
Impact assessment of Information and Communication Technology on world's largest workfare program (MGNREGA).

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Abstract

Public services enhanced by electronic governance have shown good results in terms of stakeholder satisfaction. The study was undertaken to determine the influence of electronic governance, or, in other words, the impact of ICT intervention on the Mahatma Gandhi National Employment Guarantee Scheme, in light of its rising relevance and scope. The research study was carried out based on the examination of primary data obtained from response groups representing scheme beneficiaries and scheme administrators by means of delivering unique questionnaires to each answer group. Convenient sampling was used to approach respondents. On the basis of pre- and post-ICT intervention, the gathered data was analyzed. Results showed a considerable improvement in the scheme's operationalization.

Keywords:

ICT;
MGNREGA;
E-Governance;

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1. Introduction

The goal of electronic governance is to use information and communication technology to streamline government interactions with citizens and other stakeholders in order to jointly solve public problems (Dawes, 2008). Although there is great potential for electronic governance to enhance governmental operations (Milakovich, 2012), this potential is yet mostly unrealized (Norris, 2010). The exponential rise of the internet and other ICT-based technologies has made it possible to create eco systems where citizens can access governance-related services whenever they need them. Research studies have shown that electronic governance has helped the stakeholders by assuring responsible, transparent, and accessible government services in addition to preventing corruption. It has resulted in removal of administrative burdens and has also enabled governments to reduce costs of public services to make them affordable (Bhatnagar, n.d.)(Akman et al., 2005)(Hackney et al., 2007)(Tolbert and Mossberger, 2006)(Watson and Mundy, 2001). However there is an underlying reality that governments across the world are facing tremendous challenges in the form of inadequate ICT infrastructure, organizational skills/training, inadequate finance and top level management support (Gauld et al., 2010) which is evident from the fact that only one third of overall electronic governance related services are able to offer transactional services (Nations, 2010). Recent few years have seen an abrupt positive trend in the affordability and accessibility of cellular technologies which has resulted in significant improvement of electronic governance development index from 0.47 in 2014 to 0.55 in 2018 (LIU Zhenmin, 2018).

There have been many Electronic Governance Initiatives by successive governments in India with an aim to

make citizen services affordable and accessible. India in may 2006 approved a National Electronic Governance Plan with an objective to “Make all Government services accessible to the common man in his locality, through common service delivery outlets, and ensure efficiency, transparency, and reliability of such services at affordable costs to realize the basic needs of the common man”(“About NeGP,” 2013). The plan consists of twenty seven mission mode projects and eight components (“National e-Governance Plan | Ministry of Electronics and Information Technology, Government of India,” n.d.). Since more than seventy percent of the population in India is rural, the applicability of electronic governance for rural development was envisioned much earlier through applied research(Bhatnagar and Schwares, 2000). Late 80’s witnessed a number of initiatives by government of India with an aim to assist governmental processes through ICT. Some of them include establishment of National Informatics Centres and projects like DISNIC, NICNET and CRISP (Raju, 2004). Government of India from time to time have taken a number of ICT driven initiatives for the rural development. Studies have shown that the initiatives had the remarkable impact in terms of both efficiency and effectiveness on the rural development governmental processes (Thomas, 2009).

2. MGNREGA and Electronic Governance intervention.

One of India’s most important social policy programmes since independence is the Mahatma Gandhi National Employment Guarantee Scheme, which was implemented in 2005. (Jha et al., 2012). The scheme’s primary goal is to “improve the livelihood security of the households in rural areas of the country by providing at least 100 days of guaranteed wage employment to every household in unskilled manual labor” (Law and Justice, 2005). The scheme has 113 million active participants as of the present year (2018) (“The Mahatma Gandhi National Rural Employment Guarantee Act 2005,” n.d.). Studies have shown that there has been the significant impact of the Mahatma Gandhi national Employment Scheme on various societal development indicators in rural India. The scheme has been able to indirectly uplift the minimum wages in India for the first time(Imbert and Papp, 2013). Increased participation of the women in the scheme has led to the improved educational outcomes of the children(Afridi et al., 2013). Studies have also proven that Mahatma Gandhi National Employment Guarantee scheme has also made a remarkable impact on the expenditure patterns among its beneficiaries and besides that has also improved intake of nutrients and accumulation of assets among the beneficiary households (Liu and Deininger, 2010).

