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IMPACT OF INFORMATION TECHNOLOGY ON THE DEVELOPMENT OF RURAL ECONOMY OF INDIA

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How can information technology (IT) impact on rural economy and life of rural India to rural development? What are the channels through which impacts can be realized, and what are the practical means for realizing potential benefits? We cannot make India economy better unless we not understand the importance and strength of economy of rural sector. This paper also highlights that there is wide scope in rural market of India. This paper examines several ongoing projects that aim to provide IT-based services to rural populations in India. These projects are distinguished by the goal of commercial sustainability, which supports scalability and, therefore, more widespread benefits. The analysis highlights the common building blocks required for successful implementation, and the relative strengths and weaknesses of different approaches.

1. Introducation

A large number of studies have shown that even today approximately 70% of Indian Population lives in Rural Areas. Today, Rural Development is essential for the development of the Indian Economy. Rural economy can be developed by improving rural markets. It may seem paradoxical that modern information technology (IT), associated in our minds with developed country markets and capital intensive methods of production, has any relevance for a country where many millions still lack basic needs. Nevertheless, there are many efforts underway in India and other developing countries to demonstrate the concrete benefits of IT for rural populations, and to do so in a manner that makes economic sense.

Indian Government has realized the role of the rural development and the contribution of I.T. in the development of Rural Markets. A large number of projects are introduced in the rural area with many upcoming projects in pipeline; which are likely to be introduced by the Government in the short span of time. Rural Literacy is ranked at the topmost position of priority. Trends indicate that rural markets are coming up in big way and growing twice as faster as urban markets. According to a study by NCAER (National Council for Applied Economic Research), the number of middle and high-income households in rural India is expected to grow from 80 Million to 111 Million by the end of year 2007 as compared to Urban India that is nearby 59 Million.

The Rural Market of India is showing an impressive growth largely due to changing lifestyle patterns, better communication network and rapidly changing demand structure of consumers of rural area. With the changing patterns of Rural Market, the role of I.T. has increased from providing only the Networks to set-up the basis of updated technological programs in the rural area. It is seen that the people living in the rural area have strong purchasing power and have more openness for new technology as compared to the past. Evidence of the increase in purchasing power can be drawn from the statement of Mr. D. Shiva Kumar (Business Head - Personal Product Division, Hindustan Unilever Limited) who said that the money available for spending on the FMCG by Rural India is 63,500 Cr., which is much more as compared to Urban India that spends the amount of approximately 49,500 Cr.

In Rural India, Government has already provided Info-kiosks (a rural version of cyber café), which provide basic communication facilities like Internet connection and telecommunication services. Modern Information and Communication Technologies (ICT's) were found to have great potential to contribute. The projects of Info- Kiosks are very popular in the region of Andra Pradesh, Delhi, Gujrat, Karnataka, Kerala, Maharashtra, Madya Pradesh, Rajasthan Tamil Nadu and Uttar Pradesh and have shown a positive response in the development of the rural area.

1.1. Information Technology and Development

In abstract, there are two types of potential economic gains from the use of IT. First, there are both static and dynamic efficiency gains. Static gains are one-time, and come from more efficient use of scarce resources, allowing higher consumption in the present. It is useful to distinguish two kinds of static efficiency gains. One kind pertains to increases in operating efficiency, while the other comes from reduced transaction costs. In both cases, the channel for gains is through more effective and lower cost. It is useful to distinguish two kinds of static efficiency gains. One kind pertains to increases in operating efficiency, while the other comes from reduced transaction costs. In both cases, the channel for gains is through more effective and lower cost information storage, processing and communication.

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Dynamic gains come from higher growth, potentially raising the entire future stream of consumption. The second type of potential benefit comes from reductions in economic inequality, to the extent that such reductions are an agreed-upon social goal, and therefore a social benefit. However, a focus on using IT for rural development is, at least on the surface, supportive of reduced inequality along with increased efficiency and growth. Development can also include improvements in the capabilities of the population, such as education, health and nutrition, independently of any direct or indirect economic impact.

IT involves the electronic processing, storage and communication of information, where anything that can be represented in digital form is included in the term 'information'. Thus news, entertainment, personal communications, educational material, blank and filled-out forms, announcements, Schedules, and so on are all information. Software programs that process data (searching, tabulating, and calculating, for example) are also information in this sense, representing a particular kind of intermediate good. We can use standard economic characterizations to classify the different kinds of information. For example, entertainment, personal communications, and sometimes news, are final goods. Educational material, job announcements, or some kinds of news (weather news for farmers, for example) are intermediate goods, typically used for improving income-earning opportunities.

Information goods typically have the characteristic that one person's use does not reduce their availability for another person. Thus, message or weather news can be viewed by many people, simultaneously or sequentially. Depending on the content of the news or message, different people may place different valuations on the information. Only friends and relatives may be interested in a personal message, all farmers in a district may be interested in local weather news, and so on. The ability to share information among users can impact the feasibility of providing it on a commercial basis.

