

Research Article

Adoption of E-Governance Services among Rural People: An Assessment Study of Uttar Pradesh

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ABSTRACT

There is no doubt that human intelligence is the basic prerequisite for every nation's development. In modern society, which is fast changing, it becomes necessary to acquire, enhance, or sometimes transform the existing skills into new skills of working, so that the society can cope with the fast-changing world. As the present era is referred to as the information age and worldwide, Governments are using the electronic medium for delivering services fast and easily, the Government of India has also initiated various e-governance programmes in the urban as well as the rural areas. The digitisation of *Panchayats* is one of its most considerable programmes, which is a State Mission Mode Project (MMP) of the National e-Governance Plan (NeGP). The present paper is based on qualitative and quantitative analysis and is an attempt to evaluate the adaptability of e-*Panchayats* by measuring the digital literacy of the villagers and *Panchayat* members of Uttar Pradesh. The data has been generated from a total of 180 villagers and *panchayat* members of *Varanasi*, *Fatehpur* and *Kanpur* districts.

Keywords: E-panchayat, Panchayats, Digitisation, Adaptability, Digital literacy

INTRODUCTION

According to the Census of India (2011), 68.84% (83.3 crores) of our population is living in villages and specifically, Uttar Pradesh is a state in which 77.7% of the total population is from rural communities, which has a literacy rate of 76.3% male and 53.7% female. Panchayati Raj Institutions (PRIs) are the government agencies that

provide government services to this huge population. Though, the 73rd amendment of the constitution (1992) was a milestone for the empowerment of these institutions through which PRIs were powered with more rights, responsibilities and functions. But this was not seemed to be sufficient as still, these institutes are far behind in terms of desired progress because of a lack of proper monitoring of these developmental projects due to some age-old methodology of manual system.

In the past few years, the Indian government has realised the power of a strong information communication system to establish good governance in the government administration which leads to an equitable, transparent and fast delivery of government services to its population. Therefore, to bring the benefits of Information and Communication Technology (ICT) to the last mile to ensure transparent, timely and hassle-free delivery of citizen services to the rural community, Union Government approved the National e-Governance Plan (NeGP), comprising 27 Mission Mode Projects (MMPs) and eight components on 18 May 2006 giving a boost to e-Governance initiatives in the country. Department of Electronics and Information Technology (DEIT) and the Department of Administrative Reforms and Public Grievances (DAR&PG) have formulated the NeGP (deity.gov.in, 2014). E-Panchayat MMP, which is one of the state MMPs, is aimed at automating the internal workflow processes of all the 2.45 Lakh Panchayats (approx.) across the country. This covers approximately 30 lakh elected members and several lakhs PRI functionaries (www.negp.com). But the low digital literacy among the rural communities creates a huge digital divide and has become the biggest hindrance in the way to achieving the goal of digital India (Delopoulos, 2011; Dwivedi and Bharti, 2009; Hwang *et al.*, 2004; Sharma and Mishra, 2011; Signore *et al.*, 2005). The present paper is focused on analysing the e-readiness among the rural communities of Uttar Pradesh for adopting these e-governance initiatives at the panchayat level.

VARIOUS E-GOVERNANCE INITIATIVES IN UTTAR PRADESH

However, it is a little-known fact that Uttar Pradesh was one of the first states to kick start ICT initiatives in e-Governance. The state already has a fully automated treasury system; the land records information is available on the Internet, land registry, transport, rural development, industry and many other sectors are already at advanced stages of computerisation. Uttar Pradesh is also leading in the implementation of a number of NeGP projects such as the e-District & State Wide Area Network (SWAN) (E-Governance for Citizen Empowerment, 2012). Department of Information Technology (IT) and Electronics Uttar Pradesh is responsible for making policies and facilitates to fulfil the target of setting up e-Governance in the state.

In the year 2016, the Government of Uttar Pradesh prepared the latest policy to accelerate the e-Governance initiatives in the state named **IT & Startup Policy 2016** with the following mission:

1. To position Uttar Pradesh as the preferred IT/IT e-Services (ITeS) investment destination in India
2. To leverage IT as an engine of growth for UP
3. To transform physical communities into connected communities that can help to realise sustainable economic growth and enhance the quality of life

To fulfil this mission, the NeGP is being implemented in Uttar Pradesh. To facilitate various e-Governance services under this plan, the following core infrastructure has been developed:

State Wide Area Network (UPSWAN)

The UP SWAN provides the backbone of connectivity for the entire state. The project aims to providing all three services—Data, Video & Voice (IP based) connecting 70 Districts 304 Tehsils 806 Blocks—ultimately reaching more than 1 lakh Villages. It is capable to handle high volume high-speed throughput of 2–34 Mbps. It is integrated with Secretariat Campus Area Network (SCAN) and has an internal Interconnection with NIC’s satellite-based Network (NICNET).

