



Novel Approaches to Rural Finance

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Introduction

Despite several efforts over the decades, there continues to be a large unmet need for rural finance in India. While some initiatives have been very successful, such as in the area of micro-finance, there is still considerable scope to improve the situation with regard to terms of access and reach. The impacts of providing rural finance can be expected to be far reaching as banking and insurance form the backbone of all economic activity. Providing rural finance on a large scale can, therefore, catapult the pace of economic development in the country. This article looks at a novel internet-based solution to providing access to finance in rural areas.

Connectivity in India

India has seen an unprecedented growth in the telecom sector over the past decade and yet for a country whose population is over a billion, the tele-density is just over 9 percent. The distribution of telephones is also highly inequitable, with rural tele-density being less than 1.5 percent against an urban tele-density of 20.7 percent as of 2004. Less than 2% of the population has access to the internet and access in rural areas is virtually absent. The poor rural scenario for telephone and internet access is especially alarming given that over 70% of India's population lives in these areas.

The Potential Benefits in Rural Areas

The utility of access to telephones and the internet in rural areas cannot be over-emphasized. By bridging distances, telephony and the internet, which fall under a broader category known as Information and Communication Technologies (ICT), allow people living in remote areas unprecedented access to resources and opportunities.

Online services in the areas of health, education and e-Government significantly impact the quality of life in rural areas. In the health arena, remote diagnostics is a significant technological advancement that could prove extremely useful in areas where medical facilities are poor or absent. In the field of education, distance learning can be used to supplement the locally available school and college education or to provide certification from well-known academic institutions located in cities. These can enhance the skills and employability of the rural population. E-Government services can provide an opportunity for the rural populations to interface easily with government officials and access important government documents without having to physically travel to distant locations.

Services that generate employment – such as the outsourcing of work from urban areas through ICT – can increase the income levels in rural areas. ICT also provide people in these areas with the ability to access experts in various domains such as agriculture who might be located far away. By raising the income levels and standard of living in rural areas in these ways, the persistent trend of rural-urban migration can also gradually be curbed. Governments across the world today and international organizations such as the United Nations are paying greater attention to the important role that ICT can play in bringing about socio-economic development.

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The Challenges in Rural Areas

There are certain unique challenges in providing connectivity in rural areas in a manner that is financially sustainable.

Technology for Rural Connectivity

The challenges from a technology point of view are many. The systems that provide connectivity need to be relatively inexpensive if they are to be commercially deployed, given the lower incomes in rural areas compared to urban areas. Most households have incomes below Rs. 3000 per month (which amounts to Rs. 600 per capita per month). Providing telephony and internet to such populations on a commercial basis has always been a challenge. As a result the spread of telephones in rural areas is barely 3 telephones per sq. km, despite a higher population density compared to other parts of the world. Another challenge is that the systems must be sufficiently robust in order to withstand the harsher physical environments that often characterize rural areas. They must also be capable of functioning without certain basic infrastructure such as regular power supply, for example.

Fortunately, India has certain technology advantages with regard to providing rural connectivity. Over the past 15 years, the Department of Telecommunications, the Government of India and Bharat Sanchar Nigam Limited (BSNL), the state-owned incumbent, have made significant contributions toward connecting rural India, by laying fibres to almost all *taluka* (county) headquarters and towns. Today, many of the private telecom operators (Reliance, Tata, Bharati) and organisations such as Railtel have also laid fibres to connect these towns. Nearly 85 percent of Indian villages are situated within a 15-20 km radius of *taluka* towns and therefore, a wireless system with a radius of coverage of about 20 kms deployed at these towns would be able to connect a majority of the villages in the country. corDECT, a Wireless-in-Local-Loop system, is one of the most cost-effective solutions in this regard, developed by the TeNeT Group at IIT-Chennai in India, in collaboration with a Chennai-based company, Midas Communication Technologies Private Ltd. Its features are also ideally suited for rural use.

With a radio exchange and base station located at a *taluka* town, corDECT enables simultaneous telephone and internet connectivity in villages within a 25 km radius using a fixed wireless LOS (Line of Sight) system and Relay Base Stations. While the original corDECT provided connectivity at 35/70 kbps, the enhanced Broadband corDECT provides connectivity at 256 kbps. A 1000 line radio exchange and base station functions at an ambient temperature of even 55°C without air conditioning and has a total power requirement of only about 1 Kilowatt (KW), which can easily be provided by a small diesel or petrol generator. CorDECT also comes with range extenders that extend the range of its base stations.

The total deployed cost including that of the subscriber unit is under Rs 10,000 per line and the start-up cost for the system, at which the first subscriber can be connected, is Rs 1 million. In India, infrastructure for over 2.5 million corDECT lines has been deployed by all major telecommunication service operators. India's major telcom, BSNL, has reached nearly half-a-million homes with corDECT. The product has also been deployed successfully in ten other countries

such as Sri Lanka, Bangladesh, Brazil, Tunisia, Iran, Togo, and the Democratic Republic of Congo. Deployment is being planned in many CIS countries and other nations of Eastern Europe.

