

ICT In Growth To E-Governance For Rural Growth

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ABSTRACT

The Information and Communication Technologies (ICT) are being increasingly used by the governments to deliver its services at the locations convenient to the citizens. The rural ICT applications attempt to offer the services of central agencies (like district administration, cooperative union, and state and central government departments) to the citizens at their village door steps. These applications utilize the ICT in offering improved and affordable connectivity and processing solutions. Several Government-Citizen (G-C) e-Government pilot projects have attempted to adopt these technologies to improve the reach, enhance the base, minimize the processing costs, increase transparency, and reduce the cycle times^{1,2}. A large number of rural E-Government applications, developed as pilot projects, were aimed at offering easy access to citizen services and improved processing of government-to-citizen transactions. Some of these have drawn international attention and have won prestigious awards for their innovative approaches. They have demonstrated the power of ICT in rural context and are seen as reference models for future e-government project implementations^{3,4}. Most of these projects have seen developments in the Internet technology and dropping costs of PCs as opportunity to reach remote locations. They used the existing telecom infrastructure and the Internet access through ISPs as inexpensive connectivity solution.

1. INTRODUCTION

They tried to package in all possible information services for the rural citizens as a single point access through PC based kiosks connected to ISPs. Some projects have experimented with the wireless technology to reach the remote locations^{5,6}. However, a large number of rural ICT applications have slipped in performance and are facing acute problems of sustenance after their successful launch by the dynamic project champions. Some of the important observations by CEG-IIMA based on its evaluations of some of these projects^{7,8} and the experiences on developing proof-of-concept projects^{9,10} are:

- Design of citizen-centric services and dependable service delivery mechanisms.
- Selection of appropriate (dependable, maintainable and cost effective) technologies for rural Connectivity and information processing solutions.
- Design of cost-effective delivery stations (kiosks) to enable private entrepreneurs operate the services profitably and build new services for sustainability
- Re-engineering of back-end processes and introduction of changes that take advantage of the storage, processing and distribution powers of the emerging ICTs
- Ensuring employee participation with well-designed change management processes
- Demonstration of transparency and efficiency to remove distrust and build confidence among the citizens on the functioning of service delivery mechanisms.

- Inviting private participation to reduce the burden on the central servicing agency, bring in the expertise, enhance the speed of implementation, and offer better value proposition to the citizens.
- Identifying and preparing project champions, ensuring appropriate tenures, facilitating smooth transition, and internalization of the changed procedures.

ICT INFRASTRUCTURE FOR RURAL E-GOVERNANCE APPLICATIONS

The rural ICT solutions are normally offered through internet portals hosted on a delivery web server to provide access to the citizens through inexpensive internet medium. The information flow between the delivery server and the other departments is accomplished through Intranet / LAN connectivity with servers of those departments (if exist). Often, due to non-computerization of back-end systems, the transactions are manually exchanged and response data is keyed in manually through the nodes on the delivery server. It may be noticed that the end-to-end connectivity between the central service providers (district administrations, cooperative unions etc.) and the citizens is accomplished through a number of stages involving several agencies. These stages, the technologies and agencies involved in offering the services.

The need for improved computer connectivity up to village level was recognized by the central government in 1998 and drafted a National IT Policy¹¹ recommending the states to create infrastructure to facilitate improved data communications. Adhering to national IT policy, several state governments have set up or in the process of setting up the state wide area networks (SWAN) to support the rural connectivity applications (Annexure). While southern states are quite ahead in building SWANs and utilizing them for e-Government applications, many states are still in the process of developing such infrastructure.

ICT Availability for Rural Applications Computers have become more powerful, user friendly and less expensive. The PC revolution has brought them closer to the users to the extent that in number cases users have designed and developed their own applications. However, till recently, it has not become easy to create local content and regional language interfaces, to facilitate their use in villages. In addition, although the hardware costs are coming down, the total cost of ownership for rural applications is quite high. The costs of the minimum required gadgets like PC, Modem, Power stabilizer, and Printer along with the license costs of software (OS, Database, and Application as applicable) does not justify their use for offering government related information services, just on the basis of return-on-investment criterion. These equipments become obsolete too soon, and have high maintenance costs in the rural areas. At the current cost levels, to breakeven, the kiosk operators will have to find alternative revenue generation activities utilizing these equipments. We notice that in many cases such business potential does not exist and even if it existed, the kiosk owners / operators are not trained to develop new solutions.

Several entrepreneurs are attempting to offer inexpensive hardware and software solutions for rural applications. The CorDECT technology by nLogue Communications¹² and the Simputer by PicoPeta Simputers Pvt.Ltd.¹³ are good examples of such initiatives. These organizations developed the computer and wireless connectivity solutions with indigenous components, software, and open source systems. It is hoped that large scale production of these systems would bring in appropriate cost effective technologies for rural applications. MSSRF based at Chennai is doing pioneering work in designing appropriate technologies for the rural poor¹⁴.