Common Service Centres

The Uttar Pradesh Government is working on a target to establish 17,909 Common Service Centres (CSCs) in the State of Uttar Pradesh under National eGovernance Plan (NeGP). Seven zones in the State have been classified in the scheme and three Service Centre Agencies (SCAs) are selected to implement the Scheme in these seven zones (Agra, Lucknow, Moradabad, Faizabad, Varanasi, Bareilly and Kanpur).

State Data Centre

State Data Centre (SDC) has been identified as one of the important elements of the core infrastructure for supporting e-Governance initiatives of the National eGovernance Plan (NeGP).

Under NeGP, it is proposed to create SDCs for the States to consolidate services, applications and infrastructure to provide efficient electronic delivery of G2G, G2C and G2B services. These services can be rendered by the State through a common delivery platform seamlessly supported by core Connectivity Infrastructure such as

SWAN and Common Service Centre (CSC) connectivity extended up to the village level. SDC would provide many functionalities and some of the key functionalities are Central Repository of the State, Secure Data Storage, Online Delivery of Services, Citizen Information/Services Portal, State Intranet Portal, Disaster Recovery, Remote Management and Service Integration etc. SDCs would also provide better operation & management control and minimise the overall cost of Data Management, IT Resource Management, Deployment and other costs.

E-READINESS AND DIGITAL LITERACY

E-Readiness does not show only the number of computers, Internet connections, telephones and mobiles, etc. in the country but rather it is a multidimensional concept. It measures the ability to participate in an increasingly networked world. It also can be viewed as the ability to pursue value-creation opportunities facilitated by ICTs (Zaied *et al.*, 2007). Harvard University prepared a guide for measuring e-Readiness for developing countries which defines e-Readiness as the degree to which a community is prepared to participate in the Networked World. It is gauged by assessing a community's relative advancement in the areas that are most critical for ICT adoption and the most important applications of ICTs. Budhiraja and Sachdeva (2002) refer to the definition given by the World Economic Forum Consultation Report on E-Readiness which defines e-readiness as the ability of the ICT networks to effectively adapt to social and economic advancement.

Therefore, two sides of e-readiness can be seen, one is the ability of the government to provide services through ICTs and the ability of the citizens to grasp the maximum benefits from the advanced information system. The study of different national and international indexes which have been prepared for measuring the e-readiness of different nations shows the lower level of digital literacy in India. Network readiness Index 2014, by the World Economic Forum which offers a comprehensive assessment of the present state of networked readiness of 148 countries in the world, ranked India 93. While for the sub-index of Skills, India is ranked 101.

Another report presented by the International Telecommunication Union presents the key ICT developments and tracks the cost and affordability of ICT services according to the internationally agreed methodologies. The ICT Development Index (IDI) ranks a country's performance based on various indicators. India's overall ranking is 129 and the Skills sub-index ranking is 121.

The Department of IT and the National Council of Applied Economic Research have collaborated in producing the India e-readiness reports since 2006. For the first time, NCAER's e-Readiness Report 2008 provides an assessment of Indian states/UTs in

the area of e-Governance. According to this report, e-Readiness can be considered as the ability to pursue value creation opportunities for inclusive economic development facilitated by ICT. Therefore, it is not simply a matter of the number of computers, websites, Internet service providers, Internet connections, telephones and mobiles in the state/UT, but also the ability or readiness to use technology skilfully at the level of the individual, business and government. For the broad framework of analysis, this assessment considers three major components of e-Readiness for its ranking. While e-readiness assessment report India 2008, sees Uttar Pradesh as an expectant with L3 Level.

REVIEW OF LITERATURE

Besides these National and International e-Readiness Indexes, many scholars in their studies have identified digital literacy among the community as an important component for their better participation in the e-governance programmes and to determine their success or failure. Some studies of them are being discussed for getting insight into barriers and the digital divide due to the lacking of a skilled workforce and skilled population, which prevents them from adopting e-Governance services.

