Chapter No. 04: Role Of ICT & Entrepreneurship Development.

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Introduction:

India is vast country and traditionally an agrarian economy. Nearly 70 per cent of India’s population still resides in the villages. The penetration level of the new telecommunication tools is low in the rural areas as compared to the urban sector. New technologies and ICT platforms are evolving, featuring collaboration between the development agencies, academia and the local government.¹ Factors responsible for the success are cost effectiveness of technology, provision of value-added services, and commitment from the governmental authorities, and entrepreneurial orientation. Such initiatives along with private participation which help in bridging the technological divide and creating an opportunity for divide convergence. India has a large number of rural villages that do not have telephone connectivity. Within India the digital divide between rural and urban India is rather large. Bridging the digital gap requires considerable investments in the normal situation. A new technology that uses Wireless in the Local Loop has the potential to reduce the cost and thereby increasing the number of villages that are linked. Digital Convergence is emerging as an opportunity and this concept could be used for ensuring lower cost in ICT.

The Internet has emerged in the last few years, not just as another communication means, but as sheer power. Access to Internet provides access to a whole lot of information. It enables one to quickly reach out to a variety of training and education. It helps one close deals and carry out transactions and it enables one to perform tasks which otherwise required a lot of travel. India has less than 3 million Internet connections today. Lack of access to
the Internet is going to create strong divides within India. It is imperative that India catches up with changing time getting higher telephone and Internet connectivity and usage at the earliest. This talk focuses on what needs to be done to get there. Getting there is important, but equally important is the process of getting there, as this requires - technology which is most suitable to a country like India where large part of the population is poor and lives in villages and mode of technology delivery with low delivery cost and maximum reach in the interiors of the country.

**Rural Cable TV Industry:**

Cable TV is grows from zero in 1992, the number of cable TV connections today is believed to have grown to over 50 million. What has enabled this? The first reason for such rapid growth is simple economics. While a cable connection in India costs only about Rs.100 per month, the cost in the USA for a similar cable connection would vary from $15 to $30 per month. While a new colour television may cost as high as Rs.15,000, second hand colour TVs are available at Rs.2500 and a 14" Black & White TV is sold in rural India at Rs.1200. Cable TV has been made affordable to over 60% of Indian households. The second reason for this rapid growth is the nature of the organization that delivers this service. Cable TV operators are small entrepreneurs. They put up dish antenna and string cables on poles and trees to provide service in a radius of 1 km. The operator goes to each house to sell the service and collects the bill every month. He/she is available even on Sunday evening if any repair is needed. This level of accountability has resulted in less-trained people providing better service using a far more complex technology, than that used by better-trained
technicians handling relatively simple telephone wiring. However, what is even more important is that such a small-scale entrepreneur incurs manpower cost several times lower than that in the organized sector. Such lower costs have been passed on to subscribers making cable TV affordable.

**ICT for Rural Development:**

Information technology is often identified as a key to improve the resource allocation process and to more efficiently implement programs. Information and communication technologies are indeed generating new possibilities to attack problems of rural poverty, inequality, and environmental degradation. Old ways of doing business in terms of delivering important services to citizens are being challenged and sometimes abolished in both industrialized and developing countries. But the question of the value of IT for rural development is accompanied by this dilemma for decision makers and multilateral funding institutions: should the very limited resources for rural development be applied to developing ICT capacities, or are they best used for other high priorities such as schools, hospitals and dispensaries? Clearly, there is a grave concern about the possibility of wasted, poorly utilized or otherwise unspent resources in ICT applications for rural development.

**Services Offered By Village Entrepreneurs:**

The following services are offered by rural entrepreneurs to the people:

- **E-governance:**
  - Birth Certificate.
• Death Certificate.
• Old Age Pension.
• Encumbrance Certificate.
• Complains for water, street light etc.
• Guideline Value of land as per government department.
• Information of all Government departments.

