ICT Driven E-Governance Public Service Delivery Mechanism in Rural Areas: A Case of Rural Digital Services (Nemmadi) Project in Karnataka, India

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Abstract

Information and Communication Technologies (ICTs) are playing a vital role in day-to-day public services. In the realm of machinery of Government, the ICTs application areas are promising to enhance the service delivery and improve the process and management of Governmental functionaries. This paper traces the current round of discussions on the appropriate roles and scales of Government with respect to ICTs driven e-governance application for enhancing service delivery in rural areas.

The paper reviews the efficacy of the policy framework in context of service providers and enhancement in delivery of goods and services to the rural society. The main issues related to service delivery are the role and multiplicity of organization, the coverage of services, and actual deliveries of goods and services. This is largely dictated by the preparedness of the service provider and as well as the extent of innovative technology used.

Karnataka is one of the pioneering States in India with respect to adopting innovative information technologies. The author has chosen to review on ICT driven e-governance Rural Digital Services (Nemmadi) project in Karnataka. It works at taluk level, covering about 38 citizen-centric services to the rural citizens. The vision of Rural Digital Services (Nemmadi) project is to empower the rural citizens, provide direct access of government services to the citizens and bring government services to the doorstep of the citizens thereby bridging the digital divide in Karnataka.

Key Words: E-governance, Public Service Delivery, Machinery of Government, Rural Digital Services, Citizen-Centric Service

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1. INTRODUCTION

Information Technology (IT) is emerging as a major instrument for shepherd in administrative reforms. The information technology that have changed ways of public services delivery system and promising efficient and enhanced service delivery to citizens. The current trend in Information and Communication

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Technology (ICT) has brought a phenomenon which can be termed a "fourth revolution" in information technology. The first revolution comprised of films, radio, television and satellite broadcasting, while the second comprised telecommunications and microcomputers [Paisley, 1985]*. The third revolution what is called as Information Technology was said to promise not only a more productive person, a problem-solver and a lifelong learner, but also a better informed, rational and participative citizen, a modern 'renaissance' person, living in the web and network of a worldwide electronic community [Papagiannis et al, 1987] † . At present we have "fourth revolution" called as applications of Information and Communication Technology. ICT presents many avenues for improving governance. It has opened up new opportunities for governments to manage things differently and in a more efficient manner by utilizing information effectively and re-engineering processes. ICT tools are emerging as important instruments towards the goal of "good governance".

2. ROLE OF SERVICE DELIVERY PROVIDER

In India, according to 2001 census about 72 percent of population living in rural areas and majority of them are poor without access to basic services such as potable drinking water, sanitation, basic health care services, access to primary education etc. There are no institutionalised standards for the delivery of public services. Therefore, there always appears to be an unending struggle between the governmental systems, its capability to deliver and the actual needs of the citizens. For several decades public services have unfortunately been provided with the primary focus on convenience of service providers rather than on service receivers. Various factors like complex regulations, complicated forms, lack of information, absence of performance standards, lack of accountability, corruption and incompetence have left recipients of public services, or ordinary citizens, helpless, dissatisfied and frustrated. In many cases, the lack of implementation and absorptive capacity of government agencies and citizens respectively are problems that hamper efficient service delivery.

The delivery of services requires strong relationships of accountability between the actors in the service delivery chain. The main actors involved in service delivery sequence are central policy makers, state policy makers, service provider and general public. There is a need for accountability between Central and Local Policy makers and service providers. As depicted in Figure 1, new information and communication technologies (ICTs)‡, and e-governance applications can provide essential tools and mechanisms for poor communities to hold both policy makers and service providers accountable for a sustained supply of services. Therefore, e-governance would be mechanism for enabling transactions of governments which aid in governing a state or a community.

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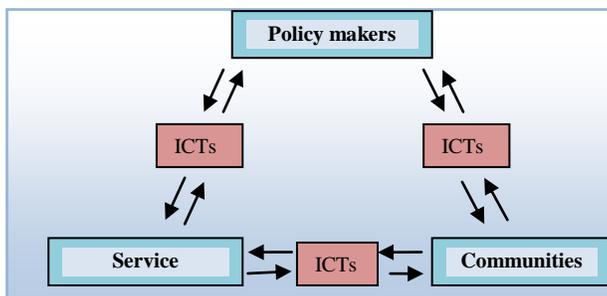
* W. Paisley, **Children, new media and microcomputers: continuities of research.** *Children and microcomputers: Research on the Newest Medium, 1985.*
† Papagiannis, G.J., Douglas, C., Williamson, N. and Le Mon, R., **Information technology and education-Implications for theory, research and practice.** IDRC, Canada, 1987.
‡ UNDP, **Pro-Poor Public Service Delivery with ICTs Making local e-governance work towards achieving the Millennium Development Goals,** APDIP e-Note 11 / 2007