Singh and Sharma (2010) recognised in their study that education, knowledge, information and communication are the core of human progress, endeavour and well-being. They view that the Panchayati Raj in the state is an instrument of vigorous local self-government to secure the effective participation of the people in the decision-making process and to oversee the implementation of the developmental programs at the Panchayat, Block and District levels.

They observed that the rural community is not fully aware of computers, the Internet, and online services and their uses and advantages but they are ready to use the ICT applications. So, they suggested undertaking an intensive campaign for developing the skills of PRI in designing, planning, monitoring and in implementing programs. They also laid emphasis that any democratic system communication needs in a democratic society should be met by the extension of specific rights such as the right to be informed, the right to information, the right to privacy, and the right to participate in public communication. Some recommendations have been presented, and the state government should clearly define strategy and formulate plans for the dissemination of information to rural communities with measurable timelines.

Bhatnagar (2009) discusses the nature of the challenge in its implementation, as the progress of ICT use in PRIs has been very uneven across states and consequently, its utilisation and impact are marginal. Throwing light on the possible strategies to increase access to technology in PRIs and also the utilisation of ICTs to achieve the

desired outcomes, the author proposes a coordinated approach for many different initiatives undertaken by different agencies to promote the computerisation of Panchayats. New organisational mechanisms are needed to build the capacity to absorb and integrate ICTs in the functioning of PRIs.

Sharma and Mishra (2011) identified some human factors like computer literacy level, qualitative Human resources, language and political issues as the challenges of e-governance implementations. According to them, the computer literacy level in India is very low and factors behind these conditions are low literacy level, language barriers, and limited infrastructure resources provided by the government. They also stated that India does have an inspiring vision of where e-governance has to go; there is a gap between service delivery and reality in the country.

Demopoulos (2011) described that the lack of knowledge, digital illiteracy, the development of ICT skills, culture, attitudes, the beliefs are the factors which influence the adoption behaviour of the person, he also mentioned that the nationality, whether some citizens belong to a minority, the experience, the age, the physical and mental state play an important role.

Streib and Willoughby (2005) tried to examine the ability of local governments to implement the changes needed to become cyber-governments. Strengths, weaknesses and hurdles that local governments will need to cross in order to achieve success have also been focused on the basis of the existing literature. The paper reveals that the monopoly suppliers, the disability to act quickly and decisively and the professional commitment of local government administrators are some points which are raised to describe the nature of the challenges in the implementation of e-Governance. To facilitate the ideal conditions against the identified challenges and for e-Governance success, the authors developed a model, in which a stable environment, slack resources, knowledgeable leadership, skilled and supportive staff and good communication are discussed as essential elements for the development of e-Governance in local governments.

Bhatnagar and Singh (2010) stated that a number of developing countries have launched e-Government programs and several development agencies and governments have identified e-Government implementation as a key policy priority. Driven by the success of a few projects in improving the delivery of services to citizens and businesses, an increasing number of governments are making ICT investments in the public sector. On the other hand, evidence of failed projects has drawn attention to the level of risk involved in their implementation. A failure rate of more than 50% is widely cited in this context. This indicates the need for more research work in the field of identifying the reasons behind the failures of these initiatives.

So on the basis of available literature, it can be said that despite of ICTs having the potential to strengthen the information communication system for good governance and despite the heavy investment of governmental funds in setting up the infrastructure, the adoption of e-governance initiatives is restricted because of the factors like lack of awareness, lack of skilled workforce, lower digital literacy among the citizen. Hence, the present paper is focused on analysing the e-readiness among the rural communities of Uttar Pradesh for adopting these e-governance initiatives at the panchayat level with the following objectives:

1. To know the availability of ICTs at the home of the rural communities and
2. To measure the ICT literacy level among them.

RESEARCH DESIGN

The areas of study are Kanpur, Fatehpur and Varanasi in Uttar Pradesh. These are the Districts of Uttar Pradesh, where Panchayats have been not only digitised but also have their Panchayat web portal under the e-Panchayat MMP of India. Each district has 11, 15 and 33 e-Panchayats respectively. Data are collected at the district, block and village levels. Two e-Panchayats are selected for the study from each of the three districts mentioned earlier. Two villages from each of the three districts were selected for the study.

1. Niyar Village Cholapur Khetra and Loonthakala, Chirai Village from Varanasi.
2. Sona Village Panchayat and Rampur Bhimsen village Panchayat from Kanpur district.
3. Sahnipur village Panchayat and Chandipur village Panchayat from Fatehpur District.

