

## ICT for service delivery in Rural India –scope, challenges and present scenario

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**Abstract:** *The present era of globalization is based on knowledge and information as it directly affects the economic, social, cultural and political activities of all the regions of the world. Governments worldwide have realized the role that Information and Communication Technologies (ICT's) can play in socio-economic development and India is no exception to this. Majority of Indian population resides in rural areas and their isolation has restricted them from contributing to the national mainstream, adversely affecting the country's growth. Even after 60 years of independence, rural India has remained poor while the remaining country has developed by leaps and bounds. Rural India is regarded information-poor and characterized by severe poverty, illiteracy, lack of health services, lack of employment and overall backwardness. Only the proper implementation of ICT's can play a pivotal role in their overall development, especially in the sectors of health, education and government services. To supplement ICT service delivery, Government of India has the National IT Policy in place and is also on the verge of launching the massive Digital India programme. But this requires dauntless will power & confidence, effective monitoring, local services & technology combined with lots of hard work.*

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### I. Introduction

ICTs are a meaningful integration of communication devices as well as necessary software, middleware, storage, and audio-visual systems which enable users to easily access, store, transmit, and manipulate information. Since the past decade, effective intervention of ICT has brought significant changes in world economy and helped to impart knowledge, improve productivity, save time, energy and money of people. As such they can also be leveraged for the betterment of digitally isolated people inhabiting rural expanses – termed as “Rural Informatics”. Rural informatics can thus connect the deprived sections to the national mainstream by enabling them to participate in the socio-economic and political aspects of the nation and by serving as an instrument of awareness creation and giving feedback.

Over the past few years, India has seen a considerable growth in telecomm sector of ICT. Rural tele-density by the end of Jan 2015 is 398.89 million with a monthly growth rate of 1.38% in wireless category. Assuming an average family size of 5, it can be deduced that every rural household has at least one mobile phone, if not a wired connection. Mobile phones have revolutionized the access to ICTs and helped achieve the objectives of National IT Policy of enabling citizens to participate in and contribute to e-governance. In fact, the present day smart phones are not merely communication devices but instruments of empowerment with a whole range of other capabilities like security, identity proof, multi-lingual support etc. Many examples of delivering mobile based value added citizen services to rural sector have been introduced in India viz. Agmarknet, e-PDMS etc. and yielded positive outcomes. The use of smart phones or mobile telephony has certainly improved internet connectivity, but still much more needs to be done. This includes high speed broadband penetration by laying the proposed National Optic Fiber Network (NOFN) as a part of Digital India programme. Bandwidth from the proposed NOFN will also be available to telecom service providers for broadband services in rural areas.

Internet, the major ICT tool, can also additionally act as a channel of delivery of e-governance services and enable access to information regarding markets, banking, employment, etc. thus bridging infrastructural gap and other constraints faced by rural regions. Rural India is not so well connected to internet, yet a small percentage accesses the internet through public kiosks, offices, etc. Over the years it has been intensely felt that mere connectivity and technology is not enough to deliver positive outcomes to the rural population. To achieve the development objectives in reality, ICTs should not only be affordable, trustworthy and available but also be able to deliver relevant and usable content to the targeted stakeholders. In other words, the beneficiaries should make some meaningful use out of the services and delivered content. Otherwise the majority of rural Indians would have no literal use of broadband services. With the present rural literacy rate of 69%, impact will be greater if the content is delivered in local language and extended even to the weaker sections of the rural society

like women and disabled persons

Capacity building, in terms of ICT literacy is equally important as otherwise only the educated lot can get the due benefits. Although govt. has made some efforts to popularize the CSCs but more work needs to be done for genuine transformation of ICT availability in rural areas to rural development. CSC manpower may be trained to go from door to door to promote broadband usage.

In India, not only should the broadband connectivity be considered a basic necessity but should more importantly be amalgamated with an equal stake of respective ministries for rigorous development and implementation of relevant content and applications. Private entrepreneurs can also be roped in for developing rural-centric content and training facilities. Good practices and Models followed by other developing nations may be taken up for quick and effective results.