APPLICATION DESIGN AND REENGINEERING OF BACKEND PROCESSES

Rural applications will have to give utmost importance to their offerings to the socially and economically backward communities. These citizens must find the services relevant and beneficial to them. The user interfaces must be in regional language and the services should be designed to offer good responses to their applications and aim at minimizing the need for citizen's trips to district / taluka head-quarters. The applications must record the progress of user transactions and retrieve them on user's query. They must offer privacy and security to the user data. This becomes more important when the service delivery agents are private partners. All these call for significant reengineering and mechanization of backend processes.

Many successful urban ICT applications and rural projects like Bhoomi15 have exploited the developments in the server, network, and software technologies, to improve the processing of back-end processing applications.

Application design must start with good understanding and documentation of process flows and bottlenecks in the existing system. Application maintenance requires good quality documentation of application and database design at both system and user levels. Ideally they should belong to the central services agency and must be made available to the maintenance and training agencies.

Service Delivery It is expected that most of the rural ICT applications are meant for socially and economically backward communities. Therefore the service delivery mechanisms must be aligned to this fact. These kiosks must be located in the areas convenient to them to approach and use. The kiosk operators must communicate well with the citizens and cordially deliver the services.

The ambience of service delivery locations is very important. They must be clean, with provisions of drinking water and toilet for ladies and gents separately, to attract the citizens of all communities and genders. The service delivery operators must be familiar with all user interfaces and must be supported by the central agency in handling the user services. Poor responses of the central agency can put the service delivery agents in embarrassing situation, resulting in abandoning of services.

The service delivery operators therefore must be adequately trained on the application context and on all possible services through the kiosk. There must be a system of record keeping measuring the service utilization and service quality. Periodical reviews are important to monitor and improve the quality of service.

PRIVATE PARTICIPATION

Almost all rural e-Government project champions have found it convenient to involve different private agencies for different tasks through appropriate public-private-partnership (PPP) contractual arrangements. These tasks include design and development of application software, population of data and content in the regional language, procurement and installation of networking and computer systems, deployment of software and delivery of services. Such arrangement seems to have helped in reducing the burden on the government, brought in the expertise, enhanced the speed of implementation, and offered better value proposition to the citizens. While there are benefits of private participations, it is important to guard the social

objective behind these applications. Pure commercial benefit should not determine which services to offer.

The private participation in these applications is likely to put very sensitive and valuable data in the hands of the private agencies. Proper judiciary mechanisms will have to be worked out and put in place before the services are launched, to ensure that no injustice is done to the citizens by misuse of such data.

CAPACITY BUILDING

A large number of people at various levels have to be trained on the changed environment with ICT applications to meet the citizen expectations. To start with, it is important to identify and prepare project champions. Functionaries attempting to design e-Government applications must have adequate experience and training to design, implement and manage ICT applications. They must be able to adequately reengineer the existing processes and introduce the desired changes in the system. They must be able to coordinate with number of agencies dealing with technology and citizen services. It is unlikely that the existing functionaries have exposure and adequate knowledge on all these aspects. Therefore, it is desirable for the governments to organize special training programmes which provide formal inputs on the planning and implementation of ICT systems in government¹⁶. It is equally important to ensure appropriate tenures for project champions to facilitate smooth transition, and internalization of the changed procedures. As observed earlier, the major factor responsible for poor sustenance of many rural ICT applications. All functionaries of the government departments need undergo training on behavioral issues involving themselves, citizens, and private agencies. It is important that they are trained to accept the changed transparent environment facilitated through ICT based processing, minimizing the paper transactions and reducing cycle time.

2. SUMMARY OF EXPERIENCES AND OBSERVATIONS

The Information and Communication Technologies have facilitated the design of solutions to deliver government services for social development at the door step of rural poor. Successful ICT projects involved, in the design process, all stakeholders such as government officials, legislators, regulatory agencies, citizens, voluntary organizations, technology consultants and vendors, academics, researchers, funding agencies, and media. Most of 9 these were accomplished using the public-private-partnership (PPP) model. The benefits derived from such projects were very significant.

Many solutions in the project phase have ambitiously packed several services and were launched successfully under the dynamic leadership of project champions. While these projects offered impressive results during the tenure of the project champions, they slipped in performance after their transfers. Some projects could not retain private entrepreneurs due to poor revenue realization and inadequate quality of responses by the government departments offering the services. Thus, the government as well as project champions need to pay due attention to the organizational, commercial, and legal sustenance issues of these projects. Special emphasis is needed in working out revenue models, ensuring the full implementations through appropriate tenure appointments of project champions, ensuring effective monitoring and maintenance of systems.

Based on these observations and other experiences, we consider the following as major factors responsible for successful implementation and sustenance of ICT projects for social development:

- Degree of efficiency and transparency demonstrated in citizen services
- Extent of reduction in cost and improvement of convenience for citizens
- Extent of reengineering and improvement of back-end services
- Extent of Integration of backend processes with front-end and web site
- Degree of employee involvement and change management
- Amenability for Public Private Partnership (PPP) arrangement
- Strength of PPP arrangement in the application development
- Strength of PPP arrangement in the service delivery
- Enhancement of Revenue for the government and the service provider
- Technological robustness of the project

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