• **Health:**
  • Associated with Hospital
  • Online appointment with the doctor
  • Online registration for eye check-up and operation
  • Details of the eye problem along with the picture of the infected eye is sent to doctor through e-mail.

• **Entertainment:**
  • Browsing
  • Playing computer games
  • Cartoon shows for village kids
  • Movie show for villagers

• **Agriculture:**
  • Provides with the market prices prevailing nearby markets.
  • Provide with canal timing for the purpose of irrigation
  • Gives rain status.
  • Gives Reservoir level information.
  • Online agricultural query resolved by logging on to associated sites.

• **Education:**
  • For giving computer education and training.
• Checking examination results.
• Enquiring for higher studies in town and cities.

• **Others:**
  • Lottery results.
  • Astrology.
  • DTP work.
  • Foreign Currency Rates.
  • Selling insurance policies.

Rural communities can also be helped through access to knowledge that will improve productivity in their work, health practices, and enable them to learn about their environment. A large number of innovations in farm practices, tool design, and use of indigenous medication do not diffuse beyond local boundaries because of the isolation of rural communities. Much indigenous knowledge passed down from generations is also becoming extinct because of a lack of presentation efforts. ICT and Web technologies could make such information/knowledge visible to large cross sections of rural communities.

**ICT – Rural Training Programmes:**

Training programs to build skills that are in short supply can generate rural employment opportunities. Basic training in ICT can provide employment in electronic repair centers and information handling services. ICT can also be used to train field workers located in rural areas through innovative designs of distance learning programs. ICT needs to be further deployed to train physically and socially disadvantaged groups. The role of ICT is catalytic in the complex task of poverty reduction by leveraging
the effects on earnings opportunities, on educational and health services, on good governance and on promoting democracy. Since information exchange is part of nearly every element of the economy, the impact of improvements in the capacity for information exchange will depend critically on how the rest of the economy functions. This suggests the centrality of a holistic approach in evaluating the impact of ICT. For example, the impact of improved ICT access on farm earnings through increased knowledge of market prices will be muted if there are no roads to carry crops to markets, or there are no markets because of an unreformed agricultural sector.

The Role of ICT in Rural Development:

There are many examples about the role of ICT in strengthening rural livelihoods, providing market information and lowering transaction costs of poor farmers and traders. One of them is the *Grameen Bank*. Grameen Bank, best known as a micro-credit institution, has also pioneered in ICT related activities with the rural poor. Grameen Bank started with the mobile telephone program called Grameen Phone and has become the largest mobile operator in Bangladesh, having 70 per cent of market share. It has lately expanded to other ICT sectors, becoming the largest Internet Service provider. Grameen Communication has set up Internet kiosks in villages in Bangladesh and Grameen Software and Grameen Star Education are franchising IT education all over Bangladesh to build human resource base for the growth of IT businesses. As poor people are often unaware of their rights, entitlements and the availability of various government schemes and extension services, ICT can also improve their access to the information they need. Through info
kiosks or with the help of mobile phones farmers can access information on market prices or on extension services. Timing is often crucial when it comes to the sale of produce. Workers can also get information on available jobs and minimum wages. In a tribal district in Marathwada the most commonly used services related to various grievances, market information and land records.

The lack of systematic and transparent recording and public documentation of government data needed by the poor has a negative effect on development outcomes. This is the case, for example, with land records. Without land records as collateral, they cannot apply for loans, and often they cannot get assistance from government poverty alleviation programs intended for small farmers. Often for the poor, getting access to even the most common type of government information or documentation can be a nightmare requiring multiple visits and bribes as well as wasting their time. ICT can be used to address such malpractices and to speed up processing of documents. But it is not a simple process to get access to such documents at village level. ICT can help in this process, but it alone without active organizations and supportive measures will not be able to make the required information easily available.

