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IT For Health Care And Rural Development A Review

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***Abstract*— Information Technology is turning every aspect of business today, be it education, health, library, entertainment or even agricultural sector. The last two decades have seen sporadic rise in automation and computerization of processes hence offering an easier livelihood. Indian rural population's standard of living is also progressing considering the technology improvements across the education, health, medical and agricultural services.**

Information Technology seems to be the master key to everything these days. Right from stock markets, government entities, schools and businesses alike, the IT boom has come to our rescue; simplifying tasks. The internet plays a very pivotal role here and can be considered a lifeline for major issues.

Unless the efforts of I.T are aligned with the developments goals involving the rural poor the expected output is not possible. The expected results are better education, earning opportunities, health services, promoting democracy and good governance. Information Technology opens a new page with improvements in the old systems of recording and duplication. Tremendous developments in the process of data management, data sharing and data processing have run down the cost too, hence making it affordable to the masses. eHealth coming a latest jargon seems to be club arenas like healthcare, information and business. While doing so it can also lead to informed patients and public participation [2][5]. The existing systems needs to be reviewed for better solutions and coming challenges to be accepted with the very powerful tool we have of "Information Technology" [6].

Index terms –Information Technology, ICT, HMIS, Rural Development, eHealth

I. INTRODUCTION

Information Technology seems to be the master key to everything these days. Right from stock markets, government entities, schools and businesses alike, the IT boom has come to our rescue; simplifying tasks. The internet plays a very pivotal role here and can be considered a lifeline for major issues.

India has taken a big leap with IT The National Informatics Centre (NIC) has effectively taken PC to every district in the country easing government level interactions and communication processes. The internet comes further handy in circulating information even to villages. Rural education, health and agricultural system are really blooming under the I.T cover.

Yet, what comes as a major question is, "Is I.T really influencing rural areas as estimated?" The information content though made for rural people, fails to actually help them. The content bearers and sharers are the city based people, who have hardly experienced the rural life, therefore unable to know the nitty-gritty's or loopholes of a particular system.

The healthcare segment is one challenge for the I.T and can work wonders with the village paramedic staff being able to get access to latest schemes and seek advice with specialties and ailments they cannot diagnose or treat at rural level [1].

II. IMPACT OF ICT

Unless the efforts of I.T are aligned with the developments goals involving the rural poor the expected output is not possible. The role of ICT is merely being a transformation tool in the complex task of reducing poverty. The expected results are better education, earning opportunities, health services, promoting democracy and good governance. Information exchange being a part of every level of the economy the result of improvements in information exchange will depend majorly on how the rest of the economy functions. This suggests a crux of the thorough approach in evaluating the impact of ICT.

The impact of improved ICT access on farm earnings through increased knowledge on market rates would remain undeterred if there are no roads to carry crops to markets, or merely lack of market due to insignificant agricultural sector. The idea of using ICT with the minor groups, such as poor, is not majorly overcoming the technical drawback, but encouraging social inclusion, thereby transforming environment and social system that multiplies poverty. It has been proposed that strong linkages need to be established between direct ICT interventions and national-level programs that deploy ICT as an enabler in development. ICT can play a vital role in different aspects of rural development needless to say improve the existing systems.

The fundamentals of a prized government means accountability, transparency, open systems and flow of information. ICT can induce a better standard facilitating speedy, transparent, efficient and effective interaction between citizens, businesses and agencies; thereby enhancing rural development, poverty reduction, time saving and cost saving environment.

The existing rural documentation system has many loopholes for lack of transparent and systematic recording and therefore has a negative outcome on development." Highlighting the case of land records, rural citizens cannot apply for loans keeping land records as collateral, and also fail to get assistance from government poverty alleviation

programs. Often government processes seems like nightmares to the poor class considering the improper documentation, multiple visits and most often bribing the officials. ICT can come to some rescue with streamlining these processes [2].

III. ROLE OF IT IN RURAL DEVELOPMENT

The development is a continuous process of resource inputs and optimum outputs. The management thereby has to make optimum use of resources." Here Information Technology plays an active role making processes meaningful and efficient. In rural areas somehow the equation of inputs and outcome remain unbalanced. The broader aspect of planning and actions vary the overall developments linked to production, lifestyle, and health.

A necessity for a micro level assessment of the different measures adopted. Another problem faced is the deadline mismatch of various linked projects failing in implementation of further schemes. The rural development processes are unlike a banking or an airline system and hence a tailor made Information Technology system is the bridge which can bind these hurdles. A higher investment initially in terms of software & hardware installed should definitely offer higher Return on Investment in the long run".