### **Probable Areas of ICT penetration in rural India**

#### **ICT for Education**

In rural India, the dearth of adequate infrastructure & qualified teachers combined with low attendance of students (in spite of providing scholarships and free primary education in government schools) continues to be a prime concern. In this context, ICT tools like audio and video conferencing (e-Learning), teleconferencing, TV etc. can be extensively used. Concept of Open Universities and distance learning can work very well in areas with sparsely populated educational institutes & absence of good teachers. Internet can be used as a great source of knowledge for students of any age group. Similarly wikis/tutors can be used as learning tools by students and teachers to update themselves, if purchase of books/study-material is unaffordable. Issues pertaining to Adult Literacy, Female Literacy, lack of infrastructure and improved quality of Higher Education can also be overcome by the effective use of ICTs .

#### **ICT for Health**

Rural Health care in India needs lots of improvement. Proportionate to the growing India population, there is an acute shortage of qualified doctors and well-equipped hospitals. The three tier rural healthcare structure comprising of Sub-Centre, Primary Health Centre(PHC)& Community Health Centre(CHC) lack basic infrastructure and there is an acute shortage of trained manpower. In such a situation distance healthcare through ICT intervention can be the most optimal solution. Internet based applications, Telemedicine, teleconsulting, tele-counselling can present expert advice/details which can be accessed as and when required either through telephone or internet. But this requires PHCs to be equipped with diagnostic equipment that can be operated by paramedical staff with doctors providing expert interventions from a distance. Additionally computer based diagnostic applications can be used to handle common-ailments while only complex cases can be referred for secondary care. These activities can be taken up by village entrepreneurs running internet centres(CSCs), providing job opportunities to technically competent local young men and women at the same time. Interconnectivity and monitoring of hospitals (e-Hospital software has been launched by govt.) can reduce queue, registration problems and provide on-line appointment with the doctors. Tele-preventive medicine, still in its infancy in India, can help in preventing outbreak of epidemics (bird-flu, AIDS, swine-flu, dengue etc.). Some of pilot ICT projects in medical world have delivered successful results in India, too, but their progress can be accelerated by gearing up the administrative machinery of the our government for a PPP model implementation and making arrangement of funds for equipment purchase and manpower-hiring.

#### **ICT for Agriculture**

Agriculture is the backbone of rural economy in India and majority of farmers are ignorant about latest information in this field. ICT can be used to empower the poor farmers by providing them information updates about market rates, weather forecasts, crop insurance, use of pesticides, seed quality, improved tools & methods of farming etc. through the use of mobiles or internet. Mobile phones, wireless technologies and CSCs can also play a crucial role in dissemination of information in the event of any crisis. E-learning sessions can be imparted to farmers for adoption of new trends and technologies through community participation with local representatives. These ICT-enabled methods will altogether enhance their capacity of contributing their share of agricultural produce at National Level. Although a lot of work has been done in this sector, the Government will still have to introduce improved and effective policies to reduce the gap between farmers, research officers, market (mandi's) and government.

### **ICT for e-Governance**

The development process of any society is dependent on its governance i.e. if the government works efficiently, even the weaker sections of the society can get basic amenities like food, clothing and shelter and will be better equipped to develop needed capacities for employment. ICTs have the capability to improve the government functioning in two ways viz. improvement of government processes(e-Government ) and secondly participation of citizens (e-Governance).Whereas eGovernment can facilitate electronic, timely and hassle-free delivery of services like information dissemination, issue of certificates, registrations , approvals, grievance redressal, utility payments etc., e-governance can empower communities to give their feedback about social problems and their possible solutions(social inclusion). The Digital India programme has these capabilities incorporated into it and all that requires to be done is an effective PPP partnership for the successful rollout of G2C2G applications to the massive Indian population.

