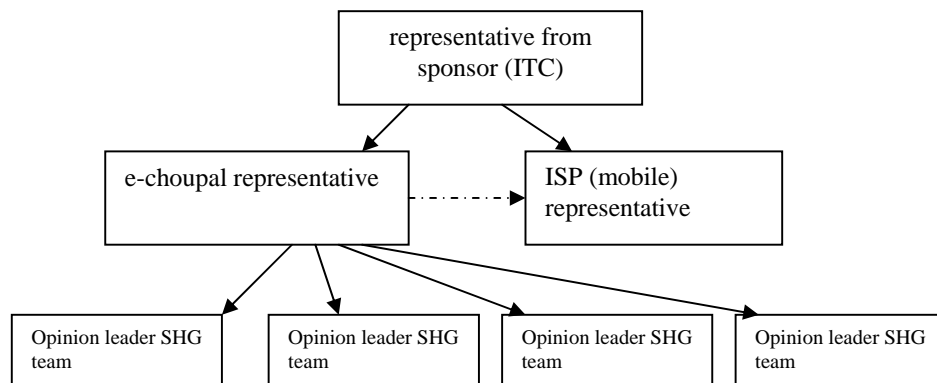


Figure 2. Organization structure for pilot implementation

As shown in figure 2, the sponsor representative controls and monitors the pilot implementation. The sponsor has the responsibilities of negotiating for getting the best deal on mobile, discussing with e-hub to decide on the mode of transferring rates, quantity and buyer information to mobile users (the mode of information transfer includes language of information transfer through SMS, mobile tariff plan, frequency of information of updates etc.). For the pilot project, he has to define success criteria. It is recommended that pilot success criteria takes care of behavioural aspect of SHG towards this model, finance viability of the model based on economy of scale and sustainability of the model in the long run based on the degree of control and monitoring required for the same. Some of the suggested pilot criteria can be acceptability of the model from all the SHG opinion leaders, improvement in the saving capacity of SHG members, comfort level of sponsors in terms of returns envisaged from economies of scale. He also has to ensure that e-choupal representative does the cost benefit

analysis for each SHG; this will ensure that the each SHG can have sustainable growth in the long run and improve its lifestyle. E-choupal representative on the other hand will not only look into the sustainability of SHG but also will work with opinion leaders to ensure that training on mobile usage is provided to SHG members, effective utilization of mobile technology is ensured. He will also address any specific concern or issues that the SHG would have and will interact with the sponsors to solve them. Opinion leader will have the responsibilities to make decisions related to selling their commodities to the correct buyer at the correct rate, making a decision on the product mix that would give the best margin and take decision on further investment in the business.

Here, what is suggested is players like ITC can distribute small loan to SHG members and can get the interest on small loans as well as can buy the product which is resultant of their ethnic wisdom and technical consultancy provided by ITC on website. It can lend to the farmers for activities like making pickles, papad (a type of Indian snack) etc. Through e-hub and the field agents' information can be disseminated to the farmers regarding the quality standards, markets, demand etc. Helping the farmers in such a way would make them self sufficient. In certain ways, it is likely to create self sustaining business for them. For performing such operations efficient field agents are required.

Here, it is appropriate to mention that currently loan size is not very big for SHG members, on an average it comes out to be Rs. 2000 per SHG members. Here the main issues to be handled are financial viability of this business, ensuring quality of products/services by SHG members, training of e-users and interest in ethnic products mainly foods and apparels. The proposed model would meet the daily needs of livelihood earnings as well as meet the need to improve lifestyle of the