For both government and private provision, one of IT's main direct benefits is in increasing efficiency by economizing on resource use in the operations of firms as well as in market transactions. Information that would otherwise be conveyed through face toface contact, post, courier, print delivery, telegraph or telephone may instead be communicated in digital electronic form via the Internet. Efficiency gains from Internet use are not automatic: the telephone, in particular, is an efficient means of communication for many types of information. IT also requires new investment, so the benefits of trips, time and paper saved must be weighed against the costs of installing and maintaining the new infrastructure. Efficiency benefits of IT are not restricted to the communication itself. IT can improve the efficiency of the telephone network, and it can make it possible to track and analyze communications. Word processing, maintaining accounts, inventory management, and other such activities that may not require long-distance communications are also made more efficient by IT.

Experience with Internet use in developed countries suggests that information exchange related to the completion of market transactions is especially valuable. The ability of IT-based communications (combined with storage and processing) to bring together buyers and sellers more effectively represents major potential gains. These gains can come about through lower search costs, better matching of buyers and sellers, and even the creation of new markets. The successes of auction and employment websites in the US illustrate these gains. In the rural Indian context, farmers selling their crops and buying inputs, parents seeking matrimonial alliances for their children, and job seekers are all potential users of Internet-based matching services. Also IT makes the closeness between government agriculture extension workers and farmers. For example farmers can get immediately any type of assistance from agriculture extension workers of agriculture department regarding when to sow the crop, when to harvest and treatment against pests and weeds and other climatic hazards through the use of IT tools like e-call centers, web-portals, mobile technologies (including CDMA and GPRS). So this process makes the effectiveness of various schemes and programmes undertaken by the government of India for the green revolution and development of rural economy of India. Because now with the implementation of information technology in rural sectors specially agriculture sectors there is no wastage in terms of money and time for implementing any development scheme otherwise a lot of money and time are wasted for making interaction with farmers by agriculture extension workers and sometimes some scheme get failed also. For example government of Andhra Pardesh launched "Farmers call centre" as a pilot project on July 1, 2003 to serve the farmers queries and provide them solutions. It was unique and first of its kind in India at that time and became very popular among the farmers with a lot of response and queries.

1.2. Challenges and Issues for Rural IT

So now far we have seen the effectiveness and advantages of implementing IT in rural sectors. By implementing IT tools how we can raise the economy and development of rural sectors and so overall development of India. So it is true if we want to make our country-developed country we cannot neglect the rural sector of India as a major part of India population lives there.

No doubt that government of India had taken a lot of initiatives in this direction but due to the lack of transparency, not full involvement of peoples of rural sectors or we can say less awareness, lack of information about government policies and schemes rural sectors could not do better till now. Defiantly IT now days becomes a solution for

imparting knowledge to a mass of peoples at a single time, increases the involvement among peoples in government schemes and policies which in turn called as e-Governess. So if we want to implement E-Governess then we have to implement IT tools. If we want to set up a example of good democratic country then we have to implement e-Governess which means government is near to a common people of India.

Now in this context my paper is going to describe the challenges and issues in implementing IT in rural sectors.

2. POWER SUPPLY

First of all power supply is the major problem in implementing IT in rural sectors in developing country like in India. However use of battery backup and solar energy is the solution for the problem. Battery backup and implementation of solar energy will increase the implementation cost. Battery backups are a very partial solution to the lack of reliable power supplies, and solar technologies may be more promising in the near future: they are already in use in existing rural IT efforts. The difficulty is that having to rely on these alternatives and backups unnecessarily raise costs of operation. Of course this is true for all of India's economy. It is well recognized that the power sector is the major bottleneck, with capacity well short of demand, and the quality of transmission and distribution remaining poor.

2.1. Cost Factor in Implementation of IT in Rural Sector

It is the main challenge for implementing IT in rural sector in developing country like India because IT implementation includes installation of hardware components like computer machines, networking tools like routers, hubs, cables, printers and software components like operating system, other application software. However it is also true that with standardization of components of desktop computing and peripherals, rapid technological improvements, falling costs of production, and, most recently, price reductions resulting from changes in tariffs on imported hardware. It is now possible to fully equip a single computer rural Internet kiosk for less than Rs. 50,000, including CD drive, printer, scanner, power backup, and web camera. But this cost will become huge when we have to install computer machines throughout the country. For this we have to raise the funds which can be done by imposing tax and there is also need of contribution from the private sectors in this direction,. Secondly cost of software like operating system and application software is also a concern factor. Potentially, the highest cost component is the operating system, since Windows enjoys a virtual monopoly on the desktop. There is a solution for this problem that government should use the open software technologies like LINUX operating system.

2.2. Issues of Awareness and Training for Using IT Tools

This is the main prerequisite in implementing IT in rural sector that we have to make awareness among rural peoples about the using of IT and its benefits. Training of rural kiosk operators, whether they are formal franchisees or independent farmer operators, becomes a key aspect. Training the field personnel at various levels (village and district hub) is also critical. For this training programmes government have to take initiatives and there is also need of participation of NGO's in this direction.

