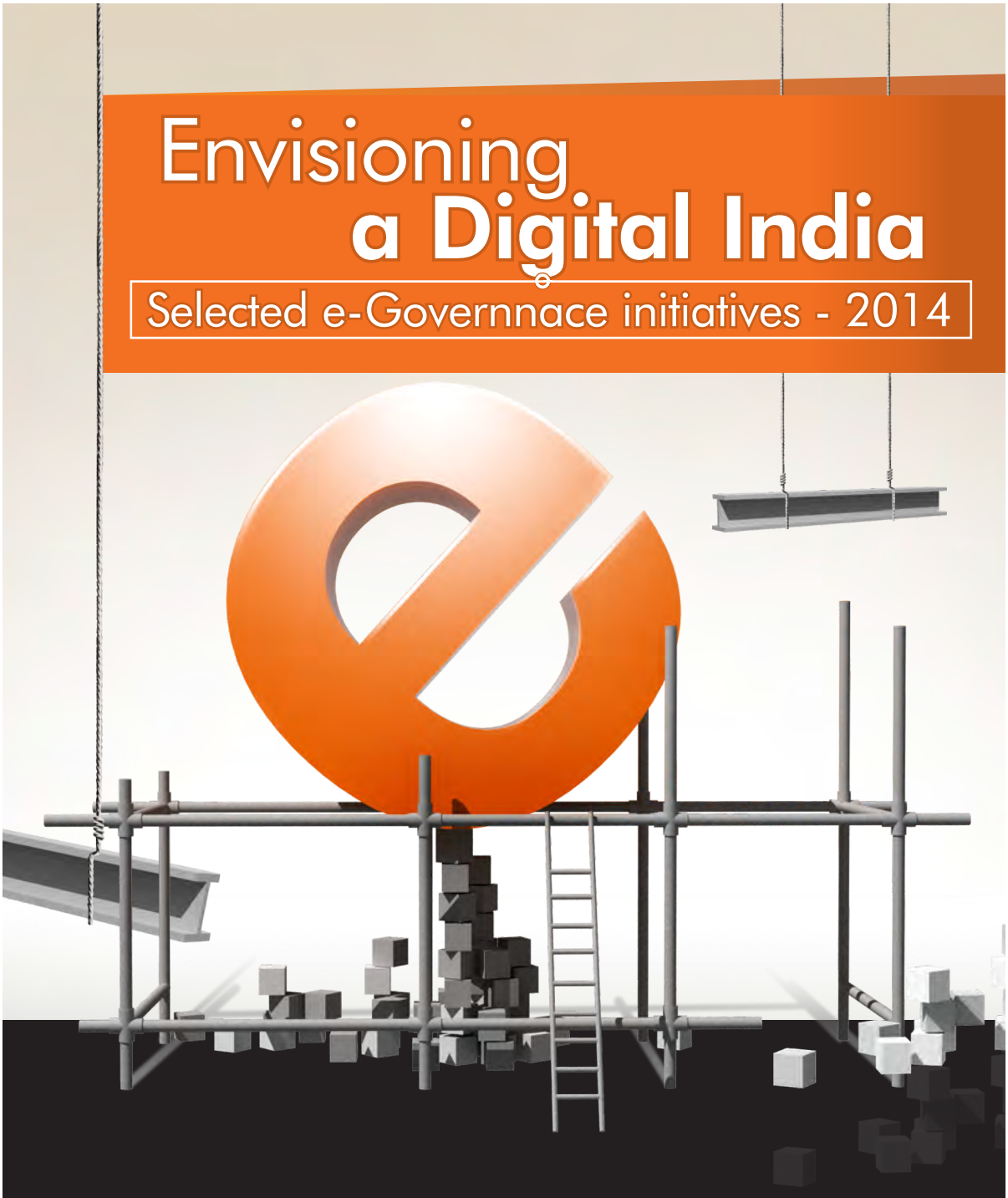
Envisioning a Digital India

Selected e-Governnace initiatives - 2014



Harish P. Iyer
K.S. Vijaya Sekhar
Sridevi Ayaluri
Dr. Piyush Gupta

Envisioning a Digital India

Selected e-Governance Initiatives – 2014

This compendium presents a selection of e-Governance initiatives in India which competed for the coveted CSI–Nihilent e-Governance awards for the year 2013–14.

The primary objective of this compendium is to bring to the attention of National and global audience, a small selection of the inspired effort of a number of e-Government functionaries in the Country who strive to bring to the Citizens of India, the best that e-Governance has to offer.

The awards to winners were presented by the Computer Society of India's Special Interest Group on e-Governance (CSI-SIGeGov) during the 49th Annual Convention of the Computer Society of India held at Hyderabad on 13 December 2014.

- Editors

Envisioning a Digital India

Selected e-Governance Initiatives – 2014

Harish P. Iyer

Sridevi Ayaluri

Vijaya Sekar KS

Dr.Piyush Gupta

Computer Society of India

Special Interest Group
SIG eGov
eGovernance
Special Interest Group
on e-Governance

Nihilent
evolving ideas

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About CSI

Formed in 1965, the CSI has been instrumental in guiding the Indian IT industry down the right path since its formative years. The CSI has 70 chapters all over India, 418 student branches, and more than 90,000 members including India's most famous IT industry leaders, brilliant scientists and dedicated academicians.

The mission of the CSI is to facilitate research, knowledge sharing, learning and career enhancement for all categories of IT professionals, while simultaneously inspiring and nurturing new entrants into the industry and helping them to integrate into the IT community. The CSI is also working closely with other industry associations, government bodies and academia to ensure that the benefits of IT advancement ultimately percolate down to every single citizen of India.

The CSI adopts the mechanism of Special Interest Groups (SIGs). SIGs are organized on selected domains of significant academic, research, industry and societal importance. It is as part of this structure that the Special interest group on e-Governance [SIG eGov] conducts the annual CSI-Nihilent e-Governance Awards.

For more information, please visit www.CSI-India.org

About Nihilent

Nihilent is a global consulting and solutions integration company using a holistic and systems approach to problem solving. Headquartered in Pune, India, Nihilent has extensive experience in international consulting, IT outsourcing and IT services. Nihilent's operations span North America, Europe, Africa and Asia. Nihilent mission Change for Performance encapsulates its commitment to make change happen systemically in terms of people, process, technology and knowledge for achieving sustained performance for it's clients.

For more information please visit www.nihilent.com

Computer Society of India

Special Interest Group SIG eGov eGovernance
Special Interest Group on e-Governance

Nihilent
evolving ideas

About Editors

Harish P. Iyer is the Principal Consultant [e-Governance] with the Research Center for e-Governance of International Institute of Information Technology, Hyderabad [IIIT-H]. He holds a Masters degree in management and is a Fellow Member of the Institute of Chartered Accountants of India. He has held various senior positions in an associate company of IBM in Singapore and Australia.

Iyer is the founder director of a Singapore based Fast Forward Technologies Pte Ltd which specialises in Risk Management. He is associated with the academia and is invited to teach courses at IIM and IIT.

Iyer's first introduction to computerisation of Government processes dates back to 1988 when he was the Project Manager for Singapore's ecomnet project. He has been actively associated with the domain of e-governance for over two decades now.

Sridevi Ayaluri has fifteen years of rich experience in the domain of e-Governance. Presently she is working as Deputy General Manager in Capacity Building & Knowledge Management vertical at the National Institute for Smart Government. She is spearheading prestigious and main stay GoI initiatives like Chief Information Officers and Specialized Training Programmes in e-Governance. Sridevi has played a key role in national and international Institutional collaborations. She led the e-Governance one year educational program being taught at post Graduate Diploma level programmes at various prestigious Institutes in India.

Earlier she was co-editor of three books - "Compendium of Selected e-Governance Initiatives in India -2013", "Enablers of Change: Selected e-Governance Initiatives in India"; and "Fostering e -Governance : Selected Compendium of Indian Initiatives"

K S Vijaya Sekhar holds M Com, MCA, MBA, MSW and is currently pursuing his PhD in eGovernance. His interest areas include Public Delivery

System and Citizen Services. He has over 20 research papers to his credit in International and National conferences. He is currently with International Institute of Information Technolgy [IIIT], Hyderabad and has over 23 years of work experience. He was earlier associated Centre for Economic and Social Studies, Administrative Staff College of India, and ICRISAT.

He is Life member of Computer Society of India [CSI] and a member of Hyderabad Management Asscoaition. He is the recipient of the coveted 'CSI Service Award' for the year 2011-12 for his significant contribution to e-Governance at National Level .

He has been associated with CSI-Nihilent e-Governance Awards since its very inception in 2002 and with CSI, Special interest Group on e-Governance [CSI SIGeGOV] from 2007.

Dr. Piyush Gupta has more than 30 years of experience in areas of ICT and e-Governance. Since 2004 he is with the National Institute for Smart Government working on e-Governance as Associate Vice President, Capacity Building & Knowledge Management.

Dr.Piyush is involved in strategic planning and implementation of various capacity building initiatives under the National e-Governance Plan of Government of India, like the eGov Champion, CIO and other professional training for Government officials. Piyush has been instrumental in designing and conducting e-Governance Leadership workshops over the years for more than 300 Ministers and MLAs across states in India. He has also been the architect of a full time one year e-Governance course, run by management institutes like IIM-Indore and TAPMI Manipal. He has also developed a framework for the e-Governance and Capacity Building Roadmap that is being used by all the States in India. In his earlier assignments he led the IT groups for ERP implementation, software development and intranet solutions.

He is also a speaker at National/International conferences and training institutions, and has number of published papers to his credit and edited four books on e-Governance case studies. Piyush did his doctorate in the area of e-

Governance project assessment under faculty of management studies from JNTU Hyderabad.

Dr. Piyush is a Certified Training Need Analysis expert and his key areas of competencies include Strategy planning to address Capacity Building, Institutional partnerships and collaborations, Change Management methodology and processes, Training content and design, e-Government project assessment and Program Management.

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Envisioning a Digital India

Selected e-Governance Initiatives – 2014

ACKNOWLEDGEMENT

The book "Envisioning a Digital India - Selected e-Governance initiatives - 2014" is ninth in the compendium series brought out by the Special Interest group on e-Governance of Computer Society of India [SIGeGov]. This book would not have been possible but for the kind concurrence given by authorities of various Government bodies in India to publish edited details of e-Governance initiatives introduced by them. Since the very aim of this book and all the books in the CSI-Nihilent e-Governance awards series is to serve as a repository of knowledge, we applaud and thank them for supporting our goal.

The nominations received for the CSI-Nihilent e-Governance Awards 2013-14 forms the basis for this compendium. The e-Government initiatives described herein are those which were submitted for the awards and which were found to be exemplary by the team of e-Government experts who assessed the nominations. The initiatives described in this book went through multiple stages of rigorous assessment carried out independently by experts drawn from the field of academia, industry and the Government. The editors of this compendium are therefore indebted to the awards and to the experts who participated in the awards processes.

We are grateful to Dr.Sanjiv Vaidya [IIM Calcutta], Dr.Nityesh Bhatt [Nirma University], Prof H RVishwakarma [Vellore Institute of Technology], Prof Pardhasaradhi [Central University of Jammu]; Prof M L Saikumar, [Institute of Public Enterprise] and Prof. C Venkataiah [GRADE], and Dr.Saji Mathew [IIT Madras] from the Academia.

Shri Prabhu Gollamudi, Shri Pradeep Tandon, and Dr.Madhuchchanda Das Aundhe provided an Industry perspective. We are grateful to them.

We were also privileged to have had Col.Jagdish Jamwal and Wg Cmr A.K.Srinivas from the services play an active role in the awards process.

Shri Ajay Sawhney IAS, Dr.Mahesh Chandra, and Shri D.K.Dwivedi have always brought a Government perspective to the assessment of the

nominations. The awards are richer for their support.
It was very kind of Dr.M.P.Gupta of IIT Delhi to give us his time and his advice for the smooth conduct of the awards exercise.

It was a special privilege to have three generations of Presidents of the Computer Society of India on the selection panel - Shri.Satish Babu [2012-13], Shri HR Mohan [2014-15], and Shri.Bipin Mehta [President elect 2015-16] along with Shri Sanjay Mohapatra, Hon Secretary.

An international representation in the Selection committee was a special feature of this year's CSI-Nihilent e-Governance Awards. We are grateful to Dr.Peter Parycek, the Head of the Center for E-Governance at the Danube University, Austria for being a part of the awards. A special thanks to Mr. Leon Strous, the current president of International Federation for Information Processing [IFIP] and Shri Lalit Sawhney, himself a Past President of the Computer Society of India and one of the keenest supporters of the awards , for initiating a new era of international co-operation.

A special thanks to eminent personalities who participated in various field visits despite their busy schedule Dr Bankim Patel, Dr Naren Burade, Shri Tejesh Patel, Ms Aneeja, Prof. Sanjeev Kumar Mahajan, Dr.G. Durga Rao, Dr Mohit Sharma, Shri Rakesh Kumar, Shri Soman Padmanabhan, Shri.R.Srinivasan, Shri.G. Neelakantan, Ms.Uma N, Dr Raj Kumar Jain, Dr Vigneswara Ilavarasan P, Shri. Arpan Kumar Kar and Prof. R K Vyas Shri. Pramod Mooriath and Ambuj Anand, (IIM Kolkata). It was a pleasure to have Ms Y Jhansi Rani and Dr Sandeep Inampudi as observers of the Finalist presentation.

Shri L.C.Singh, the President and CEO of Nihilent Technologies and Nihilent Technologies will both find a special mention in the annals of e-Governance in India. Such has been their selfless service to the cause of e-Governance in the Country. The conveners are indebted to them. We would also like to thank Shri Ravi Teja, Vice President of Nihilent Technologies, for his energetic support. Shri Anoop Bharadwaj of Nihilent brings his exemplary co-ordination skills to the awards and Shri. Kurush Siganporia of Nihilent was a new addition to the Awards family.

We are also grateful to International Institute of Information Technology, Hyderabad and to Dr.P.J.Narayanan, its most eminent director, for kindly giving full backing to the Awards and for giving the Awards unrestricted access to IIIT's facilities and infrastructure. IIIT-H has always been a benefactor of activities relating to e-Governance for nearly a decade now. Perhaps as a culmination of its support for the domain, the year 2013-14 saw a new research center for e-Governance [RCEG] being set up at IIIT-H under the chairmanship of Maj.Gen [Retd] Dr.R.K.Bagga. It is a privilege to be associated with IIIT-H.