**Rural Connectivity:**

Telecom connectivity constitutes an important part of the effort to upgrade the rural infrastructure. Under the Bharat Nirman Programme, Rural tele-density of at least 40 per cent by 2014, and Broadband coverage of all 2,50,000 village panchayats & Setting up of Bharat Nirman Common Service Centers at
Panchayat level by 2012 will be achieved. The following Table shows the state wise tele-density under Bharat Nirman Programmes of Central Government.5

**Table No.4.01: Rural Tele-density In India.**

<table>
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<tr>
<th>Sr. No.</th>
<th>Circle/State</th>
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<th>Percentage of Rural Tele-density 2009-10</th>
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<td>Andaman &amp; Nicobar</td>
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<td>2.77</td>
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<tr>
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<td>Gujarat</td>
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<td>7</td>
<td>Haryana</td>
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<tr>
<td>14</td>
<td>MAHARASHTRA (Including Goa)</td>
<td>21.70</td>
<td>45.25</td>
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<tr>
<td>15</td>
<td>NORTH-EAST- I (Comprising Meghalaya, Mizoram &amp; Tripura)</td>
<td>14.67</td>
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<td>Sr. No</td>
<td>State /UTs</td>
<td>Total number of VPs</td>
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**Source:** Report to DMU PMO (March 2011).

**Table No.4.02:**

**Broadband Coverage of Village Panchayats.**
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<td><strong>79165</strong></td>
<td><strong>53191</strong></td>
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</table>

Source: Report to DMU PMO (March 2011).
ICT initiatives can benefit all the components of Rural Development directly or indirectly. Direct ICT initiatives for rural-development refer to the front-end use of computing, networking and Internet technologies for rural communities. Examples are data-base systems, web portals or community service centers (CSC) at block or village level to address rural concerns such as local governance issues, land records management, supply-chain management, augmenting processes of rural markets or agriculture, and so on. Indirect ICT initiatives for the rural sector would be using ICT in background as a tool for education, weather forecasting and so on. All ICT initiatives, direct or indirect, in rural context have to be designed using an integrated and self-evolving approach.

Planning and Implementing ICT Applications:

Some IT applications implemented in the past were meant to provide decision support without a clear identification of their benefits in terms of efficiency of the decision making process or better quality of decisions. Several of the successful ICT applications were implemented after pilots had clearly indicated benefits to all the stake holders. Even though it may not be possible to specify monetary benefits it helps to be able to quantify benefits. In selecting applications, costs, benefits and risks have to be balanced. Risks may arise from the quantum of change involved, use of new technologies which have not had extended field use, complexity of the application software, and resistance to the application from vested interests. Often time’s simple indigenous technology may be the most appropriate, but there is a tendency to
ride the technology bandwagon. Most state governments do not have adequate funds to build ICT applications. They need to raise resources by involving the private sector and/or develop project proposals that are bankable. This requires a clear assessment of costs, benefits, and risks. Applications that touch the lives of a large number of citizens are more likely to be able to find benefits outweighing costs.

There are a number of areas where citizens must interface with government departments to make payments and receive services. Careful analysis must be done to identify the number of citizens that would be benefited by developing ICT applications because they are expensive and the services need to be located as close to the customer as possible. It is therefore important to select centers that handle multiple services so that benefits accrue to a larger section of the society. Otherwise the benefits may not seem to be commensurate with the costs and investments particularly in a country like India where there is a perpetual resource crunch and several possible alternative uses of funds. Government offices that collect revenues can increase collection provided the process is made convenient. Often community centers (subscriber trunk dialing booth, TV viewing center, and computer centers for neighboring schools) can reduce capital investment costs. If such centers serve multiple functions the gap between revenues and costs can be reduced. Convenient access to such facilities is important but it must be remembered that in most of rural India the population has to walk miles even to obtain drinking water. The key issues in designing these systems are the generation of content that would be useful for rural citizens and the trade-off between costs versus convenience in providing access to this
content. The content would have to be built in local languages. Tools are now becoming available to view content in Indian languages.