Figure 1: Enhancing accountability, transparency and efficiency with e-governance

The ongoing challenge for government is that there are more people to serve, more services to provide, and greater investment is needed in "government preparedness." At the same time, most government organizations are being asked "to do more with less," and that places even more pressure on them to creatively and effectively leverage available technologies. The National e-Governance plan envisages the setting up of a state data centers (SDC) across the country and share infrastructure, allowing departments to access information easily and also cut costs in the process. The key interests of the main stakeholders are:
- **Government** - ensure the delivery of government services in effective and efficient manner;
- **Private partner** - growth opportunities through expansion of the domain and profitability; and
- **Citizens** - quality delivery of public service.

3. MACHINERY OF GOVERNMENT IN INDIA

The new Oxford English Dictionary defined as **'**Government is the sum total of the systems by which a state or community is governed'. The machinery of government in India comprising of three tier system; Union Government work at country level, State Governments work at State level and Local Self-Governments work at local level. Further local self governments are divided into Urban Local Bodies and Rural Local Bodies. When comes to Rural Local Bodies, the Karnataka Panchayat Raj Act, 1993 provided for a three-tier structure of local government with the Zilla Panchayat (ZP) at the district level, Taluk Panchayat (TP) at the middle level and Grama Panchayat (GP) at the grassroots level. The Zilla Panchayat (ZP) stands at the apex of Panchayat Raj System; the Taluk Panchayat is the middle tier and the Gram Panchayat, the lowest tier. The state of Karnataka was one of the very few states which took important steps to usher in decentralised governance, much before Panchayat Raj as a form of decentralised governance was acknowledged and institutionalised through constitutional amendments.

4. A CASE OF RURAL DIGITAL SERVICES (NEMMADI)[*] PROJECT IN KARNATAKA

Karnataka had a population of about 52.73 millions according to 2001 census, out of which about 66 percent of State population live in rural areas, about 56,682 rural habitats including 27,683 revenue villages. At present, there are 30 Zilla Panchayats, 176 Taluk Panchayats and 5,653 Grama Panchayats in the State. Karnataka State was at the forefront of India's ICT revolution and its capital, Bangalore, was the centre of the country's ICT industry. It is the home of new IT legends like Infosys Technologies and Wipro. Software exports from the state have been growing in dollar terms in the last ten years. A large number of IT startups have come up, and the state has been written about in business magazines around the world.

The Government of Karnataka was introduced 'one-stop -shop' Citizen Service Centres, which allowed members of the public to use a range of services electronically. *The Rural Digital Services (Nemmadi)* initiated in 2007, were originally intended to use Information and Communication Technology (ICT) to simplify procedures, ensuring transparency and improving the quality of the government's relationship with citizens as well improving overall citizen satisfaction. The Karnataka Government was justifiably proud of its United Nations award winning land registration and records system, *Bhoomi[†]*. All levels of the revenue department from the village accountant to the Deputy Commissioners (District Collectors) had been exposed to a very successful implementation of an e-governance program. Because of the bhoomi program, the computing infrastructure for deployment of an e-governance program like servers and connectivity to a central database was available at the taluka office of the revenue department. *The RDS (Nemmadi)*, through a network of 800 telecenters at the *Hobli* (group of villages) level, is an IT

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[*] Meaning **'hassle free'** in the local language Kannada
[†] The *Bhoomi* (meaning 'land') project of online delivery of land records in Karnataka
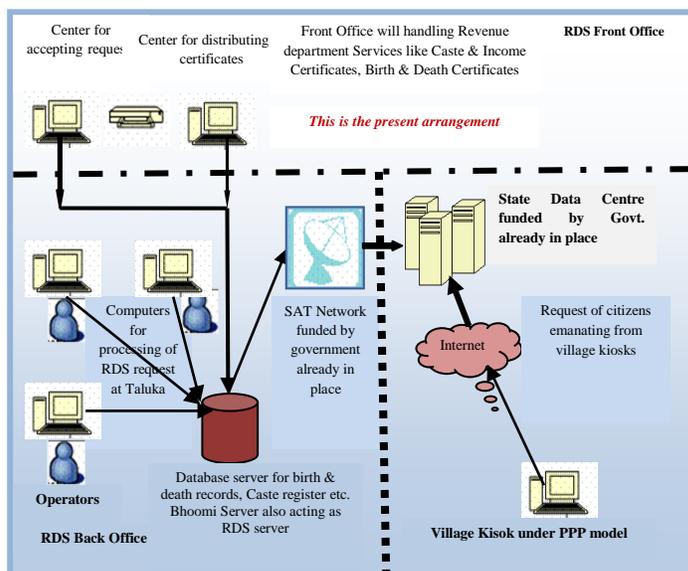
enabled rural initiative to deliver Government services at the citizen's doorstep. Through *Nemmadi* rural citizens can avail of Rural Digital Services (certificates issued by the Revenue department) as well as other services[*].

