

Modern ICT for the Rural Growth and Development

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Abstract— Information and communications technology (ICT) mention to all the technology used to handle telecommunications, broadcast media, intelligent building management systems, audiovisual processing and transmission systems, network-based control and monitoring functions. Networks have combined the services of telephone, television and computer networks requiring different infrastructure and channels into a single communication network. Modern information and communication technologies created a "smart village," in which people can communicate with others across the world as if they were living next door. Objective of proposed paper is to focus on growth and development of rural area with ICT.

Keywords— ICT, Rural Development, Technologies, Communication, Empowerment

I. INTRODUCTION

Rural areas and villages are those areas that need information technology development. Information technology can play vital role in promoting the success in economics, social, cultural, and political aspects of rural areas. Information and Communication Technology (ICT) is a well-known service sector in world which can be utilized by India in acquiring Top position as Indian minds have been appreciated since the starting. In rural areas people are less aware. Due to this understanding people can't easily communicate to the current market and each other. Government and non government projects applications are developed as direct projects and it's aimed to offering easy access to citizen services and improved processing of government-to-citizen transactions. If citizens are aware about the technologies so they can easily utilize the services provided by government and non government organization (NGO). [1] ICT is not related with only thing like the internet, computers, or telecommunications but it is also related to different electronic devices. These days most devices like digital camera, mobile phones, slide projectors can be linked for sharing and exchanging information with other. Currently all these devices are also categorized as part of ICTs.

II. DEVELOPMENT OF SMART VILLAGES

It is clear that the situations and challenges in developing urban and rural area are different due to the constraints and opportunities. Many researchers think that the existing technologies developed for the smart city may be useful for the smart village concept. Smart village system can be developed on the lines of smart city model.

The components taken in to consideration will vary from area to area for villages, based on the available resources and opportunities. Following are some generalized guiding principle for the development of Smart Villages or Rural area:

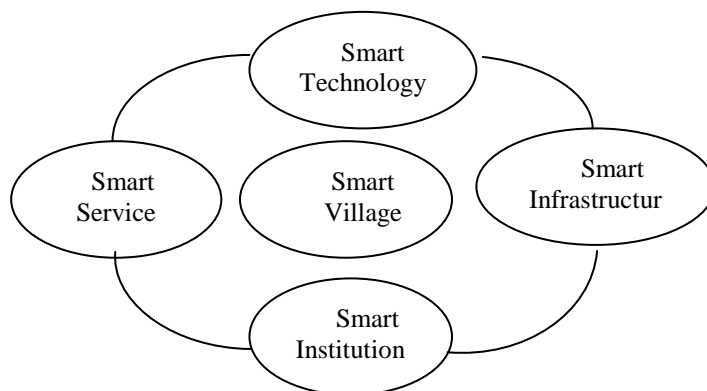


Fig.1 Component of Smart Village

1. Economic Component: This component will contain local management and economic factors. It will cover control models, bandwidth, mobility, cloud computing, entrepreneurship etc.
2. Environmental Component: Global summits are being held regularly to discuss environmental issues. This component will deal with the issues related to resources and infrastructures available at local level. It may covers cleaner technologies, public and alternative transportation, green spaces, smart growth, weather change etc.

3. Social Component: This component may deal with issues related to society life, participatory democracy, social innovation, nearness services etc. [2]

III. AVAILABILITY OF ICT IN RURAL AREAS

Computers have become more powerful, faster when it is capable of executing more instructions every second, it is user friendly and less costly. The PC revolution has brought them closer to the users to the extent that in number of cases users have designed and develop their own applications. Role of ICT in E-governance and Rural Development an Indian Scenario 13 Several computer based companies are attempting to offer inexpensive hardware and software solutions for rural applications. These organizations developed the computer and wireless connectivity solutions with original components, software and open source systems. It is hoped that large scale creation of these systems would bring in appropriate cost effective technologies for rural applications.