In the past, national programs like DISNIC and CRISP were formulated without adequate consultation with key stakeholders. The key stakeholders were: district-level clerical workers; heads of user departments; state level departments coordinating computing services; and the NIC staff at district, state and central levels. For the 440 districts about 5,000 officers were affected by computerization. Less than a small fraction of these stakeholders were involved in the process of conceptualizing the program and defining the scope of different applications. Now state-level agencies are driving the analysis, design and roll out of new ICT applications. This allows greater involvement of field unit personnel. However, the expediency of rushing implementation may still inhibit a participatory design process. A centralized technology push approach offers the possibility of quick execution but in the end effectiveness could be compromised. A largely technical orientation of executing agency staff can be a handicap in project implementation that requires predominantly managerial skills. Some central agencies executing similar projects have recruited hybrids and managers to successfully oversee the implementation of such projects.

**Sustained Training:**

Information technology cannot be forced down the throats of unwilling administrators. These public officers need to be motivated to improve the effectiveness of rural development
programs. Once they are so motivated they will find the technology to be an invaluable tool. IT can support the planning and monitoring effort by making detailed analysis possible. It can create openness in the administrative system by providing access to information to stakeholders. However, administrators need to be convinced about such benefits through firsthand experience, demonstrations and training. Since the purpose of field level computerization is to improve management, it requires sustained training efforts and technical inputs. Training needs to be oriented towards use of information by workers, supervisors, and managers for strengthening, planning and monitoring activities. Field-level officers generally lack training in the use of information. In fact, most field-level managers are seldom trained in management/administration. They have usually had technical jobs before becoming middle level supervisors.

**Inadequate Resources:**

Although outlays on many rural development programs add up to a sizable sum, the allocated funds always seem inadequate given the enormity of the development tasks. Most of the available funds are earmarked under specific budget categories. In many programs, staff salaries account for a substantial part of the budget. There is no discretionary budget with the field level functionary to do things differently from a standard plan developed at the state and central levels.
Potential Of New ICTs For Rural Development:

While the term ICTs can be interpreted as including a wide range of media, new ICTs’ is used to denote the use of computers and communication systems between computers. These new ICTs are becoming more accessible, and users can obtain information from various sources, and one computer could meet the needs of a large rural community. These modern technologies offer new and multiple perspectives, such as faster and better-focused access to information. Electronic mail is the most commonly used new ICT and has caused a cultural revolution in the way individuals and organizations interact, in terms of time, cost and distance. The second most significant use of new ICTs is the World Wide Web, which enables rural people to access information on millions of other computers.7

Although the Internet is not a panacea for rural development problems, it can open new communication channels that bring new knowledge and information resources to rural communities. Traditional communication channels have been used successfully but these have been monologist and have not allowed for much interaction with users. Radio for example has been very effective for disseminating information to all types of audiences, but broadcasting times are sometimes not appropriate for most people. But radio could be linked to the Internet, and a few initiatives have been started. This enables users to access programmes on the web at a convenient time, and send feedback through e-mail or chat. Broadcasters could then disseminate the latest information promptly. Some examples of areas where ICTs could play a catalytic role in developing rural areas include:
• **Decision-Making Process:** Sound decision making is dependent upon availability of comprehensive, timely and up-to-date information. Food security problems facing developing countries demonstrate the need for informed researchers, planners, policy makers, development workers and farmers. Information is also needed to facilitate the development and implementation of food security policies. E-mail and The Internet could be used to transmit information to and from rural inaccessible areas.

• **Market Outlook:** Farmers could promote their products and handle simple transactions such as orders over the web while payment transactions for the goods can then be handled offline. It has been shown to be cheaper and faster to trade online than on paper-based medium, telephone or fax. Electronic-commerce could, therefore, enable entrepreneurs to access global market information and open up new regional and global markets that fetch better prices and increase farmers’ earnings.