The magnitude of activities and transactions in the scheme being enormous in nature, ensuring timely completion of activities while being transparent was a challenging task ahead. Ministry of Rural Development together with National Informatics Centre developed a web based Management Information System referred as NREGASOFT with an objective of end to end monitoring of all the activities in the scheme. Besides enabling efficient timely and transparent scheme process across all levels of management including the beneficiary in the scheme ,NREGASOFT provides all information to the citizens in compliance with the Right to Information Act (“Management Information System (MIS) —,” n.d.). Besides monitoring and execution of every process from registration to payment of wages NREGASOFT has proved to be very instrumental for transparent execution of the scheme (Galaiah and Srinivasacharyulu, n.d.). Ministry of Rural Development together with Indian Space Research Organisation signed a memorandum of understanding which lead to the development and deployment of geo-tagging information system GEOMGNREGA for the geo-tagging of MGNREGA assets. Introduction of Biometric attendance and payment of wages through Direct Benefit Transfer (DBT) mode with the help of Public Fund Management System (PFMS) has led to incredible transparency in the scheme.

3. Problem Statement and Objectives of the Research

Since the inception of MGNREGA, Ministry of Rural Development with support of various governmental and non-governmental organisations has initiated a number Information and Communication Technology based interventions with an objective of transparent, effective and efficient execution of the scheme. Although there has been a significant research on the outcomes and other aspects of the scheme however there is a visible research gap in ascertaining the impact of Information and Communication Technology based interventions on the scheme.

Since the electronic governance interventions were indented to benefit the beneficiaries as well as the administrators of the scheme, this research study is intended to find out the impact of Information and Communication Technology interventions on the Mahatma Gandhi National Employment Guarantee Scheme. The main objectives of the study can be summarised as under.

- i) To evaluate the impact of the Information and Communication Technology based interventions on the scheme on the parameters of efficiency, timeliness and beneficiary satisfaction.

- ii) To ascertain how Information and Communication Technology based interventions have enabled the administrators of the scheme with better governance, effective monitoring and target oriented results.

4. Hypothesis and Research Questions.

Our hypothesis with reference to the relationship between Information and Communication Technology and Mahatma Gandhi National Employment Guarantee Scheme is presented as follows.

H1: - Information and Communication Technology based interventions in Mahatma Gandhi National Employment Guarantee Scheme have made the significant improvement in the operationalization of the scheme.

Research Questions.

Rq1: - How Information and Communication Technology based interventions in Mahatma Gandhi National Employment Guarantee scheme have made significant contribution towards scheme beneficiary services.

Rq2: - How Information and Communication Technology based interventions in Mahatma Gandhi National Employment Guarantee scheme have enabled the scheme administrators in transparent, timely and effective management of the scheme.

5. Research Methodology and Data Collection.

The research methodology for this study involved analysis of primary data collected from scheme beneficiaries and scheme administrators. An analysis on the basis of pre and post ICT intervention in the scheme. The beneficiary responses were evaluated with respect to the following parameters.

- i) **Time taken in availing service.**
- ii) **No of trips elapsed for availing service.**
- iii) **Ease of Service**
- iv) **Transparency.**
- v) **Undue costs paid.**

It is pertinent to mention that since there is a gap of few years in-between the existence non-ICT supported scheme process was in place and the time this study was undertaken; cost of availing service was not included as a parameter of study as there was no available reliable instrument through which responses about the costs could be normalized for comparison. The above-mentioned parameters were evaluated for the scheme beneficiary services which include Issuance of job card, Allotment of work and Payment of wages.

Data was collected from fifty administrator respondents to access the impact on the basis of the following.

- i) **Ease in scheme process/administration.**
- ii) **Availability of required Information on time.**
- iii) **Transparent scheme administration.**
- iv) **Unnecessary interference of bureaucracy.**

Our administrator respondents involved district nodal officers, MIS In-charges and district Programme coordinators. The responses were mostly collected through online forms. Besides that, few administrator respondents were also interviewed beyond the confines of the questionnaire instrument to have the detailed overlook of the e-governance enabled scheme process.

