

**BUILDING ICT-BASED INFORMATION  
FLOWS TO IMPROVE  
CITIZEN-GOVERNMENT ENGAGEMENT**

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CITIZEN-GOVERNMENT ENGAGEMENT**

*by*

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in fulfillment of the requirements of the degree of Doctor of Philosophy

*to the*



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# Certificate

This is to certify that the thesis titled **BUILDING ICT-BASED INFORMATION FLOWS TO IMPROVE CITIZEN-GOVERNMENT ENGAGEMENT** being submitted by **Mr. DIPANJAN CHAKRABORTY** for the award of **Doctor of Philosophy** in Information Technology is a record of bona fide work carried out by him under my guidance and supervision at the Amar Nath and Shashi Khosla School of Information Technology, Indian Institute of Technology Delhi. The work presented in this thesis has not been submitted elsewhere, either in part or full, for the award of any other degree or diploma.

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# Abstract

Many public funded social welfare schemes in India suffer from implementation problems. Most of these problems can be traced to missing or broken information flows and accountability loops. First, beneficiaries are often not aware about the schemes and the rules and regulations governing the schemes and the policy-makers do not have any direct medium to obtain feedback on the schemes from the beneficiaries. Second, beneficiaries are not able to access scheme-related data owing to Internet access and literacy challenges because the data is often posted on web-based MIS systems. Third, when the entitlements are denied there is no effective avenue to redress grievances as most grievances filed on the government-run helplines go unresolved or the resolutions are ineffective.

In this thesis we address the question: what kind of information flows can ICT tools facilitate to build citizen-government engagement which can improve the performance of welfare schemes. We mapped the problems in the current implementation of the schemes into three gaps: the public grievance redressal systems appear to cut off local civil society workers who have developed effective pathways for grievance resolutions, the end-users of the welfare schemes are unable to access personal scheme-related information owing to literacy, connectivity and affordability challenges, and, the government does not have any direct channel to collect feedback from the users of the schemes.

We approach these gaps by charting out the different stakeholders in public welfare schemes and public services, like the citizens, implementing officials, policy making officials and auditors. We identified that information flows between these actors are either missing or broken. Flow of information from the government to the beneficiaries and from the beneficiaries to the government can establish feedback loops that make the system more accessible, transparent

and accountable over time. Towards this end, we introduce new information flows into the system by designing, building and deploying several Information and Communication (ICT) tools. We designed a model of grievance redressal which connects citizens with volunteers from the civil society through an IVR (Interactive Voice Response) and Android based system. The civil society volunteers leverage their personal networks and influence to build pressure and push grievances for resolution. We also built and deployed a system which crawls web-MIS platforms and through IVR calls communicates scheme-related data to the beneficiaries and enables them to flag anomalous data. In addition, we designed deployed IVR tools to collect unstructured and structured feedback from the users about the implementation of public schemes and systems.

Through the deployment of the tools in the real world, we were able to establish new information loops among the stakeholders. With the help of a pool of civil society volunteers, who resolved several difficult grievances, we were able to establish a case for integrating the civil society into grievance redressal systems. When provided access to the information on web-MIS platforms, the beneficiaries were able to identify the information being shared, flag anomalous data published by the government and help identify places where the scheme was particularly performing poorly. We were also able to collect unstructured and structured feedback from the users about the implementation of the schemes which the policy makers acknowledged was new information for them and will help in improving the implementation of the schemes. The models and processes documented in this thesis are being used by the government and other agencies to improve access to services for citizens.

# सार

भारत में कई सार्वजनिक जनकल्याणकारी योजनाएं कार्यान्वयन की समस्याओं से ग्रस्त हैं। इनमें से अधिकतर समस्याएं सूचना प्रवाह और आंसरेबिलिटी लूप्स (answerability loops) के न होने के कारण से प्रकट होते हैं। प्रथम, लाभार्थियों को अक्सर योजनाओं के बारे में और योजनाओं को नियंत्रित करने वाली नियमों के बारे में जानकारी नहीं होती है, और नीति निर्माताओं (policy makers) के पास लाभार्थियों से योजनाओं पर प्रतिक्रिया प्राप्त करने का कोई प्रत्यक्ष माध्यम नहीं होता है। द्वितीय, इंटरनेट एक्सेस (Internet access) और साक्षरता के चुनौतियों के कारण, लाभार्थी योजना से संबंधित सूचना जान नहीं पाते हैं क्योंकि सूचना अक्सर वेब-आधारित एमआईएस (MIS) सिस्टमों पर पोस्ट किया जाता है। तृतीय, जब लाभार्थी अधिकारों से वंचित होते हैं तब शिकायतों का समाधान करने के लिए कोई प्रभावी तरीका नहीं होता है क्योंकि सरकार द्वारा संचालित हेल्पलाइन पर दर्ज अधिकांश शिकायतें अनसुलझे रह जाते हैं अथवा समाधान ज़मीनी तौर पर अप्रभावी होते हैं।