• **Empowering Rural Communities:** ICTs can empower rural communities and give them a voice that permits them to contribute to the development process. With new ICTs, rural communities can acquire the capacity to improve their living conditions and become motivated through training and dialogue with others to a level where they make decisions for their own development. Giving rural people a voice means giving them a seat at the table to express their views and opinions and become part of the decision making process. The approach should be participatory and could lead to improved policy formation and execution.
Improved policy formulation and strategies, however, require an educated and informed populace to reduce poverty, excessive population growth, environmental degradation and other factors that are most often the direct causes of hunger. New ICTs have the potential to penetrate under-serviced areas and enhance education through distance learning, facilitate development of relevant local content and faster delivery of information on technical assistance and basic human needs such as food, agriculture, health and water. Farmers can also interact with other farmers, their families, neighbours, suppliers, customers and intermediaries and this is a way of educating rural communities. The Internet can also enable the remotest village to access regular and reliable information from a global library. Different media combinations may, however, be best in different cases - through radio, television, video cassettes, audio cassettes, video conferencing, computer programmes, print, CD-ROM or the Internet. Rural areas also get greater visibility by having the opportunity to disseminate information about their community to the whole world.\textsuperscript{8}

- **Targeting Marginalized Groups**: Most rural poor people lack the power to access information. ICTs could benefit all stakeholders including the civil society, in particular youth and women. Other disadvantaged groups that could be targeted include the disabled and subsistence peasants.

- **Creating Employment**: Through the establishment of rural information centers, ICTs can create employment opportunities
in rural areas by engaging tele-centre managers, subject matter specialists, information managers, translators and information technology technicians. Such centers help bridge the gap between urban and rural communities and reduce the rural-urban migration problem. The centers can also provide training and those trained may become small-scale entrepreneurs.

**ICT for Rural Agricultural Development:**

Information Communication Technologies refer to technologies that facilitate the creation, processing and transfer of information across space and time. ICTs enable performing tasks quickly, efficiently and comprehensively, facilitating the flow of large volumes of information to a wide audience across numerous geographical locations. Though ICTs are not a panacea to agricultural and rural development, they have the potential of bridging the information gap for rural farmers with respect to innovative practices, government policies, credit facilities, accessing markets and acting as an effective tool for policy advocacy.

Agriculture in rural characterized by low productivity which can be ascribed to obsolete farming practices, the challenge of accessing credit for commercial agriculture, weak rural infrastructure, a constraining land tenure system, poor government rural development policy conception, poor implementation of viable policies, and ineffective extension services and the challenge of accessing markets for agricultural products. In the context of this essay, agricultural extension is conscious use of communication of information to and from farmers, involving agricultural policies; programs, research and
education to help farming stakeholders identify and analyze agriculture production problems, identify opportunities for improvement and enable formulation of sound opinions and good decisions. Market access refers to information on the location of profitable markets and entry requirements. The challenge thus is how can we use ICTs to improve agricultural extension to rural dwellers and improve access to markets? To get this right we need to put in place an effective framework, in terms of appropriate policies and programs that will harness the already well-known potentials of ICTs.

- **A Rural ICT Development Policy**: Local governments should ensure the provision of basic ICT facilities for communities within their jurisdiction. With the usually small population of most local communities, even a couple of computers can service their ICT needs. Local governments and private organizations can partner to provide ICT Centers (which can utilize the wireless internet services provided by telecoms companies) for rural communities.

- **Volunteer Group**: Volunteer Group can be an effective tool for fostering ICT development in rural communities as it can provide the man-power and high level competence required to manage ICT centers and train locals on ICT use for agricultural development purposes. Besides, due to its wide coverage of rural areas, networking between the groups in various communities can foster rural-urban communication, extending information to rural farmers and providing relevant market access information. The Volunteer Group will be trained on
ICTs and how to use them for relevant extension servicing and sharing market information. The proposed ICT centers can be managed by trained volunteers, who in turn will transfer skills to their communities via a ‘train the trainer’ approach, to ensure sustainability.

- **Young Farmers Association:** Formation of young farmers clubs in secondary schools will stimulate the interest of youths in agriculture. By exposing students to innovative agricultural practices and agriculture potential information via mechanisms like slide show presentations and interactive internet programs we can raise a generation of farmers that will be more willing to use ICTs to create and utilize extension information and improve market access.