SHG members. Even though the actual business output may vary depending different factors such as demand and supply, quality of output, still economies of scale show that this approach is sustainable in the long run. Economy of scale has been calculated based on simple assumption of normal business transactions and any exception to this assumption can affect the profitability (for example failure of crops and other natural calamities). The mobile hand set can be procured in a mass scale; a conservative estimate indicates that mobiles can be procured at Rs. 1200 per set per SHG. Rs. 1600 can be spent for investment in business out of the loan sanctioned for each SHG (loan amount sanctioned for each SHG member is Rs. 2000). Assuming 5% subsidized interest charged for the loan amount and assuming a conservative figure for average business life cycle of 30 days for the complete product mix and a return of 20% for each business life cycle, the net income for each SHG member turns out to be Rs. 1875 per month. The detailed calculation is shown here: the loan amount for each SHG member is Rs. 2000/-; the amount to be spent for business is Rs. 1600. For each member the interest cost per annum (assuming subsidized rate of interest at 5%) comes out to be Rs.100. The cost of mobile hand set has been assumed to be at Rs. 1200 per SHG (typically one SHG will have 8 members). Considering the life span of mobile handset to be 3 years, the cost of mobile handset when apportioned over each member turns out to be $(Rs. 1200/(3 \times 8)) = Rs.50$ per annum. The cost of using mobile (that is the subscription cost per mobile) is assumed at Rs 250 per month. So the cost of mobile subscription per member per annum is calculated as $(Rs. 250/8) \times 12 = Rs.375$. Hence total cost comes out to be Rs.100 (interest cost) + Rs.50 (mobile handset cost) + Rs.375 (mobile subscription cost) = Rs.525 per annum.

The average business cycle for the product mix has been observed to be one month cycle. The SHG members sell papad, Soya, candles, incense sticks (agarvati), and bakery products, tribal arts & paintings,

traditional sarees / apparels which when averaged can rotate the business every month. Hence in a year the business can be turned over 12 times. In practice, this could turn out to be a conservative estimate; however the purpose of the calculation of this economics is to show the viability of the model in the worst of business scenarios. Considering this situation, the business turns over of 12 times per annum with 20% return has been calculated as $\text{Rs. } 1600 \times 1.2 \times 12 = \text{Rs.}23040$ per annum.

The total savings per SHG member is thus $\text{Rs.}23040 - \text{Rs.}525 = \text{Rs.}22515$ per annum or monthly $\text{Rs. } 1875$ (approx.) is available for his household consumption. It is observed that this amount can be a good situation for making a healthy livelihood and maintain present lifestyle. With each year, this amount is bound to increase with increase in productivity, increase in business acumen of the SHG members. As the loan amount is squared off over a period of time, the SHG members can sustain on their own without any burden of debt on them.

In a recent report circulated by mobile marketing association (www.mmaglobal.com,2007), it has been found that mobile marketing is opening vast untapped potential. Interest in using mobile phones to receive content and services is steadily increasing. Most network carriers or ISPs can support mobile traffic to provide information based on a short code sent by the mobile user. The cost of sending the information can be billed directly to the mobile user through direct to account billing. By standardizing the mobile services based on short codes, the mobile users can receive information for prices for their commodities. This approach also allows customized information to be sent to mobile users. This helps in getting the right message (read right prices for exact commodities) at the right time. e-choupals will maintain e-hubs from where information can be broadcast and the

same can be received through SMS. The cost of technology and providing service to the SHG members through SMS service will be low as demonstrated by Bharati Telecom and Hutch in today's Indian market. With wide usage of SMS, this cost will be still less. Thus our proposition for using mobiles to get information will be the cheapest, fastest and accurate. This improvement in technology in mobile usage can be used effectively in e-choupal transactions and increase the viability and sustainability of the proposed model.

CONCLUSION

In this study, technology has been used for supporting poverty alleviation programs and enabling farmers in becoming entrepreneurs. Technology has played role of enabling the business and reduce cost of operations. The reducing cost of technology has helped to bridge the digital barrier and masses are able use technology for enabling their business models. Using technology, a framework with an approach for implementation has been illustrated with return on investment calculation to show the viability and sustainability of the framework. The framework attempts to understand and explain business alternatives. It also demonstrate the role of e-microfinance as an enabler to achieve symbiotic relationship between corporate and society. ROI has been calculated to show that technology investment males poverty alleviation programme a viable one. The present research can lead to further work on using technology for enabling entrepreneurs engaged in farming other agricultural products. The approach can be applied, with suitable modifications, for bottom of pyramid that are dwelling in both rural as well in urban areas.

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