Thirty respondents (10 Panchayat members and 20 villagers) from each village were selected for the present study. An effort was made to take an equal ratio of male and female respondents. Thus, the data is obtained from 180 respondents (110 male respondents and 70 female respondents). All the selected respondents were having different demographic characteristics.

E-READINESS OF THE RESPONDENTS

To assess the adaptability of e-Panchayats, digital literacy level and availability of different ICTs in the house of the villagers were analysed. For measuring digital literacy, 15 main services and applications provided by mobile phones and computers were listed down and the responses were collected on the basis of the frequency of their use (Very often, Sometimes and Never) by the respondents. The responses of the villagers are tabulated (Table 1).

Table 1: Digital Literacy Level of the Respondents

| Name of the application | Frequency | | | | | |
|---|-------------|-------------|-------------|-------------|--------------|-------------|
| | Very often | | Some times | | Never | |
| | Male (110) | Female (70) | Male (110) | Female (70) | Male (110) | Female (70) |
| Receiving and dialling the call from mobile | 97 (88.18%) | 53 (75.71%) | 4 (3.63%) | 12 (17.14%) | 8 (7.27%) | 6 (8.57%) |
| Receiving SMS | 58 (52.72%) | 20 (28.57%) | 10 (9.09%) | 14 (20%) | 41 (37.27%) | 27 (38.57%) |
| Sending SMS | 38 (34.65%) | 11 (15.71%) | 15 (13.63%) | 12 (17.14%) | 62 (56.36%) | 48 (68.57%) |
| Receiving MMS | 5 (4.54%) | 3 (4.28%) | 16 (14.54%) | 2 (2.85%) | 78 (70.90%) | 61 (87.14%) |
| Sending and making MMS | 4 (3.63%) | 0 | 7 (6.36%) | 3 (4.28%) | 99 (90%) | 67 (95.71%) |
| Mobile conferencing | 3 (2.72%) | 0 | 7 (6.36%) | 3 (4.28%) | 99 (90%) | 67 (95.71%) |
| Internet surfing through mobile | 18 (16.36%) | 7 (10%) | 17 (15.45%) | 2 (2.85%) | 75 (68.18%) | 61 (87.14%) |
| Social networking through mobile | 15 (13.63%) | 6 (8.57%) | 8 (7.27%) | 1 (1.42%) | 87 (79.09%) | 63 (90%) |
| Internet surfing through computers | 7 (6.36%) | 0 | 12 (10.9%) | 8 (11.42%) | 91 (82.72%) | 62 (88.57%) |
| e-Mail | 7 (6.36%) | 2 (2.85%) | 6 (5.45%) | 4 (5.71%) | 97 (88.18%) | 63 (90%) |
| Basic knowledge of computers like MS office, making file, excel, etc. | 7 (6.36%) | 3 (4.28%) | 10 (9.09%) | 4 (5.71%) | 94 (85.45%) | 63 (90%) |
| Video chat | 1 (0.09%) | 0 | 6 (5.45%) | 2 (2.85%) | 103 (93.63%) | 68 (97.14%) |
| Text chatting | 6 (5.45%) | 1 (1.42%) | 4 (3.63%) | 0 | 100 (90.90%) | 69 (98.57%) |
| Creating web page or blogs | 0 | 0 | 0 | 0 | 110 (100%) | 70 (100%) |
| Others | 0 | 0 | 0 | 0 | 110 (100%) | 70 (100%) |

The analysis of the data reveals that the majority of male respondents (88.18%) receive and dial phone calls very often, 3.63% of them use this facility sometimes and 7.27% of them never use it. While less percentage of female respondents (75.71%) receive and dial a call through mobiles as compared to males and 17.14% of them use this facility sometimes. There is no significant difference in the percentage of females (8.57%) and males (7.27%) who never use the facility for making and receiving calls. These respondents maybe those who do not have mobile phones in their homes or maybe those who are older in age.