Ms.Manju, Shri Shrikanth and Ms.Amulya Patel – with their administrative support - were indispensable to the awards. A very special thanks to them. We are grateful to Virtual Reality books, Religiate Interactive, RBC Worldwide, and Mrs. Akansha Pareek for their support in bringing this compendium out under tight deadlines. e-Parivarthan, who maintained the Awards web site provided fair support. IIIT-H student volunteers Sricharan Thota, Trinath Thamishetty, Ram Manoj Patnaik, Abhilash Reddy, Manish,K Varun Kumar, Rajasekhar Reddy, Chaitanya Kiran, Monish [IIIT-Hyderabad] deserve special mention.

Our thanks to Shri. Aditya Gautam [IIIT H Alumni] for playing a special role in the conduct of the State Category of the Awards.

Three names need very special mention. Dr.Ashok Agarwal, Dr.R.K.Bagga and Shri Surendra Kapoor, are a pillar of support for the awards. Mere words cannot express our gratitude to them.

The next year of the awards will see a new team taking over and bringing greater laurels to the awards and to the annual compendium. Shri.Surendra Kapoor will be Chairperson of SIGeGOV from 2015 and a new convener team of Shri Prabhu Gollamudi, Shri K.S Vijaya Sekhar and Mrs.Ayaluri Sridevi will take charge.

Harish P. Iyer, Ayaluri Sridevi, Dr.Piyush Gupta and K.S.Vijaya Sekhar, Editors

FOREWORD

President, CSI

I am happy to acknowledge the 9th edition of the CSI-Nihilent e-Governance Awards compendium being brought out this year with details of the State Awards, Sustenance Awards and Project Awards selected under the theme "Envisioning a digital India – Selected e-Governance initiatives-2014".

This year's theme reflects the vision of our Prime Minister Shri Narendra Modi's ambitious e-Governance initiative - Digital India Programme which aims to transform India into digital empowered society and knowledge economy. With an outlay of over rupees one lakh crores, by the year 2019, the Digital India programme aims to provide the much needed thrust to the nine pillars of growth areas, namely: Broadband Highways;Universal Access to Mobile Connectivity; Public Internet Access Programme; e-Governance: Reforming Government through Technology; e-Kranti - Electronic Delivery of Services; Information for All; Electronics Manufacturing; IT for Jobs; and Early Harvest Programmes.

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The Special Interest Group (SIG) on e-Governance of the Computer Society of India (CSI) in partnership with Nihilent Technologies Pvt Ltd has been involved in this prestigious awards initiative for the last twelve years.

I wish to congratulate the sustained efforts of the team lead by Dr. Piyush Gupta, Chairman, CSI SIG, Mr. Harish Iyer, Convener, CSI Nihilent e-Gov Awards and Ms A. Sridevi, Joint Convener, CSI Nihilent e-Gov Awards and supported by Maj. Gen (Retd) Dr. RK Bagga, Past Chairman, SIGeGOV, Dr. Ashok Agarwal, and Shri.Surendra Kapoor the Steering Committee that provided leadership to the Awards, the support team in Hyderabad, and also the volunteers who assisted with the field visits in different parts of the country during this year's awards. This year, we were fortunate to have Dr. Peter Parycek, Head of the Center for E-Governance at the Danube University Krems, in the selection panel of the awards as IFIP 's Academician. Our thanks to Dr. Peter and IFIP for their support.

The award winning entries which were subjected to three stage rigorous evaluation and selection deserve real applause on their initiatives in providing Citizen Services in a transparent way through the use of Information Technology. I had the opportunity of witnessing the final presentations of few state government initiatives during the final phase of the evaluation. The selection panel had a tough time in shortlisting the projects as each and every one of them was unique in nature and had something special to offer to its citizens. These government projects have matured over a period of time and implemented incorporating efficient business processes, high degree of transparency, focus on service and citizen centricity and the use of the state of the art Information and Communication Technologies to provide direct benefits to the citizens.

This year's compendium of award-winning projects, edited by Mr. Harish P. Iyer, Ms. Ayaluri Sridevi, Mr. K.S. Vijaya Sekar, and Dr.Piyush Gupta brings together cases from a diverse set of e-Governance projects from practitioners around the country. I am sure this volume will serve as a valuable reference source to trace the growth of e-Governance in the country and benefit the stakeholders of e-Governance in the country: Governments, the technical & engineering community, policymakers & administrators, corporates and citizens -- the ultimate users.

Once again, my hearty congratulations to all the members of the CSI SIG eGov team for their dedicated efforts in bringing out this volume.

H.R. Mohan
President, CSI

MESSAGE

Vice Chairman & CEO, Nihilent Technologies

A digital roadmap to empowerment

Is India a digitally enabled country today? The question, for me, doesn't have a straightforward answer yet. Technology is but changing at the speed of thought, and we are a very responsive nation. However, it is imperative that in the light of such amazing development, we modernize and rethink public service delivery.

Our country is on the threshold of technological pre-eminence in the world and we all need to pat ourselves on the back for contributing to this phenomenon. It is with sheer ingenuity and adroitness that we successfully sent the Mars orbiter spacecraft to the Red planet in the very first attempt, at an unbelievable low cost of US$ 72m. India hosted the first summit for Facebook's Internet.org initiative, which aims to help millions of offline masses in the country go online. Social media has been embraced with open arms by the young and old alike, including our prime minister's office (PMO). This is governance in many ways, with the enthusiastic involvement of the masses. All these positive vibes will certainly pre-suppose a deliberate effort by Government and quasi-Government bodies to bring a developmental perspective to the area of governance at the policy level.

The good news is that organizations like CSI's Special Interest Group on eGovernance are spearheading the digital revolution by playing a critical role in promoting e-Governance initiatives in the country. And what better way to recognize and reward sterling efforts in this sphere than by awarding impactful and sustainable initiatives every year! At Nihilent, we are proud to be associated with this noble endeavour, which goes by the name of CSI-Nihilent e-Governance Awards. Into its 12th year now, the Awards have come to be regarded as the most prestigious and serious recognition of leading e-Governance programmes in India. At the same time, I am excited to see increased participation by the states this year. With no lesser than six states vying with each other for the coveted honour, one can say that the day is not far

way when delivering e-Governance programmes will be a cardinal objective for all state governments. This indeed speaks of the galvanizing effect of ICT.

Kahlil Gibran famously said, "Progress lies not in enhancing what is, but in advancing toward what will be." As long as we work toward the ultimate goal of being an empowered and enabled nation, there will always be instruments to help us achieve what we have set forth to.

L C Singh
Vice Chairman & CEO
Nihilent Technologies

MESSAGE

Chairperson, CSI-SIGeGov

The Computer Society of India, Special Interest Group on e-Governance (CSI-SIGeGov) is one of the core bodies under CSI at the national level in India who are recognizing e-Governance initiatives spread across length and breadth of the country. The SIGeGov instituted the e-Governance awards in association with industry (Nihilent Technologies) in the year 2005, now its 12th year. Since the time the group has formulated a comprehensive evaluation process and recognized more than 200 e-Governance initiatives. Since 2005, more than 1000 nominations have been studied as part of the award evaluation process. The award drives its value from the rigorous and systematic evaluation process, with significant experience coming from volunteers who are part of the core group of evaluation team.

The process has gained acknowledgement from the nominees as they found value in adopting a structured evaluation framework adopted for the purpose. The process starts by inviting nominations from various governments at national and state levels, and this requires documenting the initiative under the Result-Enabler framework. This framework has gained significance due to its focus on outcomes rather than outputs. The key component of the evaluation process is the field visit to shortlisted nominations to meet and discuss the outcomes with relevant stakeholders of the projects. The Awards are managed by a core committee consisting of past and current convener[s] of the Awards. The committee is made up of eminent and highly accomplished members drawn from the Government, Industry and the Academia. This involves strenuous time and efforts of the CSI-SIGeGov volunteers out of their busy schedules. Subsequent, to these visits the presentations are made by the shortlisted nominations to the full house of selection committee members in Hyderabad. At the end of the humongous exercise few get selected for the awards. The experience gained by the core team over years of evaluation has brought these awards to a respectful level and recognition by the governments.

This year there were three broad categories of Awards - State Awards, Sustenance Awards, and Project Awards. Nominations to the State and

Sustenance categories of Awards are by invitation. For the project category of awards, the nomination is open to all Government bodies at the Central / State and UT level, subject to the condition that they should not have won CSI-Nihilent awards during the past two years etc. This year the State Cetegory Awards participation was by Six States. Out of these, Five have been found eligible for award. The Sustenance Award category included initiatives those have earlier won the CSI-Nihilent awards and were judged based on field visits on various parameters of sustenance. Nine initiatives found eligible for sustenance and qualified for field visits. Under the Project Award Category, a total of 153 Project nominations were received from across the Country. Out of these 18 have been selected for awards.

Another underlying objective of the CSI-SIGeGov focuses on knowledge sharing of e-Governance experiences of all the stakeholders. Two important interventions stared by the SIGeGov in this direction includes, publications and knowledge sharing summit. The annual publications coming out of the vast documentation of the e-Governance awards, helped us to come out with seven publications till now. These publications are extremely useful to the e-Governance practitioners, government officials, industry and academia. More than 350 e-Governance initiatives spread across India have been documented and published. All the publications are available in public domain at http://www.csi-sigegov.org/publications.php, for the purpose knowledge sharing.

The second initiative in the direction include, knowledge sharing summit (KSS). These are being conducted with the support of the state governments for the benefit of all those associated with designing and implementing e-Governance initiatives. Over the years, the CSI-SIGeGov has conducted five KSS. These two initiatives have added tremendous value for the e-Governance community in understanding the good practices and avoiding re-inventions. During the year 2014, the CSI SIGeGov undertook a research study on “G2C E-Governance in Kerala – Strategies for Augmenting Citizens Experience”, funded by the International Centre for Free and Open Source Software (ICFOSS), Government of Kerala.

I am grateful to all the conveners of previous and this year's CSI Nihilent e-Governance Awards, who have made major efforts in their own time to benefit the society, with rich contents on e-Governance. The present publication has further improved on the quality of documentation. This required enormous efforts to collect, compile, edit and include the latest trends in e-Governance to make the present volume extremely useful. The timing for this publication is appropriate, when India is moving towards Digital India. I am sure all stakeholders including researchers of e-Governance and government officials will find the publication very useful, thereby spreading the much needed awareness of the e-Governance Initiatives in the country.

As Chairman of CSI-SIGeGOV, I like to record our appreciation for Shri LC Singh, CEO, Nihilent Technologies and Mr H R Mohan, President, CSI who have made the present publication possible by their support and contributions. I also extend my heartiest congratulations to this year award convenors Mr Harish Iyer and Mrs Sridevi Ayaluri, supported by Mr Vijay Sekar for their efforts. Also the hard work put in by the members of the selection committee and others who joined the team for the field evaluations.

Congratulations to all the award winners, for their efforts and contribution towards the e-Governance movement a reality in India.

24 November 2014

Dr Piyush Gupta
Chairperson, CSI Special Interest Group
on e-Governance (CSI SIGeGOV)

PREFACE

Harish P. Iyer
Principal Consultant (e-Governance),
Research Center for e-Governance,
International Institute of Information
Technology, Hyderabad

Sridevi Ayaluri
Deputy General Manager
Capacity Building and
Knowledge Management
National Institute for Smart Government

The year 2014 saw the Cabinet of Government of India give its approval for Digital India – a programme to transform India into digital empowered society and knowledge economy. The Government of India [GoI] has identified three vision areas for its Digital India program - Infrastructure as Utility to Every Citizen, Governance and Services on Demand, and Digital Empowerment of Citizens. Identifying such constituents of the idea of digital India is a tough enough task. There are greater difficulties in taking the idea forward. The question is this. How might the Government orchestrate the movement of all the constituents of the idea to work in tandem? Stated differently, how does one foresee – envision – digital India becoming a reality? Digital India is a complex idea. The answer to these questions must be found from different sources and by studying various initiatives from India and abroad. One of the richest sources of case studies for understanding how ICT has been used to enable the Government and, in the process, empower the Citizens of India is to be found in the archives of the Compendiums published by the Special interest group of e-Governance [SIGeGov] of Computer society of India [CSI].

SIGeGOV in partnership with Nihilent technologies have instituted e-Governance awards – the CSI-Nihilent e-Governance Awards – which is in its 12th year in 2014. Noteworthy initiatives from among the nominations received every year are published both on SIGeGOV's website and in the form a compendium. For the year 2013-14, over 150 nominations were received for the CSI-Nihilent e-Governance Awards. A committee of most eminent experts in the field of e-Governance studied these nominations and out of these, the committee identified 28 initiatives for inclusion in this compendium for their mature approach to e-Governance.

Each of the nine compendiums – including the present one – published annually since 2006 is a treasure trove of information, a repository of well rounded ideas and a benchmark for of e-Government initiative in the Country.

In 2014, the year in which this 9th book in the SIGeGOV compendium series is being published, the term Digital India had appeared more number of times in headlines and web searches in India than it had in the years preceding it. In fact, as suggested by figure-1, the term "Digital India" appears poised to overtake the extremely popular term "e-Governance".

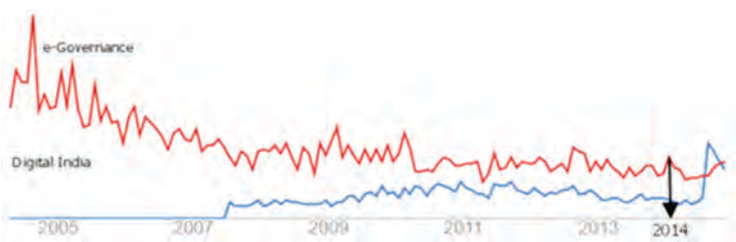


Fig-1
Trending of the terms "e-Governance" and "Digital India"[1]

The Digital India program is intended to prepare India to a knowledge future and nine pillars have been identified by the GoI to give it a firm structure[2]. The pillars seek to address the issues of connectivity [Broadband Highways, Universal Access to Mobile Connectivity, Public Internet Access Programme], the issues of reform [e-Governance: Reforming Government through Technology, e-Kranti - Electronic

Delivery of Services] the issues of empowerment [Information for All, Electronics Manufacturing, IT for Jobs] and the issues of weak roll out of programs [Early Harvest Programmes].

How might this compendium help? – A study of one of the nine pillars of Digital India Program

The invited papers, the case studies listed in the compendium and other observations contained in this compendium [and others which preceded it] bring with them many learning which can be applied to study of many complex ideas. As an illustration, one of the pillars of the Digital India program has been selected to see how this compendium may help.