The rural ICT solutions are normally offered through internet portals hosted on a delivery web server to supply access to the citizens through inexpensive internet medium. The information flow between the delivery server and the other department is accomplished through Intranet/LAN connectivity with servers of those departments. [3]

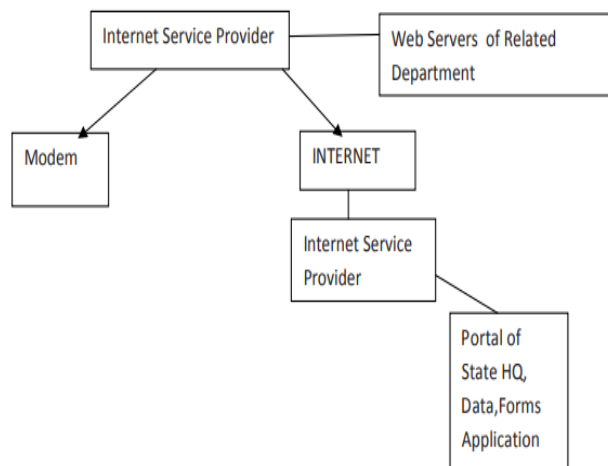


Fig.2 Internet Connectivity

IV. GOVERNMENT INITIATIVE FOR RURAL DEVELOPMENT THROUGH ICT

The government of India has started many Scheme designed at improving the standard of living in villages or rural areas. To construct rural infrastructure, the government launched a time-bound business plan for action called Bharat Nirman (External website that opens in a new window)in 2005. Under Bharat Nirman, act is proposed in the areas of

Water Supply, Housing, Telecommunication and Information Technology, Roads, Electrification and Irrigation.

(A) Digital Empowerment

Digital connectivity is good both social and economic development. So gapping the digital divide is very important. The digital India programme focuses on Digital literacy.

- Ensure that all panchayats in the country have high-speed connectivity through National Optical Fiber Network (NOFN) project
- Digitization and connectivity of the local institutions, such as panchayat office, schools, colleges , Universities, health department, libraries, etc

(B) Swayam Krishi Sangam (SKS)

Swayam Krishi Sangam's mission is to give power to the poorest of the poor to become independent. They do this through a community-owned grameen (village) banking program that provides poor women loans for both income-generating activities as well as for emergencies. [4]

(C) Using Rural ATMs:

The low-cost rural ATM (Gramateller), being developed by Vortex Technologies can be implemented if the bank account shift mechanism is put in place. The ATM works with both used and new notes and has a fingerprint based authentication system. It workings on very low power with a built-in battery back-up and does not need air conditioning. The ATM runs on Linux, which is an open source software, not like conventional ATMs that run on Windows for which licence has to be purchased. It also has a built-in UPS, which ensures the ATM doesn't go down when there are power cuts, and the option to run on solar power energy. [7]

(D) e-Choupal:

e-Choupal is an India-based business scheme by ITC Limited that provides Internet access to rural farmers. The purpose is to inform and authorize them and, as a result, to improve the quality of agricultural goods and the quality of life for farmers.e-Choupal links the Indian farmer to the consumers in local and global markets, by leveraging ITC's time-tested and verified competencies in branding, marketing and allotment. Unlike in the alternative mandi channel (where farmer discovers the price for his produce after he has incurred costs of transportation, thus ends up selling even if he is not happy with the price), e-Choupal helps the farmer to get an informed and empowered decision (because the price is known in the village itself). In the process many non-value-adding activities like multiple transportation & handling, bagging etc., otherwise usual in the traditional supply chain, are eliminated. [5]

(E) Bastar Net

BastarNet project is an ambitious vision of Chhattisgarh Govt. for creating a digital highway for strengthening mobile

and internet connectivity across the LWE affected Bastar division of Chhattisgarh to connect the 7 districts i.e. **Kanker, Kondagaon, Bijapur, Narayanpur, Bastar, Sukma and Dantewada**. Under 'BastarNet', a massive 836 km long optical fibre cable (OFC) backbone is being laid to boost the communication system in the seven districts of the Bastar division. The network is based on Multiprotocol Label Switching (IP-MPLS) reliant oriented service network to cater to end-to-end services delivery and shall deploy 'ring topology' mechanism to ensure uninterrupted mobile and internet connectivity through alternative routes. Salient features of 'BastarNet' are as follows:

- Two rings of 405 KM connecting: **Jagdalpur-Geedam-Kondagaon-Narayanpur-Bhanupratappur-Kanker** and 431 KM connecting: Jagdalpur-Sukma-Dornapal-Konta-Dantewara-Geedam-Bijapur-Bhopalpatnam has been proposed under the project.
- 48 core fibre will be laid for Ring 1 & 2 and fibre cores will be made available for leasing out to TSPs/ISPs, government & private Institutions alike.
- IP/MPLS is the technology of choice.[6]

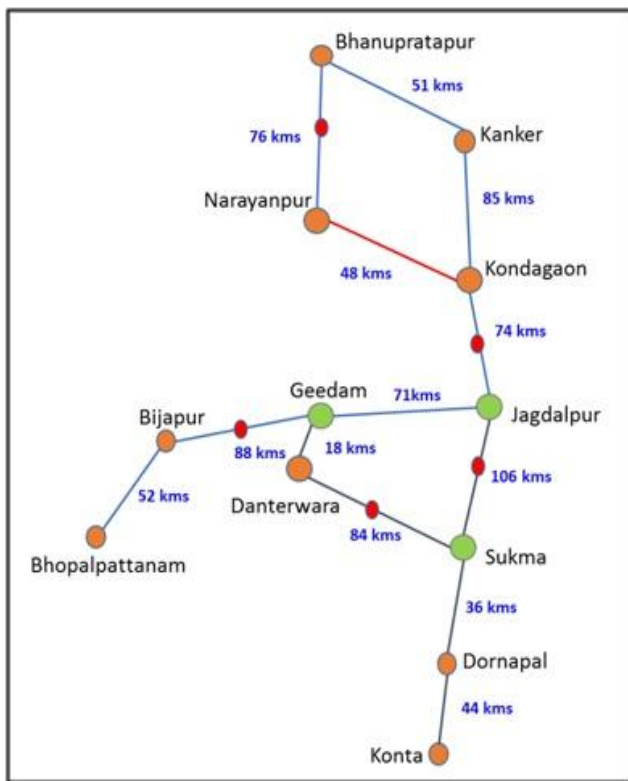


Fig.3 Map of Bastar Net

(F) Student Lifecycle Management Systems

Chhattisgarh Infotech and Biotech Promotion Society (CHi PS) has initiated a project with web based application 'Student Lifecycle Management and Allied services' as a service to the universities/colleges which covers the activities from admission till alumni online.

- SLMS is Web based software that is designed to manage and optimize the entire student lifecycle. It has been extensively tested, evaluated and selected by CHi PS by a thorough Government procurement process. The application will be hosted in the State Data Centre, which is managed by CHi PS and will be available to all State-sponsored Universities, the affiliated colleges, and to the students studying in the colleges of respective Universities/ Colleges of Chhattisgarh. The lifecycle of the project includes designing, implementation and maintenance of entire SLMS software and associated for a period of 10 Years on Pay-per-Use basis.

SLMS automates and integrates various core processes like Admission, Academics, Examination, Placement and Alumni Management; while working in a stand-alone fashion. In addition to these, the Management information system along with the Dashboard feature offers data from all such processes in form of condensed, logically structured reports for efficient University Governance

V. CONCLUSION

As the conclusion of this paper, Modern ICT is the key factor for rural development and growth. By apply of ICT development can easily improved, the primary factor of development is electricity, communication media, transportation etc. The knowledge of ICT can increase the awareness of people belong to rural areas or Village. Which can increase the production and communication with the current news and market and can sailed agriculture products on market price. Improved the productivity can improved the economical growth of the nation. The government also introduces several schemes and programme in rural area for growth, development and may focus on the improving the basic needs of infrastructure in rural areas for connectivity to information technology.

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