Any data stored in digital form is 'Information', thus; News, entertainment, educational materials, and announcements are all classified information. Information read by one or many is not deteriorated in value after read, for example – weather telecast or a particular public announcement.

Economizing resources happen in all strata's of system, be it government or private. Information Technology's value cannot be judged by the cost involved, but considerably weighing it against the other physical resources it replaces like paper, phone, travel & time involved. Information Technology eases tasks under different domains, be it entertainment, communication, data processing or merely networking.

Internet has proved its governance across various sectors worldwide coming across as a convenient medium for trading and striking business deals across boundaries. The Indian rural counterpart though could only majorly benefit by seeking inputs on the latest agricultural trends, farming tools, government programs, healthcare programs and utmost for seeking jobs.

Information Technology opens a new page with improvements in the old systems of recording and duplication. Tremendous developments in the process of data management, data sharing and data processing have run down the cost too, hence making it affordable to the masses. If investing in IT is justified by efficiency of systems the overall growth automatically follows. What serves as a hurdle is the cost involved in new infrastructure – Hardware as well as software.

The IT products developed by developing countries often come at a higher price tag to developing countries, however only reachable to the higher income groups. The problem still persists of making the less privileged access to such products. Private providers may therefore have a role in delivering IT-based information services that are complementary to government services, as well as in providing conventional private goods and services. However, the private individual benefits that determine the prices charged by private providers may not reflect the overall social benefits of provision.

The education sector has also soared high under the influence of IT. Considerably the rural sector is dry from this wave for geographical & social parameters. The language medium dominantly plays a role because the major population is non-English speaking. Nonetheless, tailor-made software could only serve the purpose of the rural market.

IV. KEY ISSUES OF IT IMPLEMENTATION

The rural development program is a complex mission while knowing the challenges involved. Educating the rural poor and organizing the administration and boosting the administration for an honest play could serve the purpose. In the Information Technology application's design and implementation rural field officials should be involve for better understanding of processes, leaving them too with a sense of ownership.

The movement called "Swadhyay" started by few urban people, who would contribute selflessly a day or two of their time to be among the rural people; to train them, to work for their betterment and educating them. The movement started off slow, but got response from the rural communities within years. The process of involvement served the purpose with people understanding in the long run where their betterment is. The results were clean villages, educated groups and hence progressed villages. The change in attitude of people came over the principals of self-help, co-operation, co-ordination and most by giving one's time for the community.

The major impediment is lack of information, and sharing relevant information can strike better communication. This volume summarizes successful use of Information Technology affecting rural development in India. Lessons learnt on the loopholes in design, implementing applications so far and measures to be taken for a developmental impact in the future.

The ICT has come a long way in crossing many hurdles and yet how it is more effective for the future. The activities undertaken by Government and non- Government agencies that are a part of development process, the problem in implementing these programs and how ICT can better the processes.

Eradicating rural poverty is a humungous phenomenon. Many Asian countries have experimented alleviating the poverty standards in smaller group of villages. This task was carried on experimental basis, offering credit services to poorest class, making effective government-run poverty alleviation programs by improving management, added by the efforts of NGO in self-help networking. This required lot of micro-level planning and grass root intervention. Information technology is often looked at easing things out, but when balance needs to

be struck between Information Technology and other basic necessities in Rural areas, Information Technology has to struggle a hard way. Infrastructure, health concerns, education system take a priority in the rural segments as compared to the ICT as the former is a need and later only a streamlined process. The resources allocated are yet to be prioritized between basic needs and Information and Communication Technology.

In rural areas many important programs like healthcare, family planning are effective and an army of volunteers are assigned to it. Such programs remain less effective considering the geographical barriers. A particular worker is assigned people from various villages, many of these villages are not easily accessible, hence the supervision is weak and therefore most of the time proxy records are submitted for failure to cope with large amounts of data. Moreover the whole program is lined in shoe string budgets, with only substantial amount going towards the payment of workers not to think of acting differently from the standard plan.

The large scale computerization is a difficult process of scaling from successful pilot sites to large numbers of sites spread geographically. Information Technology is a boon for the one who understands its worth, but for this every man in the system needs to be trained and re-trained. The training needs to be oriented towards the needs of the professional. Once the professionals are educated and motivated, monitoring and analysis comes easy thereby creating openness in the system and better planning and progress [4].

