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Developing Services for Rural India

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DEVELOPING SERVICES FOR RURAL INDIA

1. INTRODUCTION

While most developing countries lag behind developed countries in terms of ICT usage the level of penetration of mobile telephony in some of the developing countries it is at par with that of developed countries (Rashid, 2009; Heeks, 2008). Mobile telephony is an attractive solution for the communication needs of the developing countries because of its ability to transcend barriers posed by geography and terrain, lower installation cost and operating costs (Dholakia). Furthermore, mobile phones have been successful in reaching

potential of mobile telephony cannot be fully realised unless appropriate services and institutions are developed.

Mobile telephony not only allows speedy and cheaper communication (Norton 1992) but also improves the quality of information (Bedi 1999). As a result, it can be expected that mobile telephony will reduce

between the transacting parties. These studies point to the fact that mere availability of mobile telephony will not lead to realisation of its developmental potential, unless specific services are developed which are adopted by the target population. Similarly, despite the much touted potential of mobile banking, the service is yet to succeed in most developing countries (Donner and Tellez, 2008).. Thus, the need of the hour is development of new services which will enable the poor to use mobile telephony for economic development.

2. DEVELOPING NEW SERVICES

It is a common experience that technology driven innovation is often too focussed on the technological feasibility, with user requirements and capabilities taking the backseat. For example, Computerised Rural Information System Project (CRISP), though successfully piloted, suffered replication failure because of design-reality gap in terms of actual processes and capability gap in terms of user level skill requirement (Madan, 2002). The P-info project, which was supposed to provide access to information in police database, failed because the service was not suited to the structure and culture of the Dutch police department (Reuver and Steen, 2008). The experience from ICT4D initiatives tells us that for the success of a project, user acceptance and community involvement are more critical than technological feasibility. For example, the users are not aware of many of the modules present in Gyandoot (Scott and Cecchini, 2003) while in cases like Akshaya (Akshaya.com) and IVRP (Arunachalam, 2002) there is intense community participation. Thus, in order to prevent wastage of limited resources on development of products and services which are not accepted by target user groups a more user centric view has to be taken (Roggenkamp,2003).

Diffusion researchers have identified relative advantage, compatibility, complexity, observability, and trialability as the five factors that affect the speed of adoption of a new

The Product Diffusion Curve



Figure 2

The diffusion of personal computers and telephones in India (Graph 1) (Singhal, 2001) indicate that while diffusion of telephones is on the verge of crossing the early majority

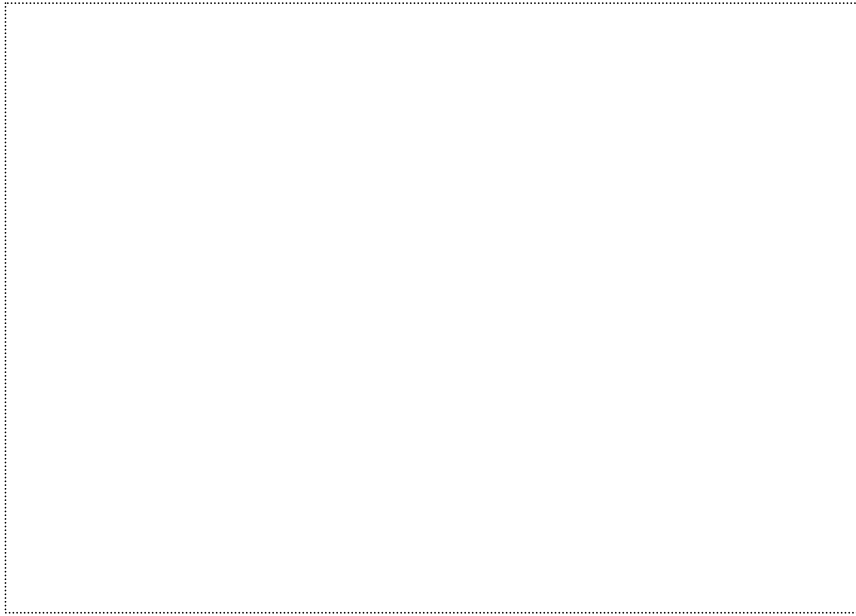
organisations the distribution of resources and revenues among them should be such that the venture becomes viable for each of the stakeholders.

3. MODELS OF NEW SERVICE DEVELOPMENT:

Unlike the above approaches, the Service Concept Definition tries to find out “what” the customer needs and “how” these needs can be satisfied. Although the method leads to better mapping of customer requirements with service design, it ignores the details of service delivery, technological feasibility and other details relating to production and rollout of services. Taking the service concept as an input, the Augmented Service Offering (Gronroos, 2007) not only tries to distinguish the core service, essential service and supporting services but also delivery of such services. Thus, accessibility, customer participation and service providing organisation occupy important position in this approach. However, by not focussing on the value perceived by the customer and the value intended to be delivered by the service provider, it ignores one of the essential elements of a successful service. The Quality Function Deployment method tries to use customer priorities as yardsticks for evaluating the service quality and in prioritising services. However, it involves a system of interlinked matrices which makes it difficult to operate. The complication is further increased if we include the possibility of a number of services in one bundle. The complexity of the method makes it difficult to adopt.