इस थीसिस में हम इस सवाल को संबोधित करते हैं: आईसीटी (ICT) उपकरण के इस्तेमाल से किस प्रकार की इनफार्मेशन फ्लोस (information flows) नागरिक और सरकार के बीच संवाद विनिमय में मदद कर सकते हैं, जो कल्याणकारी योजनाओं में सुधार ला सकते हैं। हमने योजनाओं के वर्तमान कार्यान्वयन में तीन कमियों की पहचान की है: जनशिकायत निवारण प्रणाली में स्थानीय नागरिक समाज (जिन्होंने समस्या निवारण के लिए प्रभावी तरीकें बनाये हैं) सम्मिलित नहीं हैं; कल्याणकारी योजनाओं के लाभार्थियों की साक्षरता एवं इंटरनेट कनेक्टिविटी (connectivity) की कमी और आर्थिक कमज़ोरी के कारण लाभार्थी योजनाओं से संबंधित व्यक्तिगत जानकारी जान नहीं पाते हैं; और सरकार के पास योजनाओं के लाभार्थियों से योजनाओं के सम्बन्ध में प्रतिक्रिया एकत्रित करने के लिए कोई प्रत्यक्ष माध्यम उपलब्ध नहीं है।

इन कमियों को भरने के उद्देश्य से हमने पहले सार्वजनिक कल्याणकारी योजनाओं और सार्वजनिक सेवाओं से सम्बंधित स्टेकहोल्डर्स (stakeholders), जैसे नागरिकों, कार्यान्वयन अधिकारियों, नीति बनाने वाले अधिकारियों और ऑडिटर्स (auditors) की पहचान की है। हमने जाना कि इन स्टेकहोल्डर्स के बीच पर्याप्त इनफार्मेशन फ्लोस की कमी है। इनफार्मेशन फ्लोस सरकार से लाभार्थियों और लाभार्थियों से सरकार के बीच फीडबैक लूप स्थापित कर सकते हैं जो योजनाओं को अधिक सुलभ, पारदर्शी और उत्तरदायी बना सकते हैं। इस दिशा में हमने कई इनफार्मेशन टूल्स की डिजाइन, निर्माण और इस्तेमाल करके सिस्टम में नई इनफार्मेशन फ्लो की स्थापना करने की कोशिश की है। हमने शिकायत निवारण का एक मॉडल तैयार किया है जो नागरिकों को नागरिक समाज से एक IVR और एंड्रॉइड ऐप के माध्यम से जोड़ता है। नागरिक समाज के स्वयंसेवक अपने व्यक्तिगत नेटवर्क का लाभ उठाते हैं और दबाव बनाकर समस्याओं का समाधान करने में अक्सर सफल होते हैं। हमने एक सिस्टम भी बनाया जो वेब-MIS

प्लेटफार्मों पर उपलब्ध जानकारी को क्रॉल (crawl) करके IVR कॉल के माध्यम से लाभार्थियों को योजना से संबंधित डेटा संचारित करता है, और उन्हें असंगत डेटा को रेखान्वित करने में मदद करता है। इसके अलावा, हमने सार्वजनिक योजनाओं और प्रणालियों के कार्यान्वयन के बारे में लाभार्थियों से unstructured और structured प्रतिक्रिया एकत्रित करने के लिए IVR प्लेटफार्म तैयार किया है।