V. IT FOR HEALTH CARE

The health challenges today need to be tackled the Information Technology way. The internet tool could serve a catalyst offering variables reactions. The Internet would help reaching the masses in spreading healthcare and self care awareness. The government has had a breather by Internet offering a speedy way to cost cutting and at the same time efficiency in health care delivery.

Majority of the Indian population spends on curative care and not on preventive care. This could be due to lack of awareness or being ill-informed. Internet can help boosting the health awareness in India. The healthcare systems come under a huge digital divide of people who can access internet and are well informed, whereas the other category reels under meeting basic necessities. The economic disparity and illiteracy barrier could be eradicated by a decentralized effort under a central health organization. Preventive cure requires huge inputs in terms of providing right information at right time and source.

The success of any electronic mission merely depends on access to computers and Internet". The author further states some findings here, "The Health Internet work, a United Nations initiative, works towards strengthening the public health services by providing access high quality, accurate and timely data. By adapting the challenges posed by digital divide, it aims at improving communication among public health care workers, researchers, and policy workers. A public portal equipped by internet technology is a modern tool to access health information. eHealth coming a latest jargon seems to be club arenas like healthcare, information and business. While doing so it can also lead to informed patients and public participation. Informed patients can access better healthcare while choosing from a number of healthcare providers. The e-Health concept works best for international patients, by helping them choose healthcare facilities worldwide at the touch of a button. Internet is a source to providing updated data, in tracking epidemics and natural disasters and providing timely & relevant resources [5].

Health Management Information System (HMIS) is responsible for scrutinizing many factors like drug stocks, equipment status & availability, personnel & finances involved. This factors needs to be monitored on regular basis. Timely and accurate information is required to improve serviced delivery. The HMIS renders data recording, retrieval and storage. This data is available at National, State and institutional level facilitating planning, organizing and control of health care facilities [6].

VI. EXPLANATION AND RESULTS

Given the current scenario of the rural upliftment by providing basic needs, healthcare, education and most of all relevant and easy information is a lengthy process to bear fruits. The continuous process demands for inputs at all levels which can be eased by the introduction of Information Technology. The discussion prevails over the implementation of Information Technology over providing basic needs, but with proper funding from state and private missions, both development activities can be implemented parallel.

The need for a tailor made system is required for the rural areas taking in to consideration the language barrier, geographical limitations and local needs. In doing so the high investment towards development needs to be taken into account without forgetting how big a population the application can support.

The ICT can influence the educational system to a different level, reducing the earlier process of mere copying and duplication. The computerization of education material and system can see its benefits in the rural areas. Not just the traditional system of education can be imparted but, adult education in terms of agricultural enhancements can also be conveyed.

VII. CONCLUSION

The process of rural development is ongoing and needs to achieve many levels. In doing so many inaccessible geographies need to be covered, many volunteers need to be deputed and above all their work needs to be monitored. This all needs to be achieved in a minimal budget assigned by the state, including the salaries of the volunteers. In such a case ICT, could come as a helping hand in consolidation, monitoring and processing of data. This could help to a major extent in reducing the leg work to in-accessible areas.

Above all, the health challenges along the development zone can be eradicated to a major extent, by

introducing the concept of eHealth. With the help of internet, the remotest destinations can be at-par with the latest health tips, preventive cures and better health care facilities. Still reeling under the budget – cost balance, the State Government as well as private service providers and NGO's needs to be roped in for an effective system. System hierarchies across the deciding authorities need to be clearly defined with control on corruption. Moreover the existing systems needs to be reviewed for better solutions and coming challenges to be accepted with the very powerful tool we have of "Information Technology".

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Dr. Milind J. Joshi is an experienced Systems Programmer in a multi-disciplinary university environment working at Shivaji University Kolhapur, Maharashtra, India, who can confidently work across a variety of disciplines ranging from science, social sciences, humanities, education, engineering & technology, arts, medicine, and pharmacy. He has having 26 years of experience at university level both in teaching, administration and software development. He has completed M.Com. (Specialization- Industrial and Business Administration, and Master of Computer Management(M.C.M.) with specialization Artificial Intelligence at SIBER, Kolhapur, MS, India. He has completed Ph.D. in Computer Management subject in October 2002. His research area is use of Information systems in educational administration. He has published one book on "Role of MIS in University Administration" and also published many research papers in National and Inter-national journals.