5. BUSINESS MODEL

The RDS (Nemmadi) project was bagged by a consortium of IT firms – M/s Comat Technologies, 3i InfoTech, and n-Logue technologies. The initiative involves the deployment of 800 telecenters to supplement the 177 existing land record service (Bhoomi) kiosks that operate sustainably at the sub district level. The state government owns the project. As part of the build-operate-transfer (BOT) model, M/s Comat build, deploys, and maintains the kiosks for an initial five years. M/s Comat and its partners expect to recover their investment in equipment, infrastructure, and human resources within that five-year period. Services delivered through the RDS, comprising more than 38 government processes, include copies of land records, approval of old age pension for senior citizens, issue of caste certificates, issue of income certificates, birth & death certificates, land holding certificates etc. A fixed transaction charge of Rs. 15 is levied for each service and the private partner is paid a part of the transaction charges.

6. COMPONENTS OF RDS (NEMMADI) PROJECT

The RDS comprises of the following components: a) State Data Centre- Karnataka has been one of the first states to create a State Data Centre for both hosting all e-governance applications of the state and acting as a disaster recovery centre. The State data center is service delivery channels to departmental servers were directly connected to the internet; b) Wide Area Network- The current delivery of RDS services, the State government has set up a network of VSATs linking each of taluka servers to the State Data Center; and c) Delivery Channels - Taluk servers are both local repository of data and additionally data updation. Village Telecenters are another channel for the citizen to make requests and access. In most cases these Village telecenters comprises of one or two computers with associated peripheral devices such as printers, scanners, web cameras and they connect to the internet through various dialup technologies.

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Figure 2: Diagrams of RDS components in Revenue department Source: Reproduction from RDS (Nemmadi), Government of Karnataka

The various components of RDS (*Nemmadi)* are shown in Figure 2. The village level telecenters are the channels of delivery of various G2C services to rural citizens. The requests received at the kiosks are processed at the taluka back offices, which is connected to the government offices. *Nemmadi* and *Bhoomi* projects use the same database at the taluka levels, which is updated constantly. The consolidated database of land records of the entire state is maintained at the State Data Center (SDC). Requests for the *Nemmadi* services are transferred to the taluka servers through the SDC. Subsequent to receiving the electronic request from the Telecenters through the SDC, the request is processed by appropriate authority (*Tehsildar)*[*] for verification and validation. On receiving the comments of such appropriate authority, the final certificate is generated and is digitally signed by the competent signatory, which is then downloaded at the village telecenter and issued to the applicant see Figure 3.
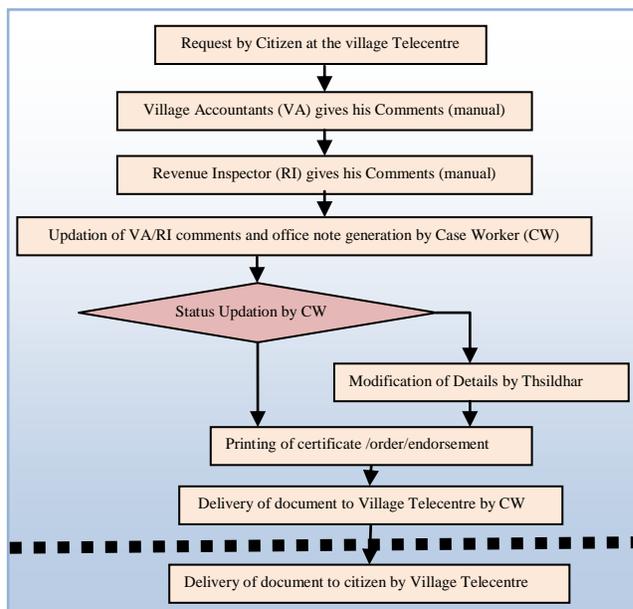

Figure 3: a typical workflow process for delivery of service at taluka that was computerized through the Rural Digital Services

7. SOFTWARE FOR RDS SERVICES

The software for delivery of RDS services was developed on the Microsoft Platform and uses MS SQL Server. It has several innovative features like multiple modes of delivery of services. Some of the software features are given below:
- Reports - Use of RDS software allows one to track the delivery of certificates and also to monitor and thereafter rectify the delays in processing of the citizen service requests.