With the available fibre network and significant strides in technological innovation, providing rural connectivity is a reality today. However, in order for it to be provided on a large scale, such technology must be deployed using an appropriate business model.

A Business Model for Rural Connectivity

An innovative business model is required to deliver internet services to rural areas. Commercial delivery is essential in the long run since funded models drain financial resources and are neither scalable nor sustainable. However, since the urban market is now well understood and profits can be made within a reasonable period of time, there is little incentive for businesses to focus efforts in the rural market. The latter has not been explored and therefore poses greater effort and risk. Therefore, an organization dedicated to providing rural connectivity alone is needed, which would be willing to invest in understanding the market thoroughly.

n-Logue Communications Private Limited is a private company that was formed in order to meet this need. The company was incubated by the Telecommunications and Computer Networks (TeNeT) Group at the Indian Institute of Technology, Chennai with a mission "to significantly enhance the quality of life of every rural Indian" by setting up a network of wirelessly connected internet kiosks in villages throughout India. n-Logue uses a for-profit business model and the corDECT technology forms the backbone of its network.

n-Logue's three-tier franchise business model consists of the company at the top, Local Services Providers (LSPs) in the middle and the Kiosk Owners (KOs) in the lowest

tier. Inspired by the STD-PCO and Cable TV examples, the model involves creating local entrepreneurs who will own the kiosks and drive the business at the village level. The role of the LSP in this model is to set up the technology infrastructure in a particular region jointly with n-Logue in order to provide last-mile connectivity and also to provide support to the kiosk operators within the area.

The company helps the KO set up a kiosk by providing her or him with the necessary hardware, which consists of a Multimedia PC, a UPS with battery, a digital camera, printer, and the cordECT wallset with related accessories. The total cost of this equipment and a marketing kit, local language software, training and an internet connection for the first six months of operation is approximately Rs. 50, 000. However, to start the business, the KO need only come up with Rs.10,000 as n-Logue helps the KO secure loans through banks for the remaining amount.

Once the kiosk is in operation, the KO can access a host of services developed by n-Logue. These include computer education, adult literacy programs, agriculture-related services, health services and e-Government services. Many of these services make use of iSee, a low bandwidth videoconferencing software that allows villagers to communicate with various experts remotely. Other online services include entertainment (games, music and movies) and astrology. In addition, the KO may offer any number of services that he or she develops independently or with other partners, at the kiosk.

Appropriate and Affordable ICT-Based Services

The value of ICT infrastructure is derived from its ability to deliver services that are valuable to the local population. If priced appropriately, ICT-based services can find a large rural market. Significant potential exists in several domains – agriculture, health, e-Government, education, outsourcing of work, etc. Financial services – especially in the form of banking and insurance – is a critical service area that needs to be developed in this regard.

Rural Finance

Livelihood opportunities in rural areas become seriously limited in the absence of access to finance. The traditional moneylenders have largely disappeared and those who remain tend to charge exorbitant interest rates. No serious entrepreneurial activity can thrive as long as finance is limited and the interest rates are very high. Despite a growing emphasis on rural finance, banks find it practically difficult to provide any significant loans to those who live in villages. Even when the nearest bank branch is only 25 kilometers away, the cost of inviting and evaluating loan applications, carrying out the necessary checks, sanctioning the amounts, monitoring to ensure that the loans are being used for the intended purposes and finally recovering the interest and the principal, often exceeds the principal amount itself. This is especially true of smaller size loans between Rs. 20,000 and Rs. 50,000. The banks, therefore, have not been able to replace the traditional lending sources in the villages and the villages are starved of finances.

In recent years Micro-finance has come up in a big way in order to fill this gap. The success of micro finance has been extensively discussed and written about and is indeed remarkable. Borrowing in bulk from the banks at 8-10% interest rates, the Microfinance Institutions (MFIs) provide small loans to people in the

villages who normally form groups, where the individuals serve as guarantors for one another. With MFI employees/agents closely monitoring the small loans, the default rates are negligible. But the interest rate still works out to between 24 to 30%. While this is less than the rates charged by local moneylenders and therefore highly welcome, the rates are still too high for setting up any kind of enterprise. The loans are good only for emergency consumption, trading and select activities such as cattle rearing. The bulk of other entrepreneurship activities would require loans at interest rates of 10 to 12%. Micro-finance does not fulfil this need.