Compared to the above methods the STOF approach (Bouwman, 2008) presents an elegant and yet comprehensive approach to service design that encompasses

number of cases Bouwman (2008) identifies a number of Critical Design Issues (CDIs) and Critical Success Factors in the Service, Technology, Organisational and Finance domains.



The STOF method consists of four steps, which are represented in the figure 4.

Figure 4

The rough business model is prepared in the first step. Based on the rough model the CSFs are identified in step 2 and evaluated in step 3. Depending on the evaluation of the CSFs, the business model is refined in step 4. The CDIs also get defined at this stage. The iteration

of these four steps leads to viable business model. Finally, the model is tested for its robustness. The most important step in the STOF method is the identification of the CDIs and CSFs.

important because not only does it lead to sharing of risks and investments but in certain cases it is essential for building trust. Tie-up between service providers and social entrepreneurs have been found to be of critical importance in case of socially desirable projects (Rangan, 2007), the most prominent example being the Grameen Bank's involvement in rural development.

These aspects become particularly important for development of services aimed at the poor and marginalised sections of society in India. Any new service that attempts to alter the pace of development is bound to face socio-cultural barriers and opposition from vested interest groups. Moreover, the low economic standing of this section means that while satisfaction of low order needs will be more important, higher order needs will become more and more visible with passage of time. Furthermore, economic development may also involve introduction of totally new practices. Thus, while adopting the STOF Model for developing services for the poor in India we need to introduce these elements in the design process.

5. DESIGNING SERVICES FOR M-GOVERNANCE

Mobile Government refers to a wide range of services and applications that can be delivered through mobile network. The fact that mobile communication not only addresses the communication needs but also the mobility needs of the people is perhaps less important for developing countries, where, in many cases mobile communication system is the only communication channel available. Depending on the degree of sophistication, mobile services can be categorised as mobile access, mobile content and mobile applications.

The lowest level of sophistication is mobile access. In this case, the available information is accessible through mobile phones. In this case neither the content nor the process is modified; only the presentation of the information is adapted to suit the requirement of mobile communication devices. In case of mobile content, the available information is modified to suit the requirement of mobile communication device. In case of mobile applications, the process itself is modified to suit the requirement of mobile communication device.

mobile phones for documenting micro-finance transactions in Kenya (Lehr, 2008) are examples of true mobile applications.

Considering, the lack of communication infrastructure and difficulties of the Government to reach out to the rural population living in remote rural areas, any of the above three types of M-Government applications will serve the purpose, as long as it is adopted by a large number of rural population. Potential areas where mobile communication system can have an impact are: (a) enabling the government to talk to the citizens, (b) enabling the citizens to talk to the government, (c) improving the efficiency of

6.3 MICROFINANCE AND MOBILE BANKING:

Despite the development of banking system, access to credit continues to be one of the major constraints facing the rural economy. Furthermore, the absence of banking channel

Thus, development of any model of service will involve the identification of these elements and integrate them into one cohesive formulation.

Fortunately, the three services that have been identified can be interlinked into a virtuous cycle as depicted in figure 4. The inter-linkage can arise as follows: deficiencies in rural infrastructure leads to formulation of micro-level plans, execution of micro-level plans lead to creation of rural infrastructure on one hand and rural employment on the other. Rural employment leads to higher level of economic standard, which coupled with better infrastructure leads to higher level of micro-enterprise activities.

The establishment of this inter-linkage is dependent on (a) how well the infrastructure requirements get communicated to the policy makers, (b) how well the policy accommodates the citizens' inputs, (c) how well the project is implemented, (d) how efficiently the fund reaches its target segments, (e) how well the micro-enterprises are able to make use of enhanced capabilities to get access to new markets, (f) how well the credit flows support the higher level of economic activities. As the discussion in the preceding section indicates, mobile communication can have significant impact on each of these factors. On closer scrutiny, the above factors get reduced to two issues: flow of information and flow of funds. While role of mobile communication in flow of information is easily understood, it is not so straight forward in case of flow of funds. Thus, the main focus of the subsequent discussion will be on the latter.

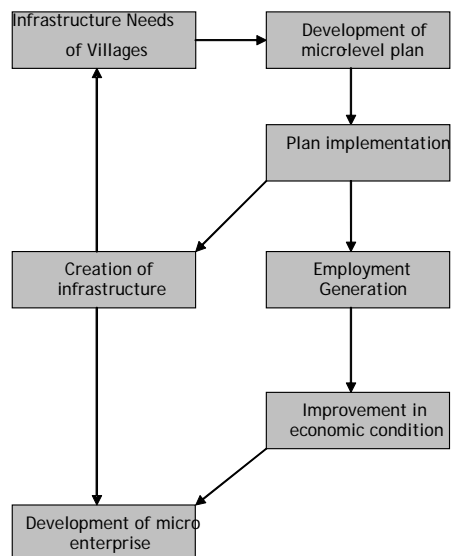


Figure 5

Instead of instituting separate mechanisms for the different information flows one can conceive an all encompassing model of rural help line in line with pallytathya (www.pallytathya.org). This model essentially creates a platform where the government agencies, non-governmental organisations, farmers, micro-entrepreneurs and probable buyers meet and communicate with each other through mobile communication and internet. The availability of such a service will not only enable the villagers to communicate their needs but also provide them the opportunity to give feedback on project implementation. They can register themselves with government agencies fo