The percentage of respondents receiving SMSs very often is higher than the percentage of respondents sending SMSs very often. As 52.72% of male and 28.57% of female respondents receive SMSs very often and only 34.65% of male respondents and 15.71% of female respondents send SMSs very often. The facilities based on smart mobile phones like receiving and sending MMS, mobile conferencing etc. are less popular and less used because most of the respondents have basic mobile phones. So, only 4.54% of male and 4.28% of female respondents receive MMS very often. While only 3.63% of male respondents send and make MMS very often. None of the female respondents sends and makes MMS very often while 4.28% of them (female) have used this facility sometimes. Only 2.72% of male respondents use mobile conferencing very often and 6.36% sometimes. While very few of the female respondents (4.28%) do mobile conferencing sometimes. 13.63% of male and 8.57% of female respondents do Internet surfing through mobiles very often while only 6.36% of male respondents use computers for Internet surfing. Social networking is quite popular among the respondents both on mobiles and computers. Male 16.36% and female 10% of respondents do Internet surfing through mobiles very often and 13.63% of males and 8.57% of females are on social networking through mobiles.

The availability of ICTs in the family of the respondents is also given in order to analyse the e-readiness of the respondents in Table 2.

Table 2: Available ICTs in the Family of Respondents

| ICT gadgets | No. of respondents having the technology | | | No. of the gadgets in the family (60) | | |
|---------------------|--|-------------|-------------|---------------------------------------|------------|-------------|
| | Male (110) | Female (70) | Total (180) | Single | 2-3 | 4 and above |
| Land line phone | 0(00%) | 0(00%) | 0(00%) | 0(00%) | 0(00%) | 0(00%) |
| Mobile phone | 86(78.18%) | 68(97.14%) | 153(85%) | 86(78.18%) | 70(38.88%) | 12(6.66%) |
| Computer | 2(1.81%) | 2(2.85%) | 4(2.22%) | 3(1.66%) | 1(0.55%) | 0 |
| Laptop | 20(18.18%) | 9(12.85%) | 29(16.11%) | 25(13.88%) | 4(2.22%) | 0 |
| Internet connection | 16(14.54%) | 6(8.57%) | 22(12.22%) | 18(10%) | 4(2.22%) | 0 |

Table 2 shows the majority of 85% of total respondents have mobile phones in their house. Anyhow the percentage of female mobile holders (97.14%) is significantly higher than male mobile holders (78.18%). The majority of the respondents (78.18%) have single mobile in their family, while 38.88% of respondents have 2–3 mobiles followed by 6.66% having more than four mobiles in their family.

The table further shows that the use of laptops is significantly higher than computers as only 1.81% of males and 2.86% of females have computers in their family as compared to 18.18% of male and 12.85% of female respondents who use a laptop. The majority of the respondents having computers (1.66%) and laptops (13.88%) have a single gadget in the family only 0.55% and 2.22% of them have 2–3 computers and laptops respectively their family. The higher portability of laptops and their distribution by the Chief Minister of Uttar Pradesh to the girl students may be the reason for more use of laptops.

Only 12.22% of the total respondents have an Internet connection. A significant difference can be analysed between male and female respondents having an Internet connection as only 8.57% of female respondents have an Internet connection as compared to 14.54% of male respondents. While only 2.22% of total respondents have multiple Internet connections in their family, most of them were having a single (10%) Internet connection.

CONCLUSION

The data in descending order shows very poor computer literacy among the villagers and further shows a significant difference in the ICT literacy rate among male and female respondents. Due to the lack of ICTs skills their dependency on information from others increases which affects the adoption level of e-Panchayat services. On the basis of this study it can be safely argued that knowledge village centres and advocacy centres may be opened by the Ministry of the state, therefore, capacity-building programs and knowledge awareness programs must be conducted for both males and females in order to implement and carry forward these initiatives. In this regard, the help of non-government organisations also can be taken.

The data also reveals that mobile phones were primarily used for communication as very few villagers were having laptops and computers. Very few villagers were having Internet facilities. The slow speed of the Internet was also mentioned as a cause for not owning the Internet connection. Very few villagers were having laptops and computers. On the basis of the data, it can be argued that the higher penetration of mobiles provides a strong base for a recommendation of mobile governance rather than e-Governance. Enhanced Internet facilities should be provided more efficiently

and at the minimum cost. Another fact about mobile phones which was revealed from the data was that facilities based on smart mobile phones like receiving and sending MMS, mobile conferencing etc. are less popular and less used because most of the respondents have basic mobile phones.

Therefore, it can be concluded that the Government of Uttar Pradesh should take some more initiatives to enhance the adoption of e-governance initiatives and the participation of the rural community in the e-panchayat MMP. In this direction, more ICTs training programmes should be conducted by the government agencies and the rural communities should also be provided with the facility of fast Internet connection at the minimum cost. More CSC should be opened so that the villagers who do not have computers, laptops and smartphones can come to these centres and can easily access the services provided at these centres.

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