- **Community Focus Group:** A coalition of the student farmers, the Volunteer Group and cooperative farmers in communities will result in focus groups. Focus groups can promote agricultural extension by sharing experiences and communicating these to government extension and policy implementation bodies, via the internet. A network of focus groups through the ICT initiative will also facilitate market information.

- **Direct Connection of Rural Centers with Extension Agencies and Markets:** The government should ensure a policy where direct communication exists between the various agricultural extension agencies, policy implementation agencies,
credit institutions, prospective agricultural markets and the ICT centers in rural areas. Through this market-farmer-extension service interaction, high yielding input and innovative practices can be communicated to farmers, and major agricultural markets can inform farmers on required product specifications and even reach joint venture partnerships that will allow major buyers to finance commercial farming.

The potentials of enhancing agricultural extension services and improving market access for rural youth farmers abound with the use of ICTs. Harnessing these potentials however, requires an appropriate framework for ICTs utilization. This framework involves appropriate government policies, formation of volunteer groups, stimulating youth interest via the Young Farmers Association, integrating communication between focus groups in various communities and relevant government extension service and policy implementation agencies.10

**Electronics Hardware Industries:**

The growing convergence of information, communication and entertainment has given a new impetus to the Electronics Hardware Sector. Electronics Hardware Manufacturing comprises five sub-sectors namely Industrial Electronics, Computers and peripherals, Communication & Broadcast Equipment, Strategic Electronics and Components. In India the demand for hardware is fuelled by a variety of drivers these include high growth rate of the economy, emergence of a vast domestic market catering to the gen next and thriving middleclass populace with increasing disposable incomes, relatively low-cost work force having advanced technical skills.
There are over 60 million Internet users as on 31.3.2009, Broadband subscribers have touched 7.40 million as on 31.10.2009, over 7 million DVD players were sold during financial year 2008-09, 6.78 million PCs sold; Installed base of 30 million (as on 31.3.2009), 15.5 million TVs sold; Installed base of 150 million (as on 31.3.2009), in the fledgling telecom sector subscription had reached to 525.65 million at the end of October 2009, Installed base for Mobile phones stand at 488.40 million subscribers (as on 31.10.2009) with 10-12 million new mobile subscribers added every month.¹¹

In this scenario there is now a big opportunity to step up the production to gain higher global share besides meeting the domestic demands. The Government has identified growth of Electronics Hardware Manufacturing Sector as a thrust area. National Manufacturing Competitiveness Council (NMCC) has been set up to provide a continuing forum for policy dialogue to energies and sustain the growth of manufacturing industries in India and this includes IT Hardware. Besides, a slew of measures like liberalization of foreign trade policy for Electronics and IT products, simplified customs and excise procedures, customs duty on specified capital goods and raw materials for electronics hardware brought down to 0%, setting up of Electronics Hardware Technology Parks (EHTP) and Special Economic Zones (SEZ) are set to boost manufacturing in the country.
Table No. 4.03:
The production and growth trend of the Indian Electronics and IT-ITeS industry:

<table>
<thead>
<tr>
<th>Year</th>
<th>Production (Rs. crore)</th>
<th>Growth (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004-05</td>
<td>1,52,420</td>
<td>28.9</td>
</tr>
<tr>
<td>2005-06</td>
<td>1,90,300</td>
<td>24.9</td>
</tr>
<tr>
<td>2006-07</td>
<td>2,44,000</td>
<td>28.3</td>
</tr>
<tr>
<td>2007-08</td>
<td>2,95,820</td>
<td>21.2</td>
</tr>
<tr>
<td>2008-09</td>
<td>3,72,450</td>
<td>25.9</td>
</tr>
<tr>
<td>2009-10</td>
<td>4,11,220</td>
<td>10.4</td>
</tr>
</tbody>
</table>

New Technologies Provide Solutions To Present And Future Problems:

The emergence of the new information and communication technologies examples include the Internet, computers, interactive multimedia systems, and digital telecommunications has dramatically altered theoretical and practical assumptions about the role of communication technologies in development. Today, the role of the ICTs in developed and developing societies has become the subject of academic focus and research. As the new millennium approaches and as we contend with the expanded uses of the information superhighway, the interface between communication and development calls for serious reconsideration. While advocates are hopeful that the new technologies would provide urgent solutions to present and future problems, pessimists disagree, pointing to the dangers and pitfalls of the new communication technologies, such as:\textsuperscript{12}

1. The marketing of pornographic products on the Internet;
2. The damage to children in terms of creating a virtual world divorced from nature;
3. The perpetration of organised crimes;
4. The likelihood that they may widen the existing gap between the information rich and the information poor, and;
5. Further cultural impoverishment by continuing the one-way communication between North and South. More centrally is that ICTs create an information based economy and not a communicative society

Benefits of ICTs to the Rural Beneficiaries:

- **Enhanced Economic Opportunities:** Electronic commerce through the Internet opens up substantial new areas of trade and commerce. Two sectors with great potential to benefit are service industries, many of which are becoming tradable commodities for the first time, and small and medium enterprises, which benefit from the low cost of access to the larger marketplace. These Information Kiosks provide wide range of services using the Internet medium which were provided to the rural community for the first time. Also it enhances the opportunities to increase the trade activities of the small and medium enterprises operating the region through faster and cheaper communication.

- **Reduced Time Wastage:** ICT services can substantially reduce the costs of distance and isolation borne by poor, especially rural, households, whose members must often travel long distances to communicate, and obtain vital information. Their isolation causes them to miss out on employment and
other economic opportunities. For example – Before establishment of any Information Kiosk, a villager had to make number of visits to the nearest taluk, waste lot of time and money and also loose earning opportunity during this time, if he had to get any certificate from the government. But now he can online apply for the certificate giving all the relevant information. The concern government department acknowledges the receipt of the application and also keeps updated with the status of the application processing. Once the application is processed and the certificate is ready the villager can go to the taluk and collect his certificate. In this way it only takes one visit to get the required certificate saving the time and money.

• **Improving Government And Public Services:** ICT offer powerful tools to improve the efficiency, quality, and reach of public services that are important for poverty alleviation, such as education and health. ICT can also broaden political participation and increase the transparency of government. Second, private sector initiative in this sphere can be constrained if governments do not provide the complementary policy environment. The e-governance services offered by these Information Kiosks that is one of the major benefits of this project. This has also increased the transparency of the working of the government department.

• **Promoting Entrepreneurship:** Based on the franchisee model the ICT project is promoting entrepreneurship. It provides ambitious members of the rural community,
opportunity to take up Information Kiosk operation business moving away from old and traditional businesses and to prosper. This requires only a modest amount of capital investment. All technology and training is provided by the project.

- **Connecting People:** ICT is transforming our everyday world into a global network: connecting people, increasing understanding, and making services available at the touch of a button. The new services offered through this technology like e-mail, video conferencing, online chatting has brought people all around the world very close. Now these services are offered to the rural population of India and this has made their linkage with their relatives and friends outside the place stronger as they can now communicate to then quickly, cheaply and more often.

- **Skill Development and Application:** Generally the literacy level in the rural communities is quite low so training and skill development of the people out there becomes indispensable for the effective implementation of any development project. From the very beginning of this ICT project importance of personnel training and skill development was realized and a formal training program was scheduled for the Information Kiosk Operators. The local people with a minimum high school education and 3 – 12 months of computer education from ITI or a private institute were selected for being kiosk operators. They have to undergo 8 days formal training scheduled by the company.
This is being impacted by Center for Entrepreneurship Development. The training covers:

- Basics of computers.
- Use of Internet and other related services like e-mail, information searches etc.
- Various applications developed specifically for this project like e-governance, local
- General maintenance of various electronic gadgets installed at the Information kiosk
- Marketing for services offered by Information Kiosk at local level