recharging. Recharging of pre-paid mobiles is nothing but conversion of cash into air-time. Thus, air-time is nothing but one form of virtual money. In such case can it not be used as a currency? In fact transfer of airtime from one mobile to another is permitted. Although data regarding P2P airtime transfer is not readily available, such transfer is the most common mechanism by which prepaid mobiles are recharged by franchisees of mobile service operators.

The most common form of recharging involves the following steps: (a) the main

ITEM	NUMBER (Millions)
DEBIT CARDS*	27
CREDIT CARDS*	12
ITZ CASH CARD**	10
KISAN CREDIT CARD***	71
* AS ON 31.03.2006, Economic Times ** TRANSACTIONS PER MONTH AS ON JULY 2009, http://www.medianama.com *** Million as on 31.03.2008, nabard	

However, the limitation of the existing model is that while conversion of physical money to electronic money is possible, the reverse is not. This limitation acts as a severe constraint in electronic currency being used for a wider variety of transactions, although there are unconfirmed reports of such conversion taking place in grey market. Assuming that it is possible to convert airtime to physical currency, airtime transfer offers an excellent solution to the problem of fund transfer. Before examining the issue in greater details let us first see how such transaction can affect the development model described in figure 5.

Airtime transfer can be used for making payment to BPL labourers, thereby obviating the need of a bank account while at the same time reducing the possibility of diversion of funds. The potential buyers can enter into a verbal contract with the village producer and make advance payment to demonstrate his commitment to the oral contract. The airtime thus transferred, can be either encashed or be used to make other transactions via further transfer of airtime. Airtime transfer can also be used for disbursement of credit, repayment of loans, and in transactions within the self help groups formed by micro-finance institutions. This can have a powerful impact on micro-finance and banking services aimed at the rural poor. In fact, the service is so general in its scope that it is equally, if not more, applicable to urban life. Thus, although simple as a concept, it has the potential to affect all segments of society. Having identified the importance of airtime transfer, we now attempt to apply the STOF method to create a viable business model.

8. APPLICATION OF STOF METHOD:

8.1 The Rough Model:

The rough model of the proposed service envisages a service provider who provides electronic currency in lieu of cash and vice versa. The conversion of physical currency to

traders, the service has to address the security concerns of the financial system as a whole. Unless the service model addresses the security concerns of all the stake holders it will not be

physical to electronic currency and vice-versa. A mobile customer will have two types of accounts: (a) the normal pre-paid mobile account, (b) the virtual mobile bank account (which is linked to his mobile number). While the pre-paid account will be maintained by the MSP, the virtual bank account will be maintained by the banking partner. Transfer of funds from one virtual account to another is done by the bank, through the intermediation of mobile telephone network.

The chain starts with the Mobile Service Provider (MSP) depositing money (or other form of security) with bank and getting authority to issue electronic currency. This currency is transferred to the mobile subscribers through the franchisee network, against cash payment. The currency thus purchased is credited to the virtual mobile account. When the customer wants to recharge his prepaid mobile account he follows the usual procedure of recharging. The only difference being that on completion of his actions the MSP sends an electronic advise to the bank for transferring of funds from virtual mobile account to pre-paid mobile account. The bank transfers the fund to the MSP's account, after deducting the service tax, and the MSP credits the pre-paid account.. Similarly, when the customer wants to pay someone he sends an sms to a designated number. The payment instruction issued by the customer is transmitted to the bank. The bank acts on the advise of the customer and transfers funds to the recipient, after deducting applicable service tax. Thus, the settlement takes place instantaneously. When the trader wants to convert electronic currency to physical currency, he goes to the franchisee and gets physical currency by transferring electronic currency to the franchisees' virtual mobile bank. Since the bank deducts applicable service tax before transferring funds so, collection of service tax becomes centralised. The banks transfer the service tax to government account and sends a confirmation to the utility provider. When the government wants to transfer money to the beneficiaries of the employment generation scheme, it purchases electronic currency from the MSP and transfers the same to the beneficiaries. The proposed model is described in Figure 6.

The issue that crops up next is how to address the revenue expectations of the telecom service provider, its franchisee and the bank. While deciding on the revenue model one should not lose sight of the investment made by these stakeholders. While investment of MSP is only restricted to advance deposited with bank to get electronic currency, the franchisee

needs to maintain a minimum level of cash so that conversion from electronic to physical

The advantage of the model is that it builds on existing customer practice and the major process changes are not visible to the customers. It also builds on the existing value chain of MSPs and utilises the strength of parties involved in the model. It also offers a solution to a critical gap in utilisation of mobile communication system for e-government activities and in realisation of the full potential of mobile telephony in economic development.

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