Convenient sampling method was used to collect data from four hundred beneficiary respondents and fifty administrator respondents. Since the nature of responses to be received from beneficiary and administrators was different, separate instruments (schedules/questionnaires) were administered for both response groups. In majority cases of beneficiary respondents, responses were collected through interviews. The beneficiary responses for time taken for availing service was recorded in days and weeks while as trips for availing service was recorded on the basis of actual trips made for availing the particular service.

While collecting responses from the beneficiary respondents some difficulties occurred in terms of cooperation and exactitude as compared to the collection of responses from administrators. This may be due to the lack of awareness about the research studies among the beneficiary respondents.

Respondent Demographics**Table 1: - Demographics of the beneficiary respondents.**

Characteristics	Number	Percentage
Gender		
Male	289	72.25
Female	111	27.75
Marital Status		
Single	98	24.5
Married	302	75.5
Literacy level		
Up-to 8 th std	37	9.25
Illiterate	363	90.75
No of Person days availed		
< 50	63	15.75
50 -100	268	67
100-200	69	17.25

Table 2: - Demographics of the administrator respondents.

Characteristics	Number	Percentage
Gender		
Male	36	72
Female	14	28
Marital Status		
Single	32	64
Married	18	36
Literacy level		
Up to Bachelors	37	74
With masters	13	26
Designation		
District Nodal officer	7	14
District Programme Coordinator	39	78
MIS In-charge	4	8

6. Data analysis and Research Findings.

Research findings clearly indicate that the ICT intervention in the Mahatma Gandhi National Employment Guarantee Scheme has led to a significant improvement in the operationalization of the scheme. The scheme administrators feel that the availability of the information on time has resulted in the efficient planning and better monitoring of the scheme. Few respondents also reported that post electronic governance period of the scheme has witnessed incremental improvement on the fund utilization from year to year. It may also be

noted that few administrator respondents are also of the impression that the scheme to not able to fully tap the potential of deployed electronic governance system because of the non-availability of proper ICT infrastructure. Administrator respondents who have been there since the inception of the scheme are of the opinion that the Electronic governance driven scheme process has resulted in elimination of un-necessary interference of the bureaucracy which were very much prevalent at time of inception of the scheme. The findings are represented in tabular and graphical representations.

Table 3: - Administrator Services Post and Pre ICT-Intervention

S. No	Service	Scale.	Pre-E-Gov	Post E-Gov
1	Ease in Scheme Process	Measured on five-point Likert scale.	“Not Satisfactory” as Mode Value	“Good” as Mode Value
2	Availability of Required Information on Time		“Worst” as Mode Value	“Good” as Mode Value
3	Transparency		“Not Satisfactory” as Mode Value	“Good” as Mode Value
4	Undue Interference of Bureaucracy.		“Often” as Mode Value	“A Bit” as Mode Value

- a) S.no 1,2 and 3 measured on 5-point Likert scale as follows 1- Very Good, 2- Good, 3- Neutral, 4- Not Satisfactory, 5- Worst.
- b) S.no 4 measured on 5-point Likert scale as follows 1- Not at all, 2- A-Bit, 3- Moderate 4- Often 5- Un-acceptable

Majority of the administrator services in MGNREGA reported of “a bit” of undue interference of bureaucracy during the post Electronic Governance intervention period, while as the response was reported to be “Often” during the pre-Electronic Governance intervention period. Most repeated response for the question regarding the availability of information on time as “Good” for the Post ICT intervention period.

Time taken to issue Jobcard to the beneficiary is one of the parameters of the impact and was measured in “no of days and number of trips elapsed for availing service”. The findings depict two-fold in decrease in time taken and no of trips elapsed for issuing job card to the beneficiary after Electronic Governance Intervention. Findings also indicate better transparency, ease of service and reduction in undue costs to get the Job card.