**ICT Based Rural Development Models:**

One of the critical success factors, probably the most pivotal in this case has been the enthusiasm and motivation of the private participants who developed a community based on trust and transparency. The model relies mostly on local entrepreneur who makes a portion of the investment and thus becomes a major stakeholder who drives for service volume. The various elements that contributed are summarized below:

- **Reliable and cost effective technology:** Any technology that is to be used in rural areas has to be cost effective and reliable. The project used a low cost technology that needed very little infrastructure. Using a small investment they were able to cover a large number of villages. Similarly, by using the same infrastructure they covered a larger area.

- **Value added services:** The network was used to deliver a number of value added services rather than being used as a
mere telephone line. Through the network they could get access to health services, education, entertainment, agriculture and government support (e-governance). By making kiosk a shared services delivery point large customer acceptance is ensured.

- **Entrepreneur model:** For establishing Internet Kiosks local entrepreneurs were used. This allowed easy establishment of credibility with the users. Second, entrepreneurs ensured the success of Kiosks since each of them invested about Rs. 50,000 to become the Kiosk operators. Another factor that helped the Kiosks to operate in a commercial fashion was the training of the Kiosk operators to become effective service providers. All the operators were trained to handle the multiple applications. The main reason for the growth of this model was the freedom given to the entrepreneur to innovate and introduce new services, thereby customizing to the local needs and ensuring maximum customer satisfaction. In services, innovativeness essentially comes from the freedom to provide new services without any adding costs.

- **Localized Content Creation:** In a pluralistic society ‘content is the king’. The success of any Internet service for low-income groups will depend upon the richness of the content. Special content providers were identified and after interacting with the users the contents were developed. This ensured that contents developed were useful to the local requirements. This also allowed for bottom-up innovations
to emerge. Innovation occurred both in the type of services and in the content creation.

- **Economics Of Scope:** The information Kiosks are used for multiple uses by multiple users. The computers are used for a variety of purposes such as - off-line applications, e-mail, entertainment based on Internet, on-line knowledge delivery (agriculture/delivery), on-line application for certificates, advertisement, insurance applications and on-line medical check-up.

The ICT platform will induce social development, entrepreneurship, technology diffusion and employment generation. The Kiosks are working economically and the model is being replicated in many other districts. Private participation can help in the rapid diffusion of ICT into rural areas and it can be seen that the networks have become sustainable as each of the kiosk operators is earning revenue for its sustenance. In rural areas technological solutions can become sustainable only when the costs are low and this is possible only when investments made are sustainable at reasonable volumes. The main lesson one can derive is that organizing economic activities that will help many sections of society can work when the local involvement and trust are high. Success essentially comes from these soft aspects such as the ability to bring entrepreneurial spirit to connect technology and organization. The connecting bridge is the vision and entrepreneurship that leverages the opportunity created by digital convergence.

**ICT and Rural Human Life:**
Information and communication technologies permeate every aspect of our lives; from community radios in the most rural parts of the globe to cellular phones in the hands of women and men in every community on earth, to computers in almost every medium to large organization. The advancement of ICTs has brought new opportunities for both knowledge sharing and knowledge gathering for both women and men. To the extent that the global community can reach heretofore unconnected individuals, families, and populations to better understand their needs and challenges, ICTs can provide unlimited opportunities for economic development and social engagement through new innovative thinking and tools. However, a basic assumption is that all members of our global community benefit from and are part of the growing knowledge society. ICTs have been compared to a double edged sword - advancing the knowledge society on one hand and deepening gender and social divides based on pre-existing social divisions on the other. Leaving large portions of the global community both undeserved and unengaged remains the largest determinant of success for current development efforts. Specifically, without a thoughtful policy, strategy, and execution plan to ensure women’s full engagement in the knowledge society, the places in which they work, the families for whom they care, and the communities in which they live and serve will not thrive.

References:


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