इन इनफार्मेशन सिस्टम्स के ज़मीनी इस्तेमाल के माध्यम से, हम हितधारकों के बीच नई इनफार्मेशन लूप स्थापित करने में सक्षम रहे। नागरिक समाज स्वयंसेवकों ने कई कठिन शिकायतों का समाधान किया। हम नागरिक समाज को शिकायत निवारण प्रणाली से जोड़ने के लिए एक तर्क प्रस्तुत कर पाए। जब वेब-MIS प्लेटफॉर्म पर उपलब्ध जानकारी लाभार्थियों तक पहुंचाई गयी, वह साझा की जा रही जानकारी की पहचान करने में सक्षम रहे, और सरकार द्वारा प्रकाशित असंगत डेटा की भी पहचान कर पाए, और उन स्थानों की पहचान करने में सहायता कर पाए जहां योजना विशेष रूप से खराब प्रदर्शन कर रही थी। हम उन नीतियों के कार्यान्वयन के बारे में उपयोगकर्ताओं से unstructured और structured प्रतिक्रिया एकत्र करने में भी सक्षम रहे। नीति निर्माताओं ने माना की ये प्रतिक्रिया उनके लिए नई जानकारी है और इससे योजनाओं के कार्यान्वयन में सुधार करने में मदद मिलेगी। इस थीसिस में बताये गए मॉडल और प्रक्रियाओं ने ज़मीनी सफलता प्राप्त की है, और सरकार और अन्य एजेंसियों द्वारा लाभार्थियों के लिए सेवाओं में सुधार लाने के लिए इनका उपयोग किया जा रहा है।

# Contents

<b>Certificate</b>	<b>i</b>
<b>Acknowledgements</b>	<b>iii</b>
<b>Abstract</b>	<b>v</b>
<b>1 Introduction</b>	<b>1</b>
1.1 Methodology, Learnings and Outcomes . . . . .	3
1.2 Impact of the pilots . . . . .	10
1.3 Organisation of the Thesis . . . . .	11
<b>2 Related Work</b>	<b>13</b>
2.1 Digital tools for Resource-Poor Contexts . . . . .	13
2.2 E-governance, Transparency and Crowdsourced Data Collection . . . . .	15
2.3 Grievance Redressal Systems and Public Accountability . . . . .	17
2.4 Media and the Civil Society in Public Accountability . . . . .	18
<b>3 Research Methodology</b>	<b>21</b>
3.1 Action Research . . . . .	22
3.2 Research through Design (RtD) . . . . .	23
3.3 Action Research and RtD as used in this thesis . . . . .	24
<b>4 Civil Society Mediated and Technology Assisted Grievance Redressal</b>	<b>33</b>
4.1 Introduction . . . . .	33

4.2	Research Methodology . . . . .	35
4.3	Problem Definition . . . . .	36
4.3.1	Feedback on Government-run Grievance Redressal Helplines . . . . .	36
4.3.2	Offline Civil Society Systems . . . . .	37
4.4	Experiment Design and Deployment . . . . .	39
4.4.1	About the Volunteers . . . . .	41
4.4.2	About the IVR . . . . .	42
4.4.3	About the Android Application . . . . .	44
4.4.4	About the Locations . . . . .	45
4.5	Results and Evaluations . . . . .	46
4.5.1	Categorisation of Resolved Grievances . . . . .	46
4.5.2	Factors Affecting Resolution . . . . .	51
4.5.3	Unsuccessful Resolutions . . . . .	53
4.6	Discussions and Reflections . . . . .	55
4.6.1	Design of Information Systems . . . . .	55
4.6.2	The Role of the Media in Social Accountability . . . . .	56
4.6.3	The role of Automation . . . . .	56
4.6.4	Reflections on Collective Structures for Representation . . . . .	57
4.7	Conclusions . . . . .	58
<b>5</b>	<b>Accessing and Verifying MIS information</b>	<b>59</b>
5.1	Introduction . . . . .	59
5.2	Research Methodology . . . . .	61
5.3	Problem Definition . . . . .	62
5.3.1	Background on NREGA . . . . .	62
5.3.2	Gaps in the Policy . . . . .	63
5.3.3	Solutions for the Gaps in the Policy . . . . .	64
5.4	Incompleteness of the Solutions . . . . .	64
5.5	System Design and Deployment . . . . .	65
5.5.1	Job-completion Verification . . . . .	67
5.5.2	Wage-Payment Verification . . . . .	70