[1]https://www.google.co.in/trends/explore#q=%22e-Governance%22%2C%20%22Digital%20India%22&cmpt=q
[2]http://pib.nic.in/newsite/PrintRelease.aspx?relid=108926

Information for all is one of the nine pillars of the Digital India program and, this pillar envisages that online hosting of Information & documents by the Government will enable the Citizens to have open and easy access to information. It must be acknowledged that at in small measures and, in pockets, the citizens of India are beginning to be given access to Government information. Included in this compendium is an e-Government initiative – Open Government Data (OGD) platform [data.gov.in]. With over 40 thousand registered users and about 70 departments participating in it – as of November 2014 – the Indian initiative represents a good beginning.

An open government data portal is only a starting point. One can foresee several problems coming in the way of this initiative when the data is attempted to be put to use by various stakeholders.

- The Government machinery in India is too vast and too complex for raw data pushed out to the citizens to empower them in a meaningful manner. Publishing massive amounts of government data – covering various levels of government [the center, the State, the district etc] – and the various kinds of Government transactions which generate millions of pages of information, thousands of contracts, hundreds of policies, government orders, and guidelines etc – might so overwhelm the common citizens and so obfuscate the true meanings contained in them, that citizens might be discouraged from accessing them.
- There is little standardisation in the Government data. Differences in the levels of aggregation of primary data, differences in levels of hierarchies in administrative units - and even in their nomenclature [mandals, tehsils, talukas etc] – and numerous other non-standard representations render comparison of raw data rather tedious.
- Though these are early days of the initiative in India, one cannot ignore the possibility of many raw data existing in unstructured formats in local languages.

Several questions become relevant at this point. "Data" as it is understood now, needs technical proficiency to be accessed and made sense of. Since a majority of citizens in India lack the necessary skills to use Government data effectively, might this give rise to a new breed of intermediaries who will play the role of re-packagers and resellers of government data in intelligible forms? How much

will repackaged information cost? Should the Government have a say [and share?] in financial aspects of Open data? A related question is, might the repackaged information faithfully reflect the raw data?

In addition to answering such questions, the Government will be required to figure out how it will induce greater participation from various Government departments in the Open Data movement. As shown in Fig-2, the Europe has a strong legislative backing[3] to promote open data – a legislation which was revised in 2011 to include such far reaching provisions as making machine readability of the data as the norm. The Spanish Government's Aporta [open data] project emphasised education and training for Government officials to motivate participation. As already noted, there are economic gains to be had from packaging Government data in reusable forms and the Government of UK actively promotes an entrepreneurial bent to approaching Government open data.

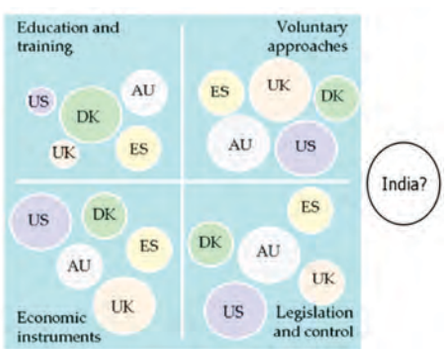


Fig-2
Choice of strategies to promote open Government data[4]

What strategies will India adopt? Will there be legislation impelling all Government departments towards openness? Will India encourage some kind of "industry" to grow around Government data? Might India come up with a novel approach to ensuring wide spread participation of the Government and the Citizens in the open data movement?

[3]Directive 2003/98/EC, known as the 'PSI Directive'
[4]Open Data: An international comparison of strategies
http://www.epractice.eu/files/European%20Journal%20epractice%20Volume%2012_1.pdf

It is in finding answers to such questions that the role of SIGeGOV and the CSI-Nihilent e-Governance Awards [CNEA] as barometers come to the fore.

SIGeGOV and CNEA as barometers

It required visionary thinking 12 years back to foresee the importance of ICT in the domain of governance. This visionary thinking continues to this day. SIGeGOV was among the first to highlight the need for formally providing for e-Participation, e-Democracy etc. As a reflection of its concern for values, the nomination form for the awards was enhanced in 2011 to require the nominees to describe the measures they had taken to address such issues as green governance, digital divide etc – what CNEA refers to as "value indicators". Since then, several hundred e-Government initiatives have been induced to introspect on how well they balance technology with values.

SIGeGOV was among the first to stress the need for Government functionaries who were looking to bring ICT into their domain to understand the benefits of conforming to Standards [e-Government standards, ICT standards etc]. Again, in order to encourage serious action in this direction, the nomination form was again modified in 2013 to direct the attention of nominees to the existence of various standards. Anecdotally, it is known that this modification to the Awards nomination form directed the attention of many government departments and government functionaries to the existence of such guidelines in India.

How does SIGeGOV and CSI-Nihilent e-Governance Awards foresee Digital India evolving? In a development completely unrelated to naming this compendium "Envisioning a Digital India", the SIGeGOV had engaged in discussions with one of the few international experts in the field of open data – Dr.Peter Parycek of Austria. A separate paper in this compendium carries an interview with Dr.Peter Parycek on a wide range of subjects including open data. As brought out in the interview, the solution to many of the questions raised earlier with respect to Open Data movement in India may lie in actions some of which are rather obvious and intuitive and some which perhaps are not quite so. For instance, encouraging a new breed of technology savvy intermediaries who are driven by economic and / or social motives is a rather obvious solution to creating an environment in which open government data

movement can flourish. But, as implied in the interview, a more robust solution may lie in *implementation of policies which will require universities and web connectivity providers to create content for lay users which are based on open government data and which will be accessible free of charge.* As foreseen by SIGeGOV, the large scale e-Participation of common citizens in the digital movement – through such policies - may well be the unique contribution of India to the menu of strategies available for broad basing open Government data creation and use.

Right from foreseeing as far back as twelve years, the evolution of e-Governance in the Country to periodically re-calibrating the manner in which e-Governance should be given a rounded shape, SIGeGOV and CSI-Nihilent e-Governance Awards have acted like barometers for foreseeing how ICT and Governance will co-evolve. It is quite likely that with respect to Government of India's program for Digital India too, SIGeGOV's suggestions of a policy based approach, and other value based approaches [e-participation, e-Democracy etc] will prove to be the best approach.

The biggest contribution of SIGeGOV and the CSI-Nihilent eGovernance awards has been to foresee right directions, right actions, and right knowledge with respect to evolution of e-Governance in the Country. The annual compendium series – including the one currently in your hand – are arguably the best source of case studies for traversing the right path towards good governance.

Section - I

Interview with Specialists

Openness and Participation: An Interview with Dr. Peter Parycek

Head of the Center for e-Governance, Danube University, Austria

Harish Iyer - Principal Consultant on e-Govenance,
Research Center for e-Governance, IIIT - Hyderabad

The special interest group on e-Governance of the Computer Society of India [SIGeGov] has been at the forefront of creating awareness in India, about the need for moderating the speed at which developments in the field of ICT are influencing the notions of public administration and governance with values such as e-Democracy, e-Participation, green governance etc. Promisingly, many e-Governance initiatives in the Country have consciously taken steps to ensure that ICT has been used to redress rather than reinforce social, economic and demographic chasms. As is evident from many of the projects listed in this compendium, use of local languages, access to government services through mobile medium etc have all ensured that ICT itself is used to harness ICT and to channel its powers in ways that do not exacerbate the problems of disparities having their roots in various kinds of accessibility.

From the perspective of public administration and governance, accessibility refers to people's ability to reach public goods, services and activities. Viewed from this vantage point, it becomes immediately apparent that accessibility is about reach – the process of reach, the ease of reach, the costs associated with reach etc - and not about the quality and suitability of the goods, services and activities that are available for reach.

Developments in the field of e-Governance are currently answering the question of reach rather well in most Countries – perhaps India included. But most Countries – again India included – have only just began to study how the questions relating to the quality and suitability of public services can be best addressed in the context of various developments in the field of ICT. Terms such as e-Democracy, e-Participation, Open Government Data etc are finding increasing resonance for reasons which have to do with finding the answer to

the question – how best to bring governments, citizens and private organisations together in this technological era in order to ensure that the most optimum product-service-activity mix is established and shared among them.
The SIGeGOV has been promoting the idea of e-participation and e-Democracy etc by specifically asking the participants in the CSI-Nihilent e-Governance awards to ponder the question in depth. Given that these are early days in the development of these ideas, it has been SIG's experience that such terms are often used interchangeably and even confused with other ideas.

Given that these ideas are in their nascent state, there are not many experts in this field, but Dr.Peter Parycek of Danube University is certainly one of them. Therefore, when Dr.Peter was in India in November 2014 in connection with the CSI-Nihilent e-Governance Awards 2013-14, it was but natural that these topics should come up for serious discussion.

Excerpts from the discussions that Harish Iyer the convener for the 2014 Awards, and a Principal Consultant on e-Governance with the Research Center for e-Governance of IIIT, Hyderabad had with Dr.Peter is reproduced in this paper.

INTERVIEW WITH DR.PETER PARYCEK

Harish Iyer: Peter, this is your first visit to India and you have now spent two days[1] reading about the achievements of several States of India in the field of e-Governance. You have also heard senior officials from these States describe their vision for Governance in general, and the use of ICT in particular, for achieving their State's vision. From what you have read and heard what opinion have you formed about the e-Governance in India?

Peter Parycek: Indeed this is my first visit to India and I would like to thank CSI-Nihilent e-Governance Awards committee for inviting me to participate in the Awards process. It was very fruitful and I must say, what I learnt about the state of e-Governance in India was also very surprising. It is not just the larger States, but also the smaller ones have made great strides in the domain of e-Governance and that to me, is a very positive sign. In terms of ideas, I would say that there are not many differences between India and other countries.

Harish Iyer: In the course of these two days, we have had many discussions on

[1] November 14th and 15th 2014

various topics related to e-Governance. One of the things we talked about was the need to broad base e-Governance in the Country. And in this connection the topic of e-Democracy came up. Peter, what is e-Democracy in your view?

Peter Parycek: There are hundreds of e-Democracy definitions, but the common goal is about using technology to strengthen democracy. The idea is that a combination of technology and traditional democracy will allow to do things better or completely differently compared to the way they have been done over the past 200 to 300 years.

Actually India is the biggest democratic state and also well known for IT and technology. Therefore India especially could be one of the role models in regard to e-Democracy because on the one side you have a very well developed democracy and on the other side you have the possibilities to use technology. So India could be a blueprint for uprising democracies, especially within Asia and maybe for the whole world.

Harish Iyer: Peter it may well be that in the general sphere of e-Governance, India is on a trajectory comparable with developed nations. But this may not yet be the case with such notions as e-Democracy. Having interacted with senior Government functionaries and leading thinkers on the subject of e-Governance in India over the past two days, how would you recommend that India go about making e-Democracy a reality?

Peter Parycek: Like e-Governance, the notion of e-Democracy is also rather difficult to be clear about. But let me give you one example. One of the issues of a democratic state is to provide people access to data and information. With the access people can view the accountability of different organisations of the state; citizen can see what is happening in the State; who made which decision based on which kind of information etc. So people can develop trust in their democratic system. And technology opens up the possibility to create a transparent democratic system.

During CSI-Nihilent e-Governance Awards presentations, we heard about some examples from states who publish on the web, the details of the contract that is made between the government and the companies. This gives us great insights into what is happening in the system. And this approach provides a

very good possibility to fight corruption, to foster better decisions from politicians and from the high officials in both administration and government. So I think this is one of the means of introducing e-Democracy in the country.

Harish Iyer: Peter, how exactly do Open data and e-Democracy relate to each other? In some ways, are they the same?

Peter Parycek: They can be the same but they don't have to be the same. In the example that I just mentioned, you can on the one side publish information, for example scanned contracts, on the web. This is however the traditional form of information which is good for humans to read but a scanned copy is hard to read or to process by machines.

Even for humans, it is hard to read all that millions of documents, especially in a country like India where there are millions of contracts between governments and companies. We can and must therefore think about how we can publish all this information in machine readable data sets. If government does this, scientists or high skilled citizens can analyse the data to see if there are any irregularities in the contracts, or check if the budget fits to the contract and the project, so you could create a 360 degree control loop and provide insights for media, civil society organizations and the people. The citizens this way can look over the shoulder of politicians and officials in the administration.

Furthermore the combination of people and machines could provide new forms of analytic power, which would be useful for the whole policy cycle.

Harish Iyer: Peter, in this discussion of ours, we seem to have progressed from e-Democracy to open data to how citizens can keep tab on the Government. Are we, in effect, talking about e-participation here? How do we get citizens to participate in large numbers, in the Government decision making process? Actually, with new forms of technology being available, do we need large number of citizens to *directly interact* with the Government / Government data?

Peter Parycek: Let me separate the term e-participation into two streams. One stream is the traditional participation, the second one offers us new forms of engagement and interaction between government and people. In this new form,

as I mentioned before, the citizens can e.g. take the data, analyse it and maybe, some of the citizens may even start writing about their findings in the form of citizen journalism or engage with professional journalists to comment on or form an opinion about the government published data.
These new forms need intermediaries *who can create value out of the data.* The people who create value out of data may be more informed than normal citizens - either technologically or by other means. This sets in motion a process where people create value out of the data, therefor the government gets more and more transparent. New forms of collaboration are established between the government, the administration, the citizens and the companies. These kinds of collaboration have high potential for the future and especially for India where you have a large number of young people who are experts in technology. So these are, I would say, new forms of collaboration which are really interesting. However, it is not necessary that all people participate or collaborate. No. Even if only some collaborate, that can serve society.

On the other side, we have traditional e-participation. And this is very complicated and, to be honest, with respect to your question how could we organize large scale participation, is one of the open questions. So I do not have an answer because all European countries and the United States aswell are struggling with new forms of e-participation.

You can separate traditional e-participation into two main forms - one is the bottom up movement and the other is the top down movement and what is working very well is the bottom up movement where people can very easily use social media to organise themselves and to have impact on policy making.

The top down approach from the ministries and the departments very often fail.

This is often the case because people didn't know there was an e-participation project because so many things are happening at any point of time. How do I get informed about such projects? On the other hand people do not participate because they do not have trust in the system, or they say "my voice does not impact, so why should I invest my time". Or, they may say "all is very interesting and I would really love to participate, but I have no time".

So, most of the top down participation projects are more or less failures especially if you measure the quality of a project in regard to how many people did participate.

The idea of e-participation in general is to get legitimacy for your political decisions.

The new forms of collaboration do not seek a majority, but in fact the collaboration and the idea of a single group to support the administration process. That brings us to what I was trying to explain before – under new forms of collaboration, even if only one person is collaborating with me [the Government], is using my data, and is writing an application which millions of people can use afterwards, then that one person can have impact on the society.

These are the new forms of collaboration which can be put to use in autocratic systems too but I think the potential in democratic systems is much higher because the relationship between administration, politics, and the citizens is more intense and open-minded.

Harish Iyer: Peter, might this lead to a situation where a smaller group of technologically savvy individuals will have the means to influence the opinion of a larger group who are less proficient technologically or less inclined to directly engage with the Government?

Peter Parycek: Yes exactly, digitally well-organized small groups of people could dictate their opinions to the majority of society.
A further problem is that you don't have the time to participate in every decision so even if you want to, you do not have the time to participate in every decision process. There are new forms of participation like liquid democracy. For instance, I know that "Harish has a great experience and knowledge in the topic research funding" so I give my vote to you and you can speak on my behalf. So now have two votes – yours and mine. Let us go further and say, instead of just me, ten or twenty thousand people are following you – the new social media will permit this. This could be a new form of democracy, which is currently called liquid democracy.

So a smaller group speaking for larger masses might work, but I am not sure. Maybe if we had more mature kinds of democracy that can handle this kind of new policy making.

The other thing is what I spoke about – the direct forms of democracy. I will be honest. I do not believe in that, because the risks of polarization and losing the coherence in society are bigger than the opportunities.

Harish Iyer: What exactly do you mean by direct forms?

Peter Parycek: The politicians do not make sensitive decision and hand over the decision to the people. If something goes wrong, they are not responsible and accountable. I think we have politicians and professionals who are highly paid. They should do the work and take care of their responsibilities. So I see more problems and I see more negative aspects than positive. I am not in favour of direct democracy- even if new forms of technology and collaboration will facilitate it. This is a topic of discussion also in Austria. I expect more opportunities to integrate feedback loops into the policy cycle and to increase interaction between government and people and foster representative democracy.

Harish Iyer: Direct democracy is similar to referendum?

Peter Parycek: Yes referendums are one possibility. If we follow the path we have to develop strong safeguards.

Harish Iyer: Peter, We will go back to where we started from. How do we empower the people? what do we – as common people - tell the government what are our thoughts? Is the problem of digital divide going to increasingly disenfranchise some groups of people as technology penetrates our lives more and more?

Peter Parycek: Today, as part of the CSI Nihilent e-Governance Awards, there were two presentations and in both, it was mentioned that there was 100% mobile penetration. This is amazing. I think there is big potential worldwide for cheap mobile devices to bring large number of citizens, and governments together. Mobile technologies and mobile based services, which are not

complicated to use, might in fact solve the earlier problems of digital divide. Maybe you can remember the *"100 dollar child book" ?*[2] It was a great project from MIT during 2006-12. They are the most brilliant people and they built these notebooks, but in the meantime they are no longer necessary, because we have smartphones with more power and costs between $50 and 100. That's amazing. Even otherwise, smart phones and smart devices can bring elder people, or those who have low literacy or who are otherwise disadvantaged, into the mainstream. They can learn step by step, and as a first step there is e.g. the possibility to access information about market prices etc for the rural community.

We are waiting for India to invent something like the revolution that was brought about in Bangladesh by the micro loans. Maybe there will be an Indian who can drive the change and bring the possibilities to the poor people by this kind of smart phones and open content.

One way to brining a large number of citizens under the digital umbrella and to reduce digital disparities is to create the right set of policies. For instance, you can issue policies in India which will give incentives to Universities but which will require them to produce content – open content - which can be used by everyone free of charge. That could be an absolutely fascinating possibility. Such policies are well suited especially for India because you have the technology, you have the democracy, you have people, and you have the human power.

Harish Iyer: Peter, even in Austria where the new forms of collaboration you talked about are evolving well, you create new kinds of spaces for face-to-face Government-citizen interaction. I have heard about your bar camps.

Peter Parycek: Yes, this is a non-conference. That's the beauty. We call it a bar camp or Gov 2.0 camp. Gov 2.0 because what we discuss about is the future of the government.

It is free of charge and you do not have to pay any conference fee. Because you need a conference room and 3 or 4 small rooms, we ask the city council for space. We start with breakfast. There is no conference program. Any person coming to the "conference" can be a speaker. You just have to say what topic

[2] "One Laptop per child" Project conceived by Nicholas Negroponte - the Founder and Chairman Emeritus of Massachusetts Institute of Technology's Media Lab

you wish to speak about. This information is collected from all interested speakers, all topics which emerge are listed and then you group the topics, create streams and then it takes the shape of traditional forms of conference.
It is not an academic conference. It is a conference for the people.
Citizens, companies, civil servants all come together to discuss different issues. For Open Data movement in Austria that has been a brilliant platform. The civil servants learnt what was good about data, how they can be improved, which kind of data sets people wanted from the government, what do they want to do with it etc. Such forums also set the civil servants thinking that the "Citizens don't only want to blame us. They also want to work with us".

Harish Iyer: This is a very interesting and encouraging point you have just made – that the next big idea capable of bringing people and the Governments to collaborate together on a large scale might well emerge from India. I would like one last comment from you on this, Peter. How do you see Government and the technologists working together?

Peter Parycek: I would like to draw a parallel with the startup sector. In the startup scene you say "start fast and fail fast". The characteristic of the startups is that even if you fail, you start again. You start and fail four times, five times. But for the government to act as a startup, it is more difficult. "I will start fast and fail fast" kind of experimental culture in the Government would be interesting. But governments generally are not inclined to behave in this manner. It is not their culture.

To change the culture, it takes long time. This is not a change that can happen from one day to the next. It takes generations even for organisations to change. Therefore, while a startup culture for the government may not be entirely suitable, the government can however support the startup culture by identifying good initiatives, giving them support and create new forms of collaboration.

Harish Iyer: Many thanks, Peter. This interview was a great pleasure.

ABOUT PETER PARYCEK
Peter Parycek, PhD, MSc, is Head of the Center for E-Governance at the Danube University Krems Austria. He is Chairman of the Ministerial Working

Groups “E-Democracy & E-participation” and “E-Government Training” at the Austrian Federal Chancellery. As a legal expert, apart from graduate of the Master's program Telematics, his work is at the intersection of legal policy, social and technological developments. His research and project priorities include e-Governance, e-Democracy and e-Government. He is responsible for the conference series CeDEM (International Conference for e-Democracy and Open Government held in Austria and Asia, http://www.donau-uni.ac.at/cedem), and is Chief Editor of the open access journal JeDEM (eJournal of e-Democracy and Open Government, http://www.jedem.org/). CeDM-ASIA-2014 is being held in Hong Kong in Dec 2014, where he is the Conference Chair.

Peter Parycek supports the leading e-Government conferences as co/track-chair: Hawaii International Conference on System Sciences HICSS, 2011-2015 (Mini track Chair) HICSS; Internationales Rechts informatik Symposion (IRIS, Track Chair); Open Government Data DACHLI Conference Series (Chair); or program committee member: International Conference on e-Participation (ePart), International Conference on Digital Government Research (dg.o), International Conference on Theory and Practice of Electronic Governance (ICEGOV). Dr. Peter Parycek is IFIP Academic Member and Track Chair Smart Governance, Smart Government, and Smart Cities Track at IFIP EGOV/ePart 2015.

He is an accomplished academician/practitioner who is a highly competent keynote speaker at the conferences. He has been nominated by the President IFIP to participate in Golden Jubilee Convention of Computer Society of India (CSI-2014) on 13-14 December in Hyderabad, India.

Section - II

State and Sustenance Initiatives

Chhattisgarh

Saurabh Kumar and Harish Kumar

Summary

Chhattisgarh State with wide-ranging socio-economic disparities is now witnessing the ongoing Information Technology (IT) revolution. The Government of Chhattisgarh visions 'Vikas mool mantra, Aadhar loktantra' ('Driving Development through Democratic Governance') and believes in Information and Communication Technology (ICT) which is particularly an important medium for the state in reaching out and improving livelihoods specially for its overwhelming SC / ST population across 44% forest area, which has largely remained untouched by modern development. However, larger than Tamil Nadu, it is just the right size, and is also fortunate to have a low population density. Implementation of eGovernance in this ecology is a challenge of altogether different dimension. Chhattisgarh Government has vision of creating an 'e'nabled society effectively contributing to the social and economic development of the State, where there are no islands of elitism or isolated conclaves of wisdom. IT helps in involving all the stakeholders in the process of governance in far flung areas cutting across all levels. IT is a very important tool for aggressively pushing the agenda of development in a democratic manner. IT can help the State of Chhattisgarh in leapfrogging into a developed State.

Government of Chhattisgarh's mission is to accelerate the economic development of the State of Chhattisgarh, through appropriate application of modern technologies and standard management practices in administration. Government of Chhattisgarh has ensured that government departments, organizations and institutions in the State of Chhattisgarh formulates strategies that encourage private sector activity, increase investment, reward good organisational and individual performance, increase productivity, promote

accountability and use and manage resources more efficiently. A major component of this strategy has been to rebuild, strengthen and modernise the delivery system of Public Service. While we consider e-Governance as leveraging IT in the working of the Government, the focus areas of such an approach is on people, process and technology. The prime focus is on people and all our e-governance initiatives are people centric. We follow a collaborative and coordinated approach where the requirement of citizens is the first step while conceptualizing any e-governance project.

Government of Chhattisgarh has framed IT/ITeS Investment Policy in order to encourage investment in IT industry in the state. Our eGovernance initiatives commenced few years back with a strong focus to make the State a complete e-governed State. he benefits accrued from these initiates in terms of citizen's comfort with the Government services has increased multifold. An Empowered Committee, headed by the Chief Secretary and having various Secretaries as members, was constituted to provide overall guidance and supervision on eGovernance projects and approve all the major IT projects of the State which are worth more than Rs. 1 crore.

Chhattisgarh is the first State in India which has systematically developed an eGovernance Road Map in order to identify the various IT needs and priorities of the departments and also the first state to frame Chhattisgarh Citizen Service (Electronic Governance) Rules, 2003 in accordance with IT Act 2000 of Govt. of India. MoU has been signed with IIM-Ahmedabad for project management, training & to provide managerial & scientific resources. The Human Resource strategy and capacity building are the most important competent for success of e-Governance initiatives of the state. While the emphasis on technology cannot be denied, it is equally important to pay attention on Government Process Reengineering (GPR) and Change Management, etc. for initiating and replicating e-Governance success stories. The State has given a focused attention on capacity building. A separate IT/e-Governance Training wing has been set-up at Administrative Academy of State for training to employees/officials of state in eGovernance. Training Centres are also been setup at Raipur, Jagdalpur and Ambikapur for free training in IT skills for ST/Girl students.

Plan VS Performance (for the year Apr 2013 – Mar 2014)

Item	Planned	Actual
ICT Outlay (Rs. Crs)*	**Centre-9.86 State – 14.88**	**Centre-7.36 State – 12.38**
ICT Capacity Building (Rs. Crs)*	**Centre – 5.82 State – 1.30**	**Centre – 1.82 State – 0.25**
SDC (Nos)	**1**	**1**
CSC (Nos)	**3385**	**2710**
ICT Projects (Nos)	**20**	**15**

Result Indicators

More than 30 G2C and numerous G2B secured services are available in CHOiCE project, which acts as 'One Stop Window' for all government services. The project is rolled out across the state and more than 14 lakhs G2C and 15 lakhs B2C transactions have been done through these centres. There are around 2710 CHOiCE/CSC Centres. 6671 active vendors are already registered in e-Procurement system and 40,693 Nos of Tenders having value of Rs. **77,555.69 Crores** have already been transacted. 31 Departments/ organizations of State are using this system. GIS application comprised of three application areas - Establishment of Natural Resources database for the state of Chhattisgarh on 1,50,000 scale, Geo referencing of Village Maps & Development of LIS for Chhattisgarh State and Development of Spatial Database for Road Network of Chhattisgarh State. Several web based applications have been developed for various departments and districts. Under CGSWAN project, vertical connectivity (i.e. 1 SHQ, 17 DHQ and 131 BHQ) have been established for management of network up to block level. 3310 horizontal offices (i.e. 373 leased line, 77 VSAT and 2860 WiMax) are connected through this network. Captive CUG Hub has been established for VSAT connectivity.

25 departments are hosted their web site / Applications in SDC, establishment of Cloud computing infrastructure has been initiated, ISO 27001 and ISO 20000 certification for State Data Centre –Phase II is completed, Disaster Recovery (DR) centre for CGSDC is allocated by NIC at NDC, New Delhi and replication will start shortly. Under CCTNS project, 327 police stations and higher offices are connected to SDC, server and required Hardware has been installed at SDC and installation & Commissioning with Core Application Software (CAS) offline completed at 369 police sites and 20000(Approx) police officials and staff have been trained.

Under Digital Secretariat project 2.33 lakhs of files containing 1.3 crore pages of 43 departments have been digitized. Currently, 25 sessions of Training have been conducted for 17 departments and this project is rolled-out in 13 departments of Mantralaya with 37000 transactions. After seeing its usability and success, several other offices are also implementing this application. Under State Portal, e-forms and State Service Delivery Gateway project, 14 citizen services of various departments are available through state portal. More than 3.5 lakhs online applications for different professions examinations has been done for Vyapam in Student Life Cycle Mgt. System. Under CG Yuva Soocha Kranti Yojna, 18000 laptops have been provided to Engg./Medical final year students and 46000 tablets to final year other Graduate students to enhance the quality of education in the State. Virtual Education facility has been proposed to provide remedial education in after school hours for improving learning outcomes and improving the employability of rural youth.

Under CG Food Security Act, 70 Lakh ration cards have been created in a transparent manner with 6 months time. Automation of Treasury activities has been done by Online bill submission by DDOs, Digital signing of Electronic bills, Inclusion of more banks for eChallan (Govt. Receipts), ePayroll : Payroll application for Employee salary payment and ePayment :- Electronic payment to bank accounts. COREPDS (FPS automation in Chhattisgarh) has resulted in reduced waiting time for service delivery, Reduction in diversion, Behavioral change in behavior of FPS personnel, Reduced number of trips of beneficiaries to take different commodities, Bribe money stopped at the root and it has also portability feature. 10 lakh farmers have received money through online bank transfer for the paddy sold at MSP for Paddy Procurement in 2013 – 14.

Enabler Indicators

CHOiCE project is the flagship project of the state and is among the best PPP model for creating multiple delivery points for citizen services which are self sustainable and do not require recurring government support annually. For the first time in country, Private Citizens have been notified as Public Servants under IT Act. This project has been leveraged for eDistrict project. eProcurement project provides the State with complete automation of procurement cycle from cradle to grave which includes proposal preparation, online approvals, online bid submission, online signing of Agreement, online measurement book, ePayment and a comprehensive MIS on procurement activities. GIS database has been generated in the state with support of Indian Space Program and the Remote Sensing applications Centre (RRSSC), Nagpur with use of high resolution satellite data specifically IRS, PAN & LISS III for updation of road map, infrastructure planning, urban development, watershed management, agriculture, forest development and to take up on priority implementation of GIS database on natural resources using Remote Sensing data and geo-referencing of village maps to facilitate land and water resources development.

CGSWAN, the ambitious & mega project has been completed in record time. It is one of the biggest SWAN in the country and the largest WIMAX deployment in the continent. Project is right mix of most futuristic technology hybrid network of leased lines, satellite connectivity and WiMax technology. CGSWAN has the honour of being the biggest deployment of fixed WiMax technology in Asia. One of the key initiatives has been to create State Data Centre infrastructure for delivery of online citizen services, provide shared infrastructure and consolidation of data at the State level for all departments, business and citizen within the State. CCTNS project aims at creating a comprehensive and integrated system for enhancing the efficiency and effectiveness of policing through adoption of principles of e-Governance and creation of a nationwide networking infrastructure for evolution of IT-enabled-state-of-the-art tracking system around ‘investigation of crime and detection of criminals.

Digital Secretariat Project has been envisioned to automate the official work flow which follows the Rules and Regulations of File Management process of Mantralaya. Various modules like File Movement, File Creation, File Search, File Conversion, Attaching correspondences to files, etc. are incorporated in the system so that the entire file movement and management process becomes standardized, efficient and fast. State Portal, e-forms and State Service Delivery Gateway project has been implemented in the state. It acts as one stop shop, in term of delivery of G2C services. Web based Software has been developed as a Service project for Student Life Cycle Management System and Allied Services to Universities, Affiliated Colleges, Departments, Educational and Examination Boards in the State. "Chhattisgarh Dashboard" has been initiated with a view of establishing a mechanism to monitor and judge the performance of individual Departments, key projects of the State, key development indices of the State, issues involving multiple Departments.

COREPDS (FPS automation) has been implemented in all the Municipal Corporations of the State offering portability of entitlements to the beneficiary. FPSs are equipped with a POS device with GPRS connectivity. Hon'ble Chief Minister has named the POS device used as "Annapoorna ATM", as it works like ATM for food grains (Food grains are given manually by FPS, but authentication and record of transaction on server is done through this POS) Each BPL beneficiary is provided with a Smart Ration Card and APL beneficiary has been registered with her mobile number. BPL beneficiary can take her rations at any FPS by producing her SRC. The aim of Treasury computerisation is to achieve total integration with RBI, PFMS, AG and other stake holders for enabling the Govt. total Financial control. Under eKosh Budget distribution to DDOs, Online Bill submission by DDOs to Treasuries, Bill passing based on budget availability, final electronic payment (through RTGS/NEFT) to bank accounts have been computerised. State has bagged numerous awards for various eGovernance projects being implemented in the state and has several firsts to its credit.

Green Computing

The objective is to implement state wide practice of designing, manufacturing, using, and disposing of ICT devices including computers, servers, and associated subsystems such as monitors, printers, storage devices, networking and communications systems efficiently and effectively with minimal or no impact on the environment.

- Design of state wide green IT policy framework
- Promote the recyclability or biodegradability of defunct products and factory waste (e-waste management)
- Recognise and publicise widespread use of energy star ratings for ICT devices as per BEE (Bureau of Energy Efficiency) standards
- Encourage research and development for advancing energy efficiency in data centres and business computing ecosystems
- Promote the development of energy conservation technology and practices in the field of Information and Communications Technology

Following are key approaches towards realization of Green IT

- Product longevity
- Algorithmic efficiency
- Resource allocation
- Virtualization
- Terminal servers
- Power management
- Materials recycling
- Telecommuting

IT backed business intelligence and operation is now in a growth phage and the stakeholders are really concerned to maximize the return on investment and as a result of this, it needs a step by step collaborative approach to implement the principle of green computing in the IT infrastructure.

Saurabh Kumar, IAS ,Deputy Secretary (IT), Department of Information Technology, Chhattisgarh infotech & biotech Promotion Society (CHiPS) Govt. of Chhattisgarh Email: ceochips@nic.in

Harish Kumar, email: hr-chips@nic.in

Gujarat

Gaurang shah and Dr.Neeta Shah

Summary

Gujarat has always led from the front as far as e-Governance initiatives are considered. Looking at the track record of the state over the past few years in the field of eGovernance and ICT implementation, It can be observed that state has successfully delivered a gamut of projects ranging from small but focused projects at ground level of the administration to large scale projects which are directed at achieving something greater than what each department can individually achieve. Gujarat was the first to set up a State Data Center which is now ISO 20000 and 27001 certified. In the past few years we have also pioneered ground breaking projects such as SWAGAT for grievance redressal, IWDMS for Internal efficiency, Hospital Information Management System and eCity which perhaps sets us apart from other governments as far as quality of governance is concerned. More than 60 significant eGovernance projects have been commissioned and implemented in the past 8-10 years. This figure excludes the many grassroots level initiatives that are being conceptualized and pioneered on a daily basis.

The spirit of Gujarat has ensured that every day, new project are commissioned and existing boundaries are pushed further in our quest to achieve good governance with minimal government.

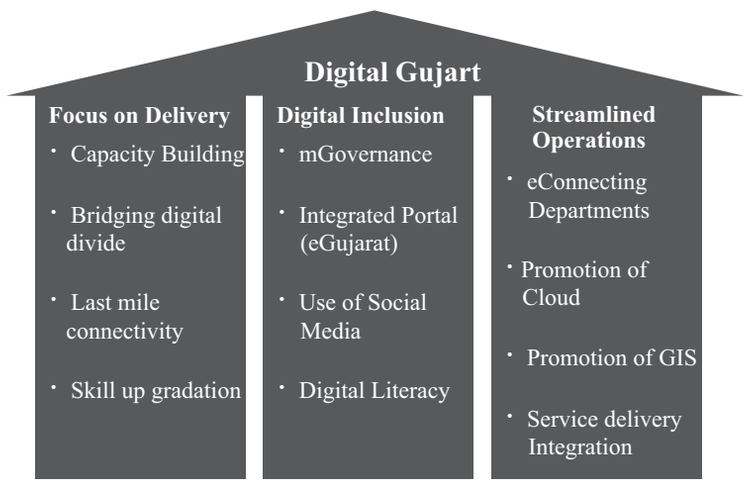
Gujarat has been a leader in the eGovernance space with enhanced 'Digital Footprint', in almost all the Government Departments, providing integrated eServices to the citizens. As a result, on the national eServices Transaction Portal, 'eTaal' (Electronic Transaction Aggregation & Analysis Layer), Gujarat has continuously maintained its rank at the top.

Our new e-Governance policy ensures that we continue on the path of achieving effective and efficient governance through new ideas and enhancements to ideas that have already been implemented. Our broad level

goals envisaged to be fulfilled through e-Governance initiatives are summed up below:

- Single Window Delivery through e-Gujarat (Integrated Portal)
- Embarking on mobile Governance initiatives
- Involving citizens in Governance through Social Media
- Creating comprehensive Decision Support Systems through promotion of Geo Spatial Applications
- Bridging Urban Rural digital divide
- On demand availability of IT Infrastructure through cloud initiatives

These combined with many other lead us to our 3 pillared vision for Gujarat:



We also realize that administration can be improved by improving the quality of Governance internally which will ultimately reflect on the quality of services we deliver to citizens. Keeping this understanding in mind, the benefits foreseen by the state can be categorized into direct citizen benefits and indirect citizen benefits through greater internal efficiency of the state.

Benefits for Citizens:

- Open data to promote participatory democracy
- eAvailability of maximum services, mobile service delivery, kiosks and Call Centers
- Better connectivity through proposition of WiFi hotspots at public spots
- Enhancements to Grievance Redressal Mechanisms
- Enhancement to existing service delivery mechanisms

Benfits to Citizens through Internal Improvements

- Emphasis on GIS as a key enabler in enhancing the Decision support system facilitated by the state nodal agency for Geo Spatial Technology – BISAG
- Use of Enterprise Wide Solutions such as Saathi for improving efficiency of internal operations
- Use of Rate Contracts to promote faster procurement and implementation
- Exploring PPP model for augmenting Infrastructure
- Capacity building for human skill development through Computer Competency Courses at SPIPA and though various initiatives at Technical Institutes
- Impact Assessment of eGovernance to quantify benefits achieved and to identify the right direction moving forward.

Plan VS Performance (for the year Apr 2013 – Mar 2014)

Item	Planned	Actual
IICT Outlay (Rs. Crs)**	**1,800**	**1,500**
ICT Capacity Building (Rs. Crs)*	**10,364,114**	**17,040,829**
SDC (Nos)	1 SDC Operational Since 2008 3 Mini Data Centre across the state	
CSC (Nos)	13685 eGram centers operational since 2007	
ICT Projects (Nos)	25	22

Result Indicators

The Result Indicators are primarily the outcomes and key achievements for the State in the area of e- Governance during the year April 2013 to March 2014.

Overall, the year 2013-14 has been a phenomenal duration for eGovernance in Gujarat with some key initiatives being taken up. Some of the key achievements have been listed below.

- With a growing focus on eGovernance and need to further bolster industrial development, the existing IT Policy is being replaced by a separate detailed eGovernance and IT Policy. The eGovernance Policy is aligned with national vision of eGovernance and focuses on the latest trends of eGovernance such as universal Wi-Fi connectivity, mobile Service Delivery, State wide Integrated Service Delivery, Analytics Systems etc.
- Gujarat is the first state in India where the Agriculture department has computerized the National Agricultural Insurance Scheme where applications are received online from farmers by bank directly and then routed to Agriculture Insurance Corporation post due verification. The application also internally verifies authenticity of the applicant by integrating with the Land Record system. 174 crores in premium have been collected by the Department until now. Approximately 7000 user ids have been provided to banks to login and check applications from farmers.
- We have also introduced 'Saathi' as a Human Resource Management System to manage all HR related functions of Government employees. Important government information required for day-to-day admin activities like recruitments, training, transfers, etc. will be available online due to the SATHI application. The application will create profile of each government employee and update it with all the information of the person which can be utilized in deciding the transfers, in giving special assignments depending on his qualification and training and also ensure that no injustice is done to the employee.
- IWDMS, our flagship project, has been further customized to directly bring in accountability and transparency in internal functioning. For example, we have included features using which each department can analyze pendency of files by category and by function. In a way, it functions as a dashboard for senior management to monitor day to day activities.
- Public WiFi has been initiated on a PPP basis with Reliance. In 2013-14 8 WiFi hotspots were inaugurated at Ahmedabad. Further, 4 wifi hotspots at Vadodara and 5 at Surat were also launched post March 2014. Similarly under Swarnim Sankul, the Chief Minister's office and the

- office of State Ministers has been equipped with state of the art technologies for better communication and security.
  - We have established Road & Building Works Monitoring System and an Irrigation Works Monitoring System to assist departments in monitoring all projects and using the MIS for budgeting and planning of work.
  - Online Application system for Industrial Training Institutes has been setup thereby bringing transparency and making the application process easier for interested students

This list is of course not exhaustive. Several other initiatives such as the eGujcop to integrate Home Department IT systems across 1100 locations, ImTecho to improve maternal and new born health care services, GIS based decision support system for Commissionerate of Health and GIS based Decision support system for ICDS have been made functional last year.

Not only have we conceptualized new projects, we have also maintained our focus on existing ones to ensure that they are upgraded along with technology. Some of our key projects such as Drug Manufacturing Licensing Software (First in India), eProcurement, City Civic Center have seen substantial enhancement in 2013-2014 which brings out our focus on improvising on existing infrastructure. Our award winning PDS system has seen the introduction of the Transit Passes for truck drivers to complete the supply chain management process effectively. The file tracking and registering system has been extended to all districts and Talukas thereby making centralized tracking of files possible.

We have computerized the office of the Government Pleader from where cases are tagged to different departments. All departments have their own login to view the cases pending against them which has brought efficiency into the case management system.

Our performance in this sector of administration can also be summed up by the many awards that we have won. Highlights:

- Gujarat won the highest number of National eGovernance Awards for the year 2013-14 2.
- In the United Nations Public Service Awards held for 2013, out of 16

projects showcased, 9 of them qualified for the second round and two projects qualified for the final round.

- In the recently concluded SKOCH Awards, out of 46 projects nominated from the state, all have received the SKOCH Merit Award while 8 projects have received Gold and 4 projects have received Platinum awards.

Enabler Indicators

The Enabler Indicators are primarily the processes that are implemented to achieve the above mentioned results.

One of the key enabler indicators is a strong IT Policy which has so far guided us through the eGovernance initiatives we have picked up. At this point our eGovernance Policy is being renewed to align ourselves with the vision of digital India, but a brief idea about the policy which has guided us through 2013-14 is given below:

eGovernance Policy

Information and Communication Technology (ICT) is widely recognized as a potent tool for socio-economic upliftment. ICT has played a crucial role in bolstering growth because of the operational efficiency it has brought to all departments. It has thus become a key catalyst for the emergence of a knowledge economy. Gujarat, known for its positivity, has led from the front as far as eGovernance is concerned. The key policy interventions which ensure that we continue to lead the path are summerised below:

- Gujarat Informatics Ltd has been set up as a nodal agency for all eGovernance initiatives. GIL facilitates purchase of infrastructure and resources for successful implementation of eGovernance Projects
- A good focus has existed on backbone IT Infrastructure such as GSWAN with a plan to upgrade to GSWAN 2.0 and migration to IPv6. A separate Sachivalaya Integrated Communication Network (SICN) has also been setup to facilitate fast communication with the government and it facilitates almost 125000 calls daily.
- Change Management has also been stressed upon by introducing a

- policy where state government Class III employees cannot progress levels until they complete a basic Computer Competency Training. The same is application to Class II employees looking for promotion to Class I. This has set a baseline for computer competency ensuring that competency of employees is in sync with requirements of digital Gujarat.
    - Government of Gujarat has laid additional stress on utilization of technology to bring internal efficiency in departments and actually led from the front in bringing change from within through this emphasis.

With the focus on eGovernance increasing exponentially, we also realized the need for a separate eGovernance and IT policy and embarked on redrafting them to include latest technologies and ideas which are a part of the national vision of eGovernance. In 2013-14, we have also studied the key ideas which need to be involved in our eGovernance roadmap and covered the following broad areas :

Integrated Service Delivery and facilitation of single window delivery portal at a state level
Digital Inclusion through internal capacity building, Ubiquitous service delivery through mGov initiatives, last mile connectivity and WiFi Access
Greater Internal Efficiency through decision support systems and Government Process Re-engineering
Improving citizen involvement through multiple digital channels

Government of Gujarat also has a separate Website Policy and is in the process of drafting a separate Electronic Policy to create a favorable eco system for ESDM (Electronic Systems Design and Manufacturing) Industries.

Green Computing

The Green Computing pertains to high level goals and objectives which can be used as guiding philosophies for promoting green governance at the State level.

The state's IT and eGovernance policy stresses on the need for Green Computing and inculcating green ideas into daily work. A comprehensive eWaste Policy is already in use by the State Government and we are in the process of renewing it.

The State Government re-affirms its commitment to environment protection by introducing eWaste management guidelines which are prepared in coordination with Gujarat Pollution Control Board (GPCB); in conformity with E-wastes (Management and Handling) Rules, 2011. The disposal of obsolete ICT equipments shall be made strictly in accordance with the same.

Secure and careful usage of State's IT Assets is the responsibility of all the concerned stakeholders who have custody/maintenance responsibility of these assets. All the concerned stakeholders are required to adhere to the Green IT Principles and ensure savings in energy and printing, wherever possible.

As per the eWaste Policy currently being used, before condemning any IT Hardware which is in use currently, a detailed proposal must be sent to the Education Department, Health & Welfare Department and Social Justice & Empowerment Department to check if the IT Hardware can be deployed in schools. IT Hardware can only be condemned once it is confirmed that these departments are not in need of these hardware.

Our State Data Center, which was the first one to be operational in the country, has gone green by conceptualizing the establishment of solar cells above the SDC to completely satisfy the power requirements of the Network Operating Center. Within the NOC and the Date Center, sensor based electrical equipments have been introduced for power saving. Migration to IPv6 is also on the way which will ensure IP connectivity between devices for better control

Gaurang Shah, IAS, Joint Secretary, Department of Science and Technology, Govt. of Gujarat Email: jsit@gujarat.gov.in

Dr.Neeta Shah, Director [GIL], email: neetas@gujarat.gov.in

Kerala

K.Mohammed Y.Safirulla and Ajith S

Summary

The Government of Kerala is committed to e-governance for bringing in transformational change in the governance. E-Governance is identified as a core area under Chief Minister's Mission 676 scheme. The Government plans to stride ahead at a fast pace and there needs to be considerable effort to be in a position of significance in the ICT map. The core ICT infrastructure is already in extensive usage viz., the State Data Center, Kerala State Wide Area Network, Mobile Governance , FRIENDS integrated remittance centre, the CSC (Akshaya centre) and Citizen Call Centre for enabling faster e-governance. State is also giving emphasis on bridging the digital divide through e-literacy programs ,'Project insight' for differently abled, Regional language computing , state wide enrolment of AADHAR (96%) , Rural penetration of CSC (minimum two centres per Panchyath).
KSITM has been piloting e-governance and IT related services /projects in the state since its inception in 1999. The mission has successfully undertaken the e governance initiatives of the state.

The IT policy of state focuses to create an integrated e-governance framework whereby the citizens get the benefits of technology enabled governance and helps in emerging as a 100% e-literate and digital state. The key catalysts are:

- Minimum of 3% of plan funds shall be pooled for e-Governance.
- Open standards will be adopted in all e-Governance solutions promoting interoperability.
- Promote wider adoption of mobile governance across government services considering state tele-density
- Creating trained resource pool within the government via capacity building and resource mobilization.

Objective

Ensure electronic delivery of citizen and business services across all departments and functions ensuring transparency, efficiency and govt process reengineering.

Goals

- Ensuring that the core infrastructure is equipped for the state's exploding requirements (implementing cloud and DR by 2014), VC at taluk level, civil station wan, OFC across hubs.
- Provide broadband connectivity to all Government offices up to Panchayat level through OFC by 2015.
- Ensure that citizens have access to these electronic services either directly through the internet or though CSC's.
- Interoperability of government databases and open data for greater collaboration.
- Re-engineer the Government business practices and rules to suit the delivery of electronic services. Eg:- Standardization of govt procurement rules.
- Leveraging Aadhar as a Unified identity for availing govt services.

Benefits

- Utilizing Core resource sharing infrastructure like cloud, KSWAN/DeptWAN/civil stn WAN state shall be able to rationalize the hard ware & software infrastructure cost leading to greater efficiency and optimisation of Govt ICT expenditure. ROW bandwidth utilization from telecom providers has also reduced the core network operating costs.
- Implementation of common DR and security measures via CERT-K addressing data security.
- Exploitation of open source technology wherever possible.
- Focussed enrolment initiative has enabled 96% enrolment in UID which will facilitate faster KYC in all government services like DBT, RTS services.
- Multiple Green and Transparency oriented projects like e-file system, establishment & payroll, e-Procurement, e-District, Spatial data infrastructure etc are being replicated to large scale across spectrum of Govt department enabling faster implementation and savings.

Plan VS Performance (for the year Apr 2013 – Mar 2014)

Item		Planned (Cr)	Actual(Cr)
ICT Outlay (Rs. Crs)* (including IT	State	239.28	210.89
	Central		44.12
ICT Capacity Building (Rs. Crs)*	State	2.65	1.33
	Central		0.94
SDC (Nos)			9000 Sq ft (96% and 80% rack space utilization in 2 SDC's)
		Plan - 6.97 Cr	6.53 Cr (State) 7.7 Cr(Central
CSC (Nos)		2289 CSC's across state	
	State	Plan - 5.5 Cr	5.7
ICT Projects (Nos)		14	11

Result Indicators

S.No	Departments	Result Indicators/ e-Governance Outcomes
A	Kerala State IT Mission	
1	e-Procurement	Government of Kerala had mandated to carry out all government purchases above Rs. 25 lakhs only through online using the e-procurement system. Presently around 40 Government departments and around 86 PSUs are using the e-procurement system. Around 12,078 tenders worth Rs. 10,913 crores were published during FY2013-14.
2	eDistrict	Government of Kerala in accordance to the guidelines set forth by DeitY, Government of India, made e-District services available across all the 14 districts spanning 1,700+ Village/Taluk Offices from 26th March 2013. Currently, 24 Certificate services mainly from revenue department, and 500+ utility/fee payment services of Government of Kerala can be availed online by Keralites through 2,200+ Akshaya Centers spread across the State or through portal. As on September '14, more than 91 lakh e-certificates were processed through e-District and on average more than 5 lakhs per month. Along with the e-District public portal, the Government of Kerala had also launched the online RTI and Public Grievance
3	Adhaar	Kerala had touched more than 96% Aadhaar enrollment through CSC (Akshaya) centres. Around 6800 bedridden people are enrolled at their homes. The Government had set up more than 500 permanent enrollment centres for UID updation and enrolment.74% of 72 lakh LPG consumer's data seeded. 96% of the 35 lakh school students database seeded. 18lakh labour welfare members data seeding completed.15 lakh NSAP pensioners seeded by LSGD.

4	eOffice	e-Office is a Digital Workplace Solution which comprises of various modules like File Management System (eFile), Knowledge Management System (KMS), Collaboration and Messaging Services (CAMS). It is a workflow based system that replaces the existing manual handling of files and documents with an efficient electronic system. The Government of Kerala is introducing the e-office system in 17 depts in phase I and 22 departments in phase II
5	CSC	With more than 2300 Akshaya centres in 978 Panchayats, Akshaya CSCs are taking e-governance to the citizen's door step. eDistrict services are offered through CSCs. CHIAK-RSBY online registration done for 35 lakh families in 35 days flat. Akshaya is the only CSC in India to complete 1.7 cr Adhaar enrollments with largest accuracy in India. 1000 Akshya centres become the banking Kiosks/micro ATMs of the state. Successfully delivering services such as e-grantz, Entrance examination, Ration Card, Election ID,CM's Public grievance etc.
6	KSDI	KSDI developed a geo portal & data clearing house to support Open Geo-spatial Consortium compliant webservices with advanced geo processing capabilities for local lever planning. Data Model in line with NSDI standards & data loading from 24 department's upto 1TB of vector data-Revenue, Survey, Forest, Health, Urban development & water resources.
7	FRIENDS	Single Window no queue integrated remittance centre. Average 1500 people visit each centre per day. Fully computerized centres operate in all 14 district of kerala from 8 am to 7.00 pm including Sundays. Payments related to KSEB, KWA, Local Bodies, Revenue dept, Civil Supplies dept, MVD, Kerala, MG, Calicut University, BSNL bills etc are accepted. Anywhere Any Payment System titled FREES has online data fetching and updating from and to the departments servers for vehicle tax, water bill and property tax.
8	SPARK	Service and Payroll Administrative HR System, where 88 departments /agencies on line for salary preparation. 28182 government offices/institutions on line for salary preparation. 517375 government employees do e submission of salary bills. Dedicated call centre operates to resolve issues related. Averaging 45000 queries per month through email/chat/phone direct visit are attended and resolved. 260 department users identified and trained for assistance.

B	Major Govt Departments	
1	Kerala Police	Crime and Criminal Tracking Network and Systems(CCTNS),Internal Administrative Processing System, Complaints through FRIENDS, Police Vehicle tracking System, Kerala Police Message Centre (SMS9497900000), Motor Vehicle Co-ordination system, TALASH, Common Integrated Police Application(CIPA)Digital Criminal Gallery, Virtual queue etc are the major e governance outcomes from police Department, GOK.
2	Commercial Tax	100% e-filing of VAT returns, e-registration, e-Filing of returns, e-Payment and e-chalan, Online statutory forms, Opting Compounding online, Online consignment declaration, sales man permits online, Exchange Mela Permits, Advance Tax Utilisation, online transit pass, online filing of appeals etc are the major e gov outcomes of Commercial tax dept, GOK.
3	Motor Vehicle Department	Total computerization has been achieved on BOMT (Build, Operate, Maintain &Transfer basis through a project called FAST (Fully Automated Services of Transport Department). Any counter Any Service, Online Service with e-payment, M-Governance, Radar Surveillance System, Driving Test Tracks, National Register of Vehicles and Driver Licenses, enforcement Automation etc are the major outcomes of MVD.

4	Kerala State Electricity Board	Website Services-View LT Bills, Quick pay of LT Bills without registration, Pay HT and extra HT Bills on line, Online complaint system, Online energy consumption calculation are the major e gov result indicators of KSEB.
5	Kerala Water Authority	PASK-Project Alert System for Kerala Water Authority, to know the progress status of the projects held by KWA. Online nomination submission for the training programmes conducted by KWA, Online ledger view & online payment of Bills etc are the initiative of KWA.
6	Local Self Governance Department	100% birth/deaths are registered through the SEVANA software and the information is made available to the public through www.cr.lsgkerala.gov.in. PF accounts of all Grama Panchayath employees , Building ownership Certificate, online property tax through Debit/Credit Card and the state is all set implement the accrual based double entry software in all local bodies.
7	IT@school	Government made IT, a compulsory subject in school curriculum and provided schools across the state with 50000 computers. World's largest Simultaneous deployment of FOSS (Free and Open Software Systems) initiatives in Education sector. The first State to conduct compulsory IT Theory and Practical examination in SSLC examination (4.72 lakh children). Nearly 16 lakh students per year benefited in acquiring the IT skills. The IT practical examination in free software for about 15 lakh students, first of this kind in the world.
8	Tourism	Online Hotel finder, Message Board or Travellers forum, Royalty free content, Online accreditation of tour operators, e-submission of C forms, e-submission of Tourist arrival details are the major e-gov indicators of tourism dept.
9	Technical Education	Administrative process which includes, Biometric Attendance Monitoring, DDFS, MIS, GAINPF (govt aided institutions PF), Budget Monitoring System, VC, Procurement Processing System and Academic Processes includes online admission system, online processing of Mtech scholarships, Edusat Facility, Campus soft, MCM Scholarship Package etc are the result indicators of e gov in TE.

Enabler Indicators

Government of Kerala has taken numerous efforts towards efficient and effective implementation of e-Governance and IT initiatives in the State. A few of such important initiatives serving as enablers in successful implementation of e-Governance activities are listed below:

Kerala State IT Mission: Kerala State Information Technology Mission (KSITM) is an autonomous nodal IT implementation agency under Department of Information Technology, Government of Kerala for implementation of various e-Governance initiatives of Kerala. It also provides managerial & technical advice and implementation assistance to various initiatives of the other Departments. Kerala State IT Mission is a catalyst and a facilitator to the

various IT initiatives of the State. It is a team of professionals from the industry and the Government and is headed by the Director, with the Secretary-IT as the Chairman.

State Data Centre (SDC): Government of Kerala has established 2 SDCs for providing provide common secure IT infrastructure and is created to host state level eGovernance applications/Data to enable seamless delivery of Government to Government (G2G), Government to Citizen (G2C) and Government to Business (G2B) services duly supported by State Wide Area Network. Both facilities offers various services to Government departments like Server co-hosting, Server co-location, Application load balancing and caching, SAN based mass storage, Automated back-up, Internet Connectivity, Mail services, Data Base Administration service, Web Server Administration service, Mail server Administration Service, Network Management Services.

Kerala State Wide Area Network (KSWAN): Government of Kerala has implemented KSWAN for establishing a backbone network connecting all District Headquarters, Block Headquarters, Government offices and Taluk offices under one network, in a vertical and hierarchical structure with three Network Operating Centres (NOC) at Thiruvananthapuram, Kochi and Kozhikode, 14 District Headquarters & 152 Block Headquarters. The Govt. offices are connected to the nearest DHQ/BHQ to achieve KSWAN Connectivity. The last mile connectivity to Government offices are achieved through Wireless, LAN, Leased Lines and Fiber based on the feasibility. A total number of 3378 offices are currently connected with KSWAN through various modes. Almost 45 departments and its offices spread across the State are using KSWAN backbone.

Many ISPs have provided bandwidth under ROW to Government of Kerala for KSWAN project. 50 mbps have been provided to 3 KSWAN NOCs and average 10 mbps to each DHQs under ROW.

Akshaya: The prime objective of Akshaya project is to provide ICT accessibility and services to the reach of the common man and, thus, to bridge the gap between the ***"Information Rich and the Information Poor"***. Akshaya has over 2500 Akshaya Centers spread across the nook and corner of the state .

Over 60% of the centers are in rural areas which indeed help the common people to access the inevitable service and thus bridge the digital divide. The services provided by Akshaya is very varied, namely, G2C, G2B, G2G,B2C, C2C and many specialized services like UID enrollment, survey etc.

e-Office and DDFS: e-Office and Digital Document Filing System (DDFS) is a web based file/ tapal flow & management system. It is a "Less-paper office" concept introduced by Department of IT, Government of Kerala. It covers the entire life cycle of a document, beginning with the creation of a Tapal and ending with the closure of the File. e-Office & DDFS has ensured that files or documents move fast and in a secured environment thus improving the efficiency and effectiveness of work and governance.

Citizen Call Centre: Citizen Call Centre has been established by Kerala State IT Mission to function as first point of contact for citizens to obtain and disseminate information about department functions and services on a 24*7 basis.

IDEAS: 'IDEAS' is a web based online File, Petition and Government Order tracking system implemented by Kerala State IT Mission with technical support of NIC. The system facilitates tracking & monitoring of Government documents, serves as a mechanism for reminding the Government departments about the pending status of files and also provides a real-time status of Government files/ petitions. It is developed using open source technology.

State e-Governance Mission Team (SeMT): SeMT Kerala assists Kerala State IT Mission or Department of IT with decision making process at both macro & micro level. It functions as an advisory body in undertaking e-Governance projects as envisaged by Department of Information Technology.

Formation of IT Divisions in all Govt. Departments/ PSUs: Govt. of Kerala vide G.O. (MS.)28/2008/ITD had directed the formation of IT Divisions in all Govt. Departments/ PSUs including Local Self Government Institutions for the effective implementation, management and maintenance of e-Governance applications. Govt. had directed that the exiting posts in the existing pay of scale shall be converted for this purpose. Applications like e-Office has been

implemented to improve the work flow and vide Circular No. 3765/B1/2008/ITD, dated 21-02-2014, Govt. of Kerala has reinforced the drive for the formation of IT Divisions in all Govt. Departments/ PSUs including Local Self Government Institutions.

PG Diploma in e-Governance (PGDeG): Capacity building has been identified as an important requirement for successful implementation of e-Governance programmes. Based on recommendation of the Administrative Reforms Commission on promoting e-Governance, State Government has commenced Capacity Building in the individual level and entrusted, Institute of Management in Government (IMG) and Indian Institute of Information Technology and Management - Kerala (IIITM-K) to jointly conduct 1-Year Post Graduate Diploma in e-Governance. The officials who have obtained PGDeG are now posted in crucial positions in various e-Governance projects in the State.

ICFOSS: The Government of Kerala established ICFOSS with the mandate of carrying out academic & researchprogrammes and advocacy centered around Free and Open Source Software, and fostering international co-operation in the FOSS domain. A secondary focus of ICFOSS is to promote Kerala as a destination for FOSS-based IT work through creating a critical mass of trained human resource and providing mechanisms for market interfacing.

Green Computing

The Government of Kerala's agenda with respect to Green Computing is multifold. Government of Kerala is providing great emphasis to ensure Green Computing while implementation of various e-governance projects and also for the day-to-day operations. Some of the key measures that are being undertaken by the Government of Kerala to ensure the Green Computing are given below:
Making the entire office paper less or less paper by implementing various e-governance initiatives which saves millions of paper in an year, such as:

- Digital Document Filing System (DDFS)/ e-Office: The DDFS/e-Office project is implemented in various offices coming under the Government of Kerala for the purpose of online file flow system with the objective of a 'paperless' office.

- Information and Data Exchange Advanced System (IDEAS): IDEAS is the government secretariat file tracking system which shall enable the citizens to track the status of files online.

- ***Niyamasabha Online:*** All the questions and answers from the question hour in the Kerala Legislative Assembly have gone online. The question and answers onwards are accessible online.

- ***Special Campaigns:*** Introduction of innovative campaigns such as 'Labhaprabha' scheme launched by the Kerala State Electricity Department, advertisement in print and electronic media, by engaging celebrities. M-governance,Citizen call centre was utilized for enrolment of citizens for various schemes like labhaprabha leading to optimization of resources.

- ***Enforcement:*** Enforcement of various Resource conservation measures through Government Orders, to reduce electricity and water consumption such as:
  - Procurement of low energy consuming equipments such as laptops instead of desktops, for energy savings and to save on UPS
  - Insisting on Procurement of equipments (such as laptops) with energy ratings/certifications, for consumption of low energy (For eg. Equipments with Energy Star 5.0 / Bureau of Energy Efficiency (BEE) certification etc.)

Video Conferencing: Video Conferencing started in 2005, more than 25 departments use state's common VC facility and an average of 300 VCs of various departments is being conducted each year. The project is being implemented with the technical support of C-DIT as total solutions provider and VC facility is available in Secretariat, all 14 District Collectorates, Advocate General's Office, Kerala House, KSITM, Public Office and Vikas Bhavan, Thiruvananthapuram. Major departments/agencies like Police, Water authority, KSEB have implemented internal VC networks. Jail and courts have also been video networked in selected districts.

Email Management System: Email Management System is primarily being used for official and faster communications by all Secretaries, Private

Secretaries to Ministers and many Government officials which largely save the usage of paper. Extensive usage of new electronic media for communication to citizens like e-magazines for tourism, SMS polls, Kiosks for service status at public locations, social media for complaints in Police leads to limiting carbon footprint in the delivery of services.

Policy for e-Waste management – State has also formulated the policy for recycling and processing of e-waste with agents authorized for collection within state.

K.Mohammed Y.Safirulla, IAS, Director, Department of IT, Kerala State IT Mission, director.ksitm@gujarat.gov.in

Ajith S, Head, e-Governance Kerala State IT Mission,ajith.ksitm@gujarat.gov.in

Madhya Pradesh

Hari Ranjan Rao and Salvendran

Summary

Information Technology sector of Madhya Pradesh is a land of bountiful opportunities & unlimited possibilities. Government's proactive approach has led to the effective implementation of National e-Governance Plan & State Mission Mode projects in the state. Robust IT Infrastructure has been created in the form of SWAN, CSCs, State Data Center, SSDG, SRDH, Call Centre & GIS lab. Key snapshot:-

- State has 24000 km of Optical Fiber Network reaching upto the block level.
- Treasuries, Commercial Tax, Transport (Driving license & Vehicle Registration on Smart Card), Mandi, Land Records are fully computerized.
- State applauded for being biggest user of Video Conferencing service.
- Madhya Pradesh has won several National Awards in e-governance initiatives that include Skoch, CSI, Web Ratan, NASSCOM-CNBC TV18, Manthan, DARPG etc.
- A large chunk of land (around 536 acres gross) across Madhya Pradesh has been allocated and being allotted to IT companies for setting up their units.
- There has been a remarkable software exports worth Rs. 230 crores from Madhya Pradesh.
- During the last Global Investors Meet, Department of IT has signed MoUs worth Rs. 2,990 Crores with 47 companies that have shown interest in setting up their business in state. This is a step towards employment generation of about 2.85 lacs in the state.

These all makes the state of Madhya Pradesh a perfect choice for the CSI-Nihilent e-Governance Awards of Excellence-State Categories.

The State Government, aimed at creating an enabling atmosphere for socio-

economic progress by way of empowering its people with IT interventions. The vision statement for the State's IT Policy is the creation of a "Seamless Society with Global Opportunities". Every citizen must feel comfortable in accessing information through the facility of Technology. Following its aim to making Madhya Pradesh a lead IT State in the country, the State Government is focusing on providing cost effective infrastructure, and transparent and responsive governance based on a policies in the medium and long term IT projects. With this background the objectives with which the State IT policy and plan was initiated are as below:-

- To promote use of IT/ITES in various Departments, Corporations, Companies, Societies, Boards etc. of Government of Madhya Pradesh by providing Consultancy, Software development, Networking, Hardware / Software procurement, Testing, Training and System Integration Services.
- To attract IT investment in the State by establishing Hardware & Software Technology Parks, Special Economic Zones, and related infrastructure development.
- To implement Common infrastructure for e-Governance in the State like State Wide Area Network (SWAN), Common Service Centres (CSC), State Portal etc. To help other Govt Departments in implementation of e-Governance projects.
- To promote and develop Electronics and Information Technology (including information technology enabled services) industries in the state of Madhya Pradesh.
- To provide IT inputs to government departments/agencies and to assist them in computerization and networking and to facilitate Human Resource Development in the field of IT in the Government;

The Core Focus Areas of the State Government for IT related initiatives are:-

- IT Investments- by allotting lands for IT enablement and promotion in state
- E Governance and M Governance
- IT Training and Capacity Building
- IT Security Audit
- Consultancy / Technical Support

In line with the State's IT Vision, the State Government is increasing the capacities and numbers of technical institutes to provide requisite talent pool to IT companies.

Plan VS Performance (for the year Apr 2013 – Mar 2014)

Item	Planned	Actual
ICT Outlay (Rs. Crs)*	107.92	80.62
ICT Capacity Building (Rs. Crs)*	5	3.1
SDC (Nos)	1	1
CSC (Nos)	12,806	12,806
ICT Projects (Nos)	-	22 (Central/ MMP) 84 (State initiatives)

Result Indicators

- **Formation of State IT Cadre:**
  - **Rolling out of Center of Excellence (CoE) & Project e-Mission Team (PeMT)**

    To create technical backbone of technical professionals, Centre of Excellence (CoE) has been formed. Dedicated Project e-Governance Mission Team (PeMT) have been set up at various departments for taking up e-Governance projects. Till date more than **32 PeMTs** have been placed across **27** departments and **5 CoE** members have joined and working.

  - **Formation of Virtual IT Cadre in department**

    Strong IT teams within the departments is created to execute, manage and monitor e-Governance project of the department. More than **800** applications received from department officials for their willingness to be part of Virtual IT Cadre.

  - **Strengthened District e-Governance Society (DeGS)**

    51 District e-governance societies formed with every District has 1 e-gov Manager and every Block has 1 e-gov Assistant Managers. A team force of 600+ members as representatives of IT department is constituted and placed across districts that have reach till grass root level in the state.

- **State Data Centre**
  First phase of SDC establishment is 100% (II Tier) completed and now SDC expansion is underway. Co-hosting & Co-location are the two models on basis of which departments are being on-boarded at SDC. 50 User Departments are on-boarded on 120 TB SAN storage at SDC. To move forward towards Cloud Computing, "GI Cloud" has been coined which has been decided to setup by GOI as Meghraj in State of Madhya Pradesh.

- **Nationally Second rank on e-taal portal for highest reporting of e-transactions in the Country.**
  Departments have been motivated to do more and more transactions on-line and report the same on e-taal has resulted MP on second position across India. More than 35 Crores E-Transactions has been recorded on e-Taal and M.P. is leading with 2nd position in India.

- **Regional Capacity Building Centers (RCBC)**
  The department of IT has established 15 Regional Capacity Building Centers at various district locations. These centers are fully equipped to impart IT trainings to Govt. Officials. More 36 such centers are planned to be established in phase 2 resulting in each district to have one such center with 2 trainers and capacity of 30 trainees. These RCBC centers would be utilized to train about 3.5 lacs employees in next 3 yrs.

- **Virtual Classrooms for over 413 government schools/Colleges at District/ Block HQ**
  Virtual classes are available for difficult subjects like Maths, English, Science, etc. of higher secondary schools and colleges. The outstanding teachers of the state conduct these classes, so that students of whole state avail their benefit. This has increased the achievement level of students of the state. Through these classes 12.39 lacs students have been benefited.

- **Popularizing UNICODE amongst 5 lac government employees. Continuous trainings organized.**
  Department of Information Technology, GoMP is promoting usages of Unicode in routine work. Regular trainings, awareness and capacity

building programs are conducted in this regard. Two full time dedicated trainers with 22 seater computerized training center has been created and rigorous session are conducted for field level staff as well.

Madhya Pradesh is the first state to come up with an Email Policy for the state. E-mail is a major mode of communications for the entire Government. Cabinet has approved the email policy for GoMP and has made it mandatory for all state government officials to have official email ids.

- **MP Online**
  The Madhya Pradesh Online portal is a 'one-stop-shop' with end-to-end online processing and delivery of any citizen's request for services by the respective authorities at state, district and Taluka level headquarters. MPOnline has a presence up to blocks of Madhya Pradesh. Over 1 crore e-transactions every year spread across 3000+ state wide kiosks.

- **Lok Sewa Kendras under Public Service Guarantee:-**
  Ruled by Public service guarantee act 2010 wherein 47 guaranteed G2C services are provided through 400 state wide LSK (Lok Sewa Kendras). 101 services are aimed by March 2015. 98% application received at LSKs has been addressed within specified time limits.

- **Skill Training Programs**
  State has taken initiative and signed MoU with NASSCOM for conducting GBFS & FSIT training programs in State government and private colleges. A target to train more than 5000 students in GBFS program and 2000 students in FSIT program is planned by mid of 2015.

- **Set up of IT Parks & Electronic Manufacturing Clusters (EMCs)**
  14 IT SEZs and 5 Others totaling to 19 SEZs granted formal approval in the state. 2 IT parks in the state are fully functional and further 4 IT Parks more are scheduled to be operational this year. 2 EMCs are functional and further 2 are in process of approval from GOI for facilitating companies to set up their units in the state.

- **Other flagship projects in the state as under**
  - Smart cards based Driving licenses and Registration system in Transport Department.
  - Computerization in Land Records Department.
  - MPVATIS - Commercial Taxes Department
  - Integrated Finance Management Information System (IFMIS)
  - Computerization of MP State Agricultural Marketing Board (Mandi Board)
  - Core Banking System for Apex bank and DCCBs.
  - E-Uparjan (Procurement of Agriculture Crop) for Food Department.
  - CCTNS project for Police department.
  - E-court project for MP High Court.
  - E_Khanij (web portal) for Mineral Resource Department.
  - Implemented Samagra Samajik Surksha Mission.
  - Computerization of Jail Management System.
  - Implemented end to end e-Procurement system.
  - Successfully rollout out MP-Code and SSDG.
  - State Wide Area Network till block level
  - Implementation of SPARROW project for GAD.
  - E-PAS (Property assessment system) for IGRS is in implementation phase.
  - Initiated process for Computerization of Advocate General office.
  - Computerization of MP Text Book Corporation.
  - Initiated process of Computerization for conducting online examinations for MP-PSC & VYAPAM.
  - E-Khasra is under implementation.
  - Computerization of Tourism department
  - Computerization of Municipal Corporation is under way.
  - Online system for various utility systems like Water, electricity, Telephone.
  - State Resident Data Hub (SRDH) is under implementation mode.
  - Online system for Grievance Redressal System for Public Grievance Redressal Department.
  - Signal window system for Investor Facilitation for MP-TRIFAC.

Enabler Indicators

- Chief Secretary headed Apex Committee for IT is meeting regularly. (The State Apex committee provides Strategy direction and oversees the State e-Governance plan and ensures inter-departmental co-ordinations.)

- Setting up Project Monitoring Unit (PMU) within department of IT savvy officials. More than 25 departments PMU setup has been done till date.
- State government has given mandate to each department to allocate 2% budget for IT/e-Governance related activities of yearly planed budget.
- Establishment of more than 400 Lok Seva Kendra (along with CSC & MP-Online Kiosks) for providing various services to citizens within time limit specified by State Government.
- Introduced Tele-Samadhan and CM Help line for Public Grievance Redressal mechanism, Head of Departments are monitoring the system. More than 40 lacs calls have been attended by these centers.
- Organizing yearly 'Awards for Excellence in e-Governance Initiatives' for 9 categories for rewards and promotion of best practices in the state.
- Publishing IT Newsletters & Circulars on interval basis to create awareness among citizens about IT activities running in the state.
- A series of e-Governance Circulars have been issued to all the departments. Till date 15 such circulars have been issued.
- Conceptualized for the formation of ICT Academy in the state of Madhya Pradesh.
- Organizing the Global Investor's Meet for attracting investment in the area of IT/ITeS along with other sectors.
- Allotment of lands for IT/ITeS activities in the state of Madhya Pradesh.
- Setup Regional Capacity Building Centers (RCBC) at 15 divisional center for continuous IT Training programs and expending the same upto each district location of the state.
- Conducting State/District workshops for exploring opportunities of better citizen centric services.
- District and Block level Video Conferencing center for VC Services. A parallel network is being created with additional VC setup for redundancy catering to the increased demand.
- Formation of District e-Governance Societies (DeGS) at each district for successful implementation and operations and IT/e-Governance activities.
- State of art 25 seats Computer Training Centre at Secretarial for continuous training of Government officials.
- State is promoting open data sharing policy i.e. www.opendata.gov.in to avoid duplicity work among departments.
- Setting up of earth station & State wide Network of satellite based

interactive terminals for broadcasting of education, training, awareness, skill development and various other programs.

- With an intention to create a standardized central repository of spatial data for the state, Govt of Madhya Pradesh has decided to implement the State Spatial Data Infrastructure (SSDI) project.
- Prepared master data for all grams/ talukas/ tehesils/ districts/ divisions across state.
- Encouraging the service delivery through of m-Governance

Green Computing

- **E-Waste Policy**
  The state Government has issued guidelines for e-waste management and the departments are encouraged to follow the same.

- **E-Mail Policy**
  The email Policy encourage departments to move towards paper less mode that a major contribution towards the environment. This policy has been approved by State cabinet, Government orders for mandatory use of this policy have been sent to all State government departments.

- **Mandates use of E-Procurement**
  The state is using e-tendering platform since 2006. The manual process required generation of reams of paper-based statements and evaluations. With e-Procurement is state these are eliminated. Till date more than 80,000 online tenders have been floated with a composite value of Rs. 1,67,031 crores. This has resulted in saving of huge paper, stationary & consumables.

- **Usage of E-Office: Paperless Environment**
  Units of IT Department at its office have made it compulsory to use e-Office application developed by NIC, GoI. All the communications within department including file management, proceedings, approvals are on e-Office now. e-Office is under process to be rollout in rest of the State Government departments.

- **Mobile based application (Promotion of M-Governance)**
  GoMP is promoting mobile based application for its various departments' functions. Service Providers having rich experience in this field has been empanelled for catering the increased usage of mobile based governance.

- **Video Conferencing**

Though the usage of Video Conferencing Network there is a saving of worth Rs. 300+ crores for the state user departments.

- **Push & Pull SMS Services**

"CDAC SMS gateway" has gained prominence with state user department at Madhya Pradesh. Till date more than 8.36 Crores SMS have been transacted by user departments. This has brought Madhya Pradesh State to the stage of No. 2 across Nation for SMS usage.

- **Cloud Environment**

To avoid more procurement of Hardware by different department and sharing of hardware & databases kept in State data center. Departments are encouraged to move to SDC under co-hosting model and thus discouraged to acquire more hardware.

Hari Ranjan Rao, : Secretary, Information Technology, Department of Science & Technology (IT), Government of Madhya Pradesh, Email: hariranjanrao@mp.gov.in

M. Salvendran, CEO, MAP_IT, Email:md@mpsedc.com

National Capital Territory of Delhi

Ajay Chagti and Sandeep Ahlawat

Summary

ICT initiatives in Delhi are governed by the following 6 principles / E's i.e. electronic governance, equality, education, employment, entrepreneurship and economy for developing a equitable knowledge society. It implies provision of IT related infrastructure to every citizen, services on demand and digital empowerment of citizens. As per 2011 Census data for Communication in India, only 3.1 percent of total houses have Internet access in India. Delhi has one of the highest digital penetration as summarized below:-

	Computer penetration	Internet penetration
Delhi	29.9 %	17.6%
Maharashtra	13.3 %	5.8 %
Gujarat	8.8 %	3.1 %
Madhya Pradesh	5.9 %	1.4 %
Chattisgarh	4.6 %	1.2%
Source: *http://updateox.com/india/state-wise-internet-users-in-india-census-2011/*		

While Delhi had quality infrastructure in terms of SWAN, data centre (from NICSI), computers and other hardware, potential for improvement in online service delivery in some departments was found. A citizen should have the facility of availing Government services without visiting the concerned departments. Accordingly, National Capital Territory of Delhi Information Technology (Electronic Service Delivery) Rules were notified on 14.12.2012 for facilitating electronic delivery of services e.g. receipt of forms & applications, delivery of licenses, permits, certificates, sanctions or approval and receipt or payment of money by electronic means. 32 services have already been notified and another 142 are likely to be notified shortly.

While CSCs are useful as a delivery channel, Delhi is now going for disintermediation with upcoming facilities for scanning and uploading

application and required documents by applicants directly from any place, with provision for digitally signed certificate available on the electronic repository. Further, mobile devices are being used not only for push-pull services, but also for citizen applications. Some departments have implemented e-office in Delhi and IT department is also engaged in implementing the same.

The Dataquest-CMR e-Readiness Assessment of Indian States 2013 revealed that Delhi, had topped the rankings in the overall planning, implementation and outcomes generated from their IT policy initiatives, administrative reforms and roll-out of e-Governance programmes.

Plan VS Performance (for the year Apr 2013 – Mar 2014)

Table1. Dataquest-CMR e-Readiness Assessment of Indian States 2013: Overall Rankings

State	Overall Score (out of a maximum possible score of 500)	Overall Rank	State Population (Census 2011)	State Size *
Delhi	335.41	1	16,753,235	S
Kerala	323.06	2	33,387,677	L
Goa	310.10	3	1,457,723	S
Gujarat	300.16	4	60,383,628	L
A.P	298.64	5	84,665,533	L

*State Size: Large (L) = Population more that 2.5 crore; Small (S) = Population less than 2.5 crore
Source: Dataquest-Cyber Media Research, 2013

Plan VS Performance (for the year Apr 2013 – Mar 2014)

Item	Planned	Actual
ICT Outlay (Rs. Crs)*	260	250
ICT Capacity Building (Rs. Crs)*	CB fund of GoI: 0.9 cr. Delhi state fund: 0.4 cr.	CB fund of GoI: .25 cr. Delhi state fund: .40 cr.
SDC (Nos) (through NICSI)	02	02
CSC (Nos)	100	64 under IT Dept (Municipal corporations have separate CSCs)
ICT Projects (Nos)	26	26

Result Indicators

The **outcome** of various IT initiatives are development of an IT culture amongst Government servants , enhanced satisfaction (survey by IIPA Delhi) , reduced number of visits to Government offices, 24 x 7 service availability for many services, reduced time taken for delivery, reduction in uncertainty in delivery, increase in transparency& accountability and reduction in traffic congestion as well as pollution.'

The Delhi Right of Citizen to Time Bound Delivery of Services Act, 2011 has been enforced from 15th September 2011. 361 Services of 37 Departments/Organizations have been notified under the Act till now. Total savings for citizens are estimated at about Rs. 300 crores just because of reduced number of visits. Service delivery is being further strengthened with online delivery of certificates etc. to obviate the need for the citizen to come to Government office in future.

Almost all basic services as provided by NIC are operational in Delhi. All utility services are available online. Online facilities include e-payment for bills, applying for new connection, disconnection, mutation etc. Utility companies had reduced losses with GIS planning. GIS based planning (map on a scale of 1: 2000) has helped many departments.

Some other departments which have taken the lead in online delivery of services include Trade & Taxes department, Food & Supplies, DUSIB, Excise, Transport, Revenue Department, Municipal Corporations etc. Departments like Labour, Cooperative Societies etc. Digital signatures have been issued to Tehsildars and other signing authorities for digitally signing the certificates and deliver the same on electronic repository.

The State Resident Data Hub (SRDH) under IT Department is hosting demographic information of 1.39 crore Aadhaar number holders. SRDH provides two types of services to the departments at present. The authentication services are at present being used by Food and Supplies, DDA and Delhi Urban Shelter Improvement Board. Demographic Data Services are being used by Revenue Department, DDA, Food and Supplies, DUSIB, Trade and Taxes, etc.

for fetching demographic data to seed the data in their respective applications. Food and Supplies Department has seeded more than 64 lakh Aadhaar numbers in the Ration Card database to map the beneficiary one to one. This is perhaps the largest single seeding in one database in the country.

Trade and Taxes Department introduced online registration w.e.f. 01.04.2013 (PAN verification through NSDL as pre-requisite and now link registration to UID). Online filing of all returns is practiced. Online payment of Tax is facilitated through 22 authorized. All statutory forms i.e. C, F, E, H are issued online ; Delhi is perhaps the only State in country to do so. TDS certificates are available in demat form. Selection of dealers for enforcement & audit is done by automated system. Systemic check on unscrupulous ITC claim is done through online filing of Annexures 2A, 2B, 2C & 2D (buyer & seller interests cross aligned). The Excise Supply Chain Information Management System, which was declared go-live last year, has facilitated automated data capture at vends, real-time inventory visibility resulting in better inventory management, any time order/ payment, online permit approval resulting in faster permit availability and online grievance redressal.

Municipal Corporation of Delhi was one of the pioneers in introducing online property tax. Building plans are given online approval. Various licences and common services like birth and death certificates are processed online.

Enabler Indicators

I.T. department had prepared IT policy in the year 2000, which has provided guidance in the implementation of IT projects. Two important enablers were as follows :-

- Top level Commitment : - The former Chief Minister had kept the portfolio of Information Technology with her to give the projects the required push. Chief Secretary has been chairing meetings for such IT projects which helps in faster decision making
- NEGP : National E-Governance Plan and the Mission mode projects have given the required direction for digital empowerment.

Other enablers include the following:

Process Reengineering:

Processes were broken down into steps while examining service delivery duration. Time was allocated for each step of the process. Simplification & standardization of procedures was attempted. Need for affidavits were reexamined. Front-end processes were simplified. Back end computerization was implemented. Verification process is being further simplified by linking existing electronic databases through UID.

A World Bank assisted project for comprehensive government process reengineering has been approved in principle by GOI. 15 major departments are being targeted.

Capacity Building:

About 10 trainings / workshops were held by the IT department last year through NISG / NIELIT. Earlier leadership meet for elected representatives was also organized to sensitize them to the potential of e-governance. Different departments also hold trainings at their level separately.

Technology:

- GIS based planning is being done by many departments / agencies. Utility companies were able to reduce power losses significantly and respond to power outages faster.
- Databases of most departments has been purified & ported to the centralized database server.
- Connectivity (through SWAN etc) and data centre have provided the core infrastructure facilitating connection with delivery channels, databases & applications software.
- Disaster recovery site has been set up at Pune.
- Electronic Delivery Rules, Electronic Repository, requisite institutional framework (district e-governance societies), e-payment and SMS gateway (for applications & push-pull services) have facilitated service delivery.
- Web based PGMS (Public Grievance Management System) and Call

- Centres / helplines have enabled feedback gathering and monitoring.
  - Facility for online filing of applications, documents & returns & for e-payment has made the systems transparent & accountable.
  - Standard security practices have been adopted.
  - Advice for RFPs & projects was given to departments through State e-Mission Team. Projects are evaluated by Technical Evaluation Committee before being given expenditure sanction by the Competent Authority.

Green Computing

GNCT of Delhi aims to reduce the use of hazardous materials, maximize energy efficiency and recycle used materials. The green computing concern was addressed with steps like utility bill payments through online portals, e-procurement, digitally signed documents, online submission of applications and online downloading of admit cards from Delhi Subordinate Services Selection Board, online transfer of salaries / e-payment, decision making through emails, online filing of returns & other documents by dealers of Trade & Taxes department, video-conferencing, sending of soft copies of various reports to Chief Secretary at csdelhi@nic.in etc. E-office is under implementation in IT Department. TCO compliant monitors are advised for procurement. Steps are being taken for computer virtualization to reduce the number of required servers thereby reducing energy consumption.

The E-Waste (Management and Handling) Rules, 2011 were notified by the Ministry of Environment & Forest, Govt. of India. GNCTD has released list of common facility providers of E-Waste (collection centres) with consent to establish / operate under E-waste rules for collection, segregation and storage of E-Waste.

Ajay Chagti, Addl Secretary, Department of Information Technology, Government of NCT of Delhi, Email:achagti@gmail.com

Sandeep Ahlawat, Pr. Consultant & Head –SeMT Delhi, Email: sandeep.k.ahlawat@gmail.com

Sustainability Awards

K.S.Vijaya Sekhar

Since its formal inception in 2002, the CSI-Nihilent e-Governance Awards (CNEA) has recognised several hundred e-Governance initiatives in the Country. As early as in 2004, CNEA emphasised – through institution of an award - that in addition to focusing on year-on-year efforts, the e-Gov practitioners need to pay attention to initiatives, processes and controls that contribute to long term survival and growth of projects. Or, stated differently, to sustainability of projects.

Sustainability in the e-Governance sense may viewed – if not as a state of balance, then at least as a reasonably well managed state of dynamics - where preparedness for future [plans for functionality growth, funding arrangements, ICT enhancements and stakeholder involvement etc] co-exists with focus on the present – the form and number of services, the degree of convenience to citizens etc.

With a view to better understanding the e-Governance initiatives from the point of view of sustainability – and, in fact, with a view to understanding how sustainability itself should be defined and viewed from e-Governance perspective – a detailed study was conducted as part of CSI-Nihilent e-Governance Awards 2011. The study was chaired by Dr.Ashok Agarwal [Adjunct Professor, BITS] and assisted by Prof Sanjiv Vaidya [Professor, IIM Kolkata]. The result of the exercise was published in the CNEA annual compendium of 2010-11. In order to give a formal shape to such an emphasis on sustainability, CNEA decided in 2010 that past winners of CSI-Nihilent e-Governance awards should be revisited, re-evaluated and re-awarded should such a follow-up action suggest appreciable efforts at sustainability.