3. IMPLEMENTATION OF IT: VARIOUS CASE STUDIES AND THEIR IMPACTS

Government and some private sectors had introduced a number of programs through which the people of rural India can come forward and use the I.T. enabled services and work more systematically. Some of the programs run by the Government and private sectors are:

3.1. Community Information Centers

The program is designed especially for providing the Internet access and I.T. Enabled services to the citizens through which the interface between the Government and the Citizens can be setup. These centers connect seven northeast states namely; Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland and Tripura. The center helps to gain the connectivity at the time of unsuitable environmental conditions. The centers are commonly termed as CIC, which are generally situated at the school, college or any governmental office. People can come for the Internet access, and for accessing the Internet, a nominal amount is charged from the people through which the daily expenses of the centers are maintained.

3.2. Drishtee

Drishtee is present in 5 States and is currently available in six districts. It is a private company, which was previously named as Cyber Edge, which has the main work of developing the modules. It is present in Bihar, Haryana, Madhya Pradesh, Punjab and Rajasthan. They prepare the module for the poor section of the society who cannot understand the international language. The modules are designed for the rural and semi-urban areas especially. Drishtee.com had its origins in Gyandoot, a government project in Dhar district of Madhya Pradesh, in central India. Drishtee has attempted to take that model and rapidly replicate it across the country. Currently, Drishtee has over 100 rural Internet kiosks in several states, run by franchisees according to a revenue sharing arrangement. Drishtee is a commercial organization, with specific social objectives of targeting benefits to the rural poor built into its vision and strategy. Thus Drishtee's model involves not only franchising

individual kiosks, but also potentially franchising district hubs. Partnering with local district hub 'channel partners' allows Drishtee to expand faster without creating a bulky organization, spreads risks, and also insulates Drishtee from some of the commercial pressures that might conflict with social objectives. At the same time, it reduces Drishtee's ability to monitor and implement the achievement of social objectives.. It uses standard battery backup for power interruptions, and has relied mainly on dial-up Internet access, though it is experimenting with Wi-Fi for district-level intranets. Drishtee also helps in implementing e-governance. In this context, informal partnerships with district level government officials (both state and local) have been very significant. For example, in Sirsa and Jaipur districts, Drishtee has been able to act as a significant intermediary for information exchange between the district government and constituents.

3.3. ITC

ITC stands out as a large Indian corporation serving global markets. Its kiosks are called e-choupals, and they have several differentiating features. The key distinguishing factor is that the e-choupals are totally designed to support ITC's agricultural products supply chain. In addition, the e-choupals are totally owned and set up by ITC, with the operators not having any investment or risk of their own. Furthermore, e-choupal operators are, because of the focus, always substantial farmers, and therefore always male. All these features make the e-choupals different from the previous three initiatives. The e-choupal initiative has involved a clear focus and strong direction from the head of ITC's International Business Division. ITC has been able to turn its substantial organizational and managerial capabilities toward this initiative. Management trainees are heavily immersed in the e-choupal model as part of their inculcation into ITC's workings. There are four kinds of e-choupals, tailored very specifically for four different products: shrimp, coffee, wheat and soybeans. E-choupals also provide access to local market (mandi) prices and global market price information on soybeans and derivative products, to allow farmers to compare prices. They give access to operational information, developed by ITC experts, pertaining to cropping, seeds, fertilizer, and so on. E-choupals are set up by ITC, with solar power backup and VSAT connectivity. The equipment cost for the e-choupal is borne by ITC, with the selected farmer providing the location. In addition to the adoption advantages that come from using a farmer with high social status as the operator, the house should be spacious and sturdy enough to house all the required equipment, including the VSAT and solar panel on the roof. Echoupal farmers take an oath to serve the village, and they are trained by ITC. While there is an important element of social pressure and pride of work, the operators also receive commissions on soybean shipments booked through the e-choupals. This provides substantial revenue to the e-choupal operator.

3.4. Rural e-seva

It was initiated by ANDRA PRADESH Government. It was initially implemented in West Godavari District to deliver e-governance facility. The centers are designed with the view to provide better governance facilities to the people of the Rural India. The popularity of e-seva can be estimated from the fact that in the year 2003, more than 400 million rupees was collected only for the electricity payment. With the success of the e-seva in electricity bills payment, Government is looking forward for introducing it in the areas of collection of telephone bills and local Governmental Bills. E-seva is gaining popularity with passing days as it helps the citizens to avail the benefit of getting the certificates at their doorsteps; which is both relaxing and reliable.

4. CONCLUSION

The face of Indian rural market can be transformed only with the deployment of I.T. The paper has provided the brief description of the various services offered in the rural areas of different states of India and simultaneously the advantages these services have. This paper has briefly surveyed several initiatives to provide IT-based services in rural India All the services have difference in degree of connectivity, level of service offered and basic organizational structure. The increase in the services provided to the rural people (in terms of various services offered) will result in the overall betterment of the society on one side by enriching the people with updated market information and providing latest technological developmental news and organizations on other side by creating more market opportunities for them and adjustment of the market prices. I.T. services need to be developed in reference to the present rural infrastructure. Internet based services blended with customer support services should be provided in the rural areas, which can increase the acceptance rate of the services by the rural people. In the long run, bringing rich information to the population of rural India, whether in the form of education, market prices, market opportunities, and more, can only have positive impacts on the material well being of rural masses.

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