---

5.5.3	Challenges . . . . .	72
5.6	Data Collection and Analysis . . . . .	72
5.6.1	Job-Completion Verification . . . . .	72
5.6.2	Wage-Payment Verification . . . . .	77
5.6.3	Auditor's Perspective . . . . .	79
5.7	Discussions and Reflections . . . . .	79
5.7.1	Learnings . . . . .	79
5.7.2	Scaling and integration with the Government MIS . . . . .	82
5.8	Conclusions . . . . .	83
<b>6</b>	<b>Collecting User-feedback on Government Programmes and Systems</b>	<b>85</b>
6.1	Introduction . . . . .	85
6.2	Research Methodology . . . . .	86
6.3	System Design and Deployment . . . . .	86
6.3.1	Designing Feedback Collection Systems . . . . .	87
6.3.2	Feedback on NREGA . . . . .	88
6.3.3	Feedback on Grievance Redressal Helplines . . . . .	96
6.3.4	Participation in the Pilots . . . . .	99
6.4	Discussions and Reflections . . . . .	99
6.4.1	Concurrent Monitoring of Systems . . . . .	99
6.4.2	Design of Monitoring Systems . . . . .	99
6.5	Conclusions . . . . .	100
<b>7</b>	<b>Discussions and Reflections</b>	<b>101</b>
7.1	The Importance of Social Welfare Schemes . . . . .	101
7.2	Need for Information Flows around Social Welfare Schemes . . . . .	104
7.3	Pilots and Impact . . . . .	104
7.4	Scaling and Sustainability . . . . .	107
7.4.1	Building a Resolution Pipeline for Recurring Issues . . . . .	108
7.4.2	Inputs to the Social Audit Process . . . . .	108

---

7.4.3	Institutionalising Civil Society Assisted Service Delivery and Cost Estimate . . . . .	108
<b>8</b>	<b>Conclusion</b>	<b>115</b>
	<b>Bibliography</b>	<b>119</b>
	<b>APPENDICES</b>	<b>135</b>
<b>A</b>	<b>Collecting Data through Automated Phone Calls</b>	<b>135</b>
A.1	Introduction . . . . .	135
A.2	IVR Design . . . . .	137
A.3	Research Methodology . . . . .	141
A.3.1	Experimental Protocol . . . . .	141
A.3.2	Participants . . . . .	143
A.4	Results . . . . .	145
A.4.1	Task completion . . . . .	145
A.4.2	Accuracy . . . . .	146
A.4.3	Speed . . . . .	148
A.4.4	Cost . . . . .	149
A.5	Future Improvements to IVR . . . . .	151
A.6	Discussion . . . . .	153
A.7	Conclusions . . . . .	154
<b>B</b>	<b>Software Systems</b>	<b>157</b>
B.1	Crawler . . . . .	157
B.2	IVR Engine . . . . .	158
B.3	Android Application for Resource Poor Area . . . . .	162
	<b>List of Publications</b>	<b>163</b>

**CONTENTS**

---

**xiii**

**List of Software Tools**

**165**

**Biography**

**167**

# List of Figures

1.1	High level view of the processes in this thesis. . . . .	8
1.2	Pilot locations for the experiments in this thesis. . . . .	9
3.1	Research Methodology . . . . .	26
4.1	High level view of our model. . . . .	38
4.2	Overall system design for civil society mediated grievance redressal. . . . .	40
4.3	Lifecycle of a grievance. . . . .	41
4.4	The flow of the calls in IVR for the beneficiaries and the volunteers. The beneficiary IVR was simple where the beneficiary had to record personal details and record the grievance. The IVR interface for the civil society volunteers had a lot more options. . . . .	43
4.5	Screenshots of primary interfaces on the Android App . . . . .	45
5.1	The different stages in NREGA workflow. . . . .	63
5.2	Overview of the system to conduct crowdsourced verification of government data. . . . .	66
5.3	Flow of questions for work verification . . . . .	69
5.4	Beneficiary states in NREGA . . . . .	71
5.5	Red flag ratio . . . . .	76
6.1	Overview of unstructured and structured feedback collection systems . . . . .	89
6.2	Answers to DTMF questions on vSurvey on NREGA . . . . .	95
6.3	Preferred work season in NREGA as reported on a question in vSurvey . . . . .	96

7.1 Information Flows built in this thesis . . . . . 105

A.1 Broad architecture of the experiment . . . . . 142

B.1 IVR engine stack. . . . . 159

B.2 Workings of the Control and Data Files in the IVR Engine. . . . . 160

## List of Tables

4.1	Socio-economic profiles of the pilot districts . . . . .	46
4.2	Summary of resolved grievances . . . . .	47
5.1	Work wise responses in the Work Verification Survey. . . . .	74
5.2	Summary of the results from the wages-verification survey . . . . .	78
6.1	Recurring issues of posts on Mobile Vaani. . . . .	91
6.2	Set of questions in the structured survey on NREGA . . . . .	93
6.3	Summary of survey on grievance redressal systems. . . . .	98
7.1	Rough calculation of the costs on volunteers . . . . .	112
A.1	IVR questionnaire. . . . .	139
A.2	Errors in the IVR interviews. . . . .	144
A.3	Time taken for the first interview. . . . .	148