In this context, internet kiosks in rural areas have the potential to play a key role. Can these kiosks be used to provide internet banking in the villages? Perhaps, but the questions still remains how can the cash be actually delivered in the villages? This could be easily done if an ATM were placed at the kiosks. The cost of a conventional ATM is very high (Rs. 6 to 8 lakh) and installing these in villages with populations below 3000 makes little economic sense. To overcome this problem, the TeNeT Group along with Vortex came up with a solution in the form a Rural ATM, called Gramateller. Priced at between Rs. 60,000 to 75,000 - depending upon the exact configuration - this ATM has the additional capability of using fingerprints as the means of authentication (villagers prefer fingerprinting to the use of any kind of card). The ATM can also dispense soiled notes (since people in villages tend not to trust new currency notes), and has the feature of remote electronic locking. Such a system could facilitate banking services in villages. Despite the low capital expenditure, however, the operational expenditure would not be negligible (especially as the bank would need to service the ATM and ensure that it is stocked with cash). Therefore villages of appropriate size, which are capable of generating sufficient business, must first be identified, before the ATMs are installed.

The use of internet-based transactions at the kiosk and the ATM, however, would be a mere beginning. If the financial needs of the rural population are to be met, a much more holistic approach is needed. The kiosk operator (KO), with access to the internet and an ATM, could become a virtual agent for the bank. The KO could also facilitate banking services by collecting comprehensive data pertaining to every person in the village - not a very difficult exercise as a village size typically comprises about 2000 people. Such data would include personal details, financial profiles and information regarding property / assets owned. A database of this kind is imperative in order to build a credit history for those living in rural areas. This would enable a system of credit rating, which forms the basis of loan disbursal. Only then can banks consider the rural population as potential clients and provide loans of a reasonable size.

Therefore, through a system of data collection and credit rating as well as by building appropriate delivery channels such as the internet kiosks and the ATM, the situation with regard to financial access in villages can be vastly improved. Important banking services can also be provided through the KO who can act as the local agent. Only then can rural entrepreneurs hope to get loans at an interest rate of approximately 10%.

Another related concern in rural areas is that the population has by and large become incapable of taking risks. The latter is an essential pre-requisite to any form of entrepreneurial activity. Exceptions do exist such as with the case of rearing dairy cattle, which is one of the best businesses in rural areas even in the current scenario of relatively high interest rates. However, even with this example, the risks to the farmer if he loses the cattle are grave. Insurance can play a very important role in mitigating risks and encouraging entrepreneurship in rural areas. Such insurance is required across almost all economic sectors of the rural economy. The kiosk can be used as a point of sale of insurance in rural areas.

In the case of agriculture, which is the occupation of the majority in the rural population, inputs have become expensive with modernization in this sector. In most rain-fed areas, however, there is significant return on the farmers' investment whenever it rains well. But when the rain fails, the farmers become bankrupt; many suicides in rural areas today are on account of drought. Rainfall today remains the major uncontrolled variable in agriculture today, posing an enormous risk to the farmer. Rainfall data over the last fifty years shows that in an eight year period, rainfall typically fails once, is marginal a couple of times, is a little more than the average two to three times and is very good a couple of times. This presents an ideal case for risk coverage through insurance. Rainfall insurance - where the payout takes place only when the rain in the villages is below a certain threshold level - is being introduced in these areas.

To enable this, the TeNeT Group, along with Neurosynaptic, has developed an Automatic Weather Monitoring Station, which is soon to be deployed at the internet kiosks. The low cost station would be mounted on the roof of the kiosk and would measure atmospheric temperature, pressure, humidity, wind speed and direction and rainfall multiple times a day. Such a device would be crucial in enabling products such as rainfall insurance, in addition to providing data for micro weather prediction studies.

Another uncontrolled variable in agriculture is the market price of produce. With globalization of agriculture, events anywhere around the world can suddenly and significantly depress market prices of a crop, when it is ready to be harvested. The farmer can suffer a huge loss. Fortunately, commodity exchanges are now coming up with Options and Futures to mitigate such risks. The internet kiosks could play a major role in training a farmer on how to participate in such commodity exchanges and eventually they could become a point of trading and participating in such exchanges.

Conclusion

With technological innovation, providing connectivity in rural areas is entirely possible today. The efforts of organizations such as n-Logue Communications have also ensured that ICT infrastructure exists in several villages across the country. There is considerable scope to utilize this infrastructure in order to provide internet-based solutions to provide finance in rural areas, which were unthinkable in the earlier paradigm. By gathering systematic information on the rural population and assessing their credit worthiness banking can be taken to rural areas. Online transactions can be carried out and the low-cost ATMs can be deployed in villages to dispense cash. The possibilities, therefore, are much better today, with such technology and infrastructure in place, to provide suitable, affordable and scalable options for finance in rural areas. With a focused approach, a systematic solution to this hitherto elusive area appears finally within reach.

References:

1. Jhunjhunwala Ashok and Ramachander Sangamitra, *Commentary: The Role of Wireless Technologies in Connecting Rural India*, *Indian Journal of Radio and Space Physics*, Vol. 34, October 2005.
2. Jhunjhunwala Ashok and Ramachander Sangamitra, *Rural Connectivity in India*, *CSI Communications*, August 2005.
3. www.tenet.res.in
4. www.n-logue.com