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[*] A tehsildar is revenue administrative officer in Pakistan and India in-charge of obtaining taxation from a tehsil, meaning tax collector. (http://en.wikipedia.org/wiki/Tehsildar) (Accessed on 7th July, 2009).

- Offline functionality - The RDS software has been built on a rich client model with the master data being stored in the local machine also. This allows the application to deliver both online and offline functionality, i.e. service requests of the citizens at the village telecentre can be saved in the local telecentre machine even when connectivity to the SDC is not available. The advantage of this functionality is that citizen can make the service request even when internet connectivity is not available.
- Use of digital signature - The RDS software has a feature of digital signature by the issuing authority. The RDS software generates an XML of this digitally signed certificate and displays it as a 2 D bar code. This feature can help both in checking the authenticity of the certificate and can be later used to dispense with the physical signature of the official on the certificate.
- Smart update facility - Since the RDS client is a rich client application, there is a need for constant updates for incorporating new functionalities. However, since the village telecentres will be located in remote places, the smart update facility will help in maintaining uniformity of the software application across all delivery points.
- Biometric authentication - Finger print authentication for login and updation is used for non-repudiation by the government officials.
- Unicode - Unicode is being used to store data in the local language. The software can be customized to allow multi-language user interfaces. Currently Kannada and English languages are supported.

8. PERFORMANCE EVALUATION OF RDS (NEMMADI) PROJECT[*]

The performance evaluation analysis was done by Indian Institute of Management, Bangalore during June-July, 2008. The study covered 300 service users from 4 villages were selected in two districts of Karnataka viz., Ramanagara and Chamarajanagara were interviewed. The citizen survey and opinion about efficiency of service delivery data reveals that that service provisioning through these centers have significantly reduced the time taken to obtain RTC, Land holding certificates etc. The level of citizens' satisfaction of various attributes of services at RDS (*Nemmadi)* centers, data reveals that citizens are highly satisfied with the new delivery process, speed and responsiveness of staff, while accuracy of services and records as well as facilities at the centers were satisfactory in both the districts. Whereas in the pre - RDS (Nemmadi) days, where citizens had to wait for the visit of village accountant to initiate the process of obtaining certificate.

The RDS (Nemmadi) project bags the National Award for e-governance - Silver Award for 2007 - 2008, Microsoft e-governance leadership Award for 2007 and Government Technology Award for e-governance, 2007

9. CONCLUSION

In the wake of increasing challenges to deliver quality of public services in developing counties like India, ICT driven e-governance applications making the citizens happier with timely and cost savings in availing services and improvement in the reliability of services. 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. It is important to understand the 'whys', 'which' and the 'how's' of public service delivery. It is very difficult to define this term. We do not have any comprehensive definition or understanding of what really is public service delivery. Briefly put, it is the inter-relationship between the government functionaries and the citizens to whom the services of the government are addressed to, and the manner in which the services reach those for whom they were intended. Any effective public service delivery mechanism must ultimately lead to good governance. The

governments generally utilise one or the other of a variety of mechanisms for delivering services to the citizens. There is no limit to the scale of such composite applications. Once the structure is in place, governments can more easily get down to the business of public services.

The RDS (Nemmadi) project is different from most models that currently exists is that its services are based on volume rather than the high-up front costs that other models have difficulties supporting. For example, 20 million land records divided by 176 taluk offices results in 113, 636 records per back office. Priced at Rs. 15 (US$0.32) per RTC certificate, this average to Rs. 1, 704, 545 (US$ 36, 823) per office revenue per year. This is sufficient to cover operating costs, provide a modest return to State revenues, ensure good service levels and result in profit making proposition for private investors such as M/s Comat Technologies and its partners. For other services, such as issues of birth and death certificates, Caste certificate etc. yields supplementary revenue to the Service provider. A key challenge for public service delivery is in designing and implementing a system that holds service providers accountable for the services delivered. Even if the clients are able to reach the policy makers, this does not necessarily lead to improved services because the policy makers cannot ensure that the public service provider (whether public, private or civil society) will deliver the services due to an equally long route of accountability between the policy makers and the service providers[*].

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