Time taken in allotment of work after it was demanded was calculated at an improved average of 4.00 weeks during post Electronic Governance Intervention period. While as the same parameter for the same service was recorded at an average of 8.61 weeks in the allotment of work after it was demanded. Besides time reduction, the service showed clear improvement on other selected parameters.

Payment of wages was selected as the third service in ascertaining the impact of Electronic Governance on MGNREGA with reference to beneficiary services. It is pertinent to mention here that the advent of Electronic Governance has brought innovate and transparent modes of payments to beneficiaries including Direct Benefit transfer, Biometric ATM’s etc. The impact on payment of wages in the scheme was measured on the multiple parameters with reference to pre and post Electronic Governance intervention. Findings indicate significant improvement across all the selected parameters. The findings for the beneficiary services are represented in table 4.

The formulated hypothesis (H1) earlier therefore stands proven in lieu of findings obtained. Information and Communication Technology intervention in MGNREGA has certainly improved the operationalization of scheme in terms of both beneficiary an administrator service.

Table 4: - Beneficiary Services Post and Pre ICT-Intervention

Service	Parameters of Measurement along with the scales adopted		Pre-E-Gov	Post E-Gov
Issuance of Job Card	<i>Time taken in availing Service</i>	<i>(No of days taken)</i>	11.76 Mean Value.	7.21 Mean Value.
	<i>Number of Trips Elapsed.</i>	<i>(Trip undertaken by beneficiary)</i>	8.17 Mean Value	5.92 Mean Value.
	<i>Ease of Service.</i>	<i>(Five-point Likert Scale)</i>	“Moderately Difficult” Mode Value	“Easy” Mode Value
	<i>Transparency.</i>	<i>(Five-point Likert Scale)</i>	“Opaque” Mode Value	“Moderately Opaque” Mode Value
	<i>Any undue cost paid.</i>	<i>(Recorded as “Yes” or “NO”)</i>	67% in Percentage of respondents answered Yes.	16% in Percentage of respondent answered Yes.
Allotment of work after demanded by beneficiary	<i>Time taken in availing Service.</i>	<i>(No of weeks taken)</i>	4.00 Mean Value	8.61 Mean Value
	<i>Number of Trips Elapsed.</i>	<i>(Trip undertaken by beneficiary)</i>	3.50 Mean Value	1.13 Mean Value
	<i>Ease of Service.</i>	<i>(Five-point Likert Scale)</i>	“Moderately Difficult” Mode Value	“Easy” Mode Value
	<i>Transparency.</i>	<i>(Five-point Likert Scale)</i>	“Moderately Opaque” Mode Value	“Transparent” Mode Value
	<i>Any undue cost paid.</i>	<i>(Recorded as “Yes” or “NO”)</i>	69% in Percentage of respondents answered Yes.	17% in Percentage of respondent answered Yes.
Payment of Wages.	<i>Time taken in availing Service</i>	<i>(No of weeks taken)</i>	7.68 Mean Value.	4.91 Mean Value.
	<i>Number of Trips Elapsed.</i>	<i>(Trip undertaken by beneficiary)</i>	3.02 Mean Value	1.24 Mean Value.
	<i>Ease of Service.</i>	<i>(Five-point Likert Scale)</i>	“Moderately Difficult” Mode Value	“Easy” Mode Value
	<i>Transparency</i>	<i>(Five-point Likert Scale)</i>	“Moderately Opaque” Mode Value	“Transparent” Mode Value
	<i>Any undue cost paid</i>	<i>(Recorded as “Yes” or “NO”)</i>	89% in Percentage of respondents answered Yes.	11% in Percentage of respondent answered Yes.

7. Conclusion and Suggestions.

Mahatma Gandhi National Employment Guarantee Scheme has witnessed significant improvement in terms operationalization. Data collected from both of the respondent groups clearly certify the argument. During the data collection process, it was felt that the deployed e-governance platform for the scheme is underachieving to some extent due to the lack of adequate ICT infrastructure at the endpoints as well as due to the inadequate training of end users.

Keeping the factors like increasing trend of smartphone penetration in India as well as the tremendous improvements in network readiness index, the deployed E-governance platform should be updated as per the emerging ICT ecosystem in India and much emphasis should be given to friendly user interfaces.

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