### **ICT for Job Opportunities and Poverty Alleviation**

The state of roads, transport & other infrastructure facilities like electricity, water supply and communications in rural India with the image of being backward and poverty-afflicted, lacking good education and health facilities, makes it difficult to attract talent, investment and job opportunities. However, the rapid increase in information, communications and mobile technologies (ICTs) and their improved capacity and availability in rural areas can give birth to new breed of rural entrepreneurs and attract private investors from within and outside India. Setting up SSI or LSI will create job opportunities and in turn alleviate poverty Rural areas, with their extreme poverty, have their own development needs, and it is in the interest of the public and private sectors (Public Private Partnership) to look for solutions which can bring prosperity and broaden their markets e.g. make investment in hardware (infrastructure and technology) and software (research and development, education and skills. the government is still a major player in the rural sector and should encourage setting up of increased rural franchises to promote local ownership and generate local employment opportunities, which in turn will increase rural incomes

### **Categorization of ICT Services for rural population**

1. Informational ---used to disseminate non-customised (static) information such as weather forecasts, healthcare bulletins, govt. schemes, and agricultural practices, contact information etc.
2. Transactional ---involves exchange of specific information or money between two entities such as e-mail, sms, e-commerce, ATM's etc.
3. e-Governance--- these services involve local, state or central government. Examples include providing land records, processing Aadhar cards, issue of Birth/Death certificate etc.

### **Rural Development and Digital India Programme**

**Digital India(DI)** programme is a GoI initiative to electronically integrate the government departments and the people of India. This move aims at ensuring that government services are made available to citizens electronically. It also includes a massive plan to connect rural areas with high-speed internet networks. Digital India has three core components. These include:

- Digital infrastructure
- Digital service delivery
- Digital literacy

The project will be officially launched on July 01, 2015 and is slated for completion by 2019. The scheme will be monitored and controlled by the Digital India Advisory group which will be chaired by the Ministry of Communications and IT. It will be an inter-ministerial initiative where all ministries and departments shall offer their own services to the public Healthcare, Education, Judicial services etc.

The initiative is commendable and demands full support and confidence of all stakeholders. However, it has scope for improvements regarding many crucial components like a legal framework, privacy and data protection laws, insecure Indian cyberspace, etc. So these issues will have to be managed simultaneously. But despite its shortcomings Digital India project is worth exploring and implementation and will raise India to newer heights on the international scene.

The availability of high-speed internet to every citizen , easy access to government services through CSCs and allocation of private space on public cloud (linked to Aadhar) are some the DI features that will revolutionize the lives of rural populations pan India

### **Challenges in ICT based service delivery in rural India**

1. Lack of Infrastructure and hardware facilities which hamper reliability of service
2. Lack of policies, strategies, schemes, monitoring and control that ensure cross-sectoral and multi-stakeholder involvement
3. Lack of awareness about ICT usage and services offered
4. Lack of citizen (user) focus in G2C2G initiatives. i.e. services which listen and change as per people's expectations. Products with a focus would develop a sense of "ownership" in local rural governance
5. Illiteracy amongst rural populations in India.
6. No ICT based courses/skills taught to students in primary schools to increase their knowledge about ICT importance in rural development
7. Lack of skills in trainer or kiosk operators
8. Community based participation (which fully understands and delivers the user needs) is not encouraged.
9. Content development is not relevant and participatory. (PPP model which will add value is yet to be introduced)
10. Services delivered to rural areas are not available using local language and this will affect their long-term sustenance due to low interest in their usage
11. Capabilities are not adequately transferred to end user. This prevents them from using the applications independently

### **II. Conclusion**

Development of any society depends on its access to information and the same is applicable to rural India too. ICT has worked wonders in this direction and helped the socially marginalized community to attain their entitlements. Launch of Digital India Programme is a welcome step in this direction. It is anticipated that with dedicated leadership, willpower and control and an integrated framework comprising of the government, technology industry and society, ICT interventions in the rural areas will undoubtedly pave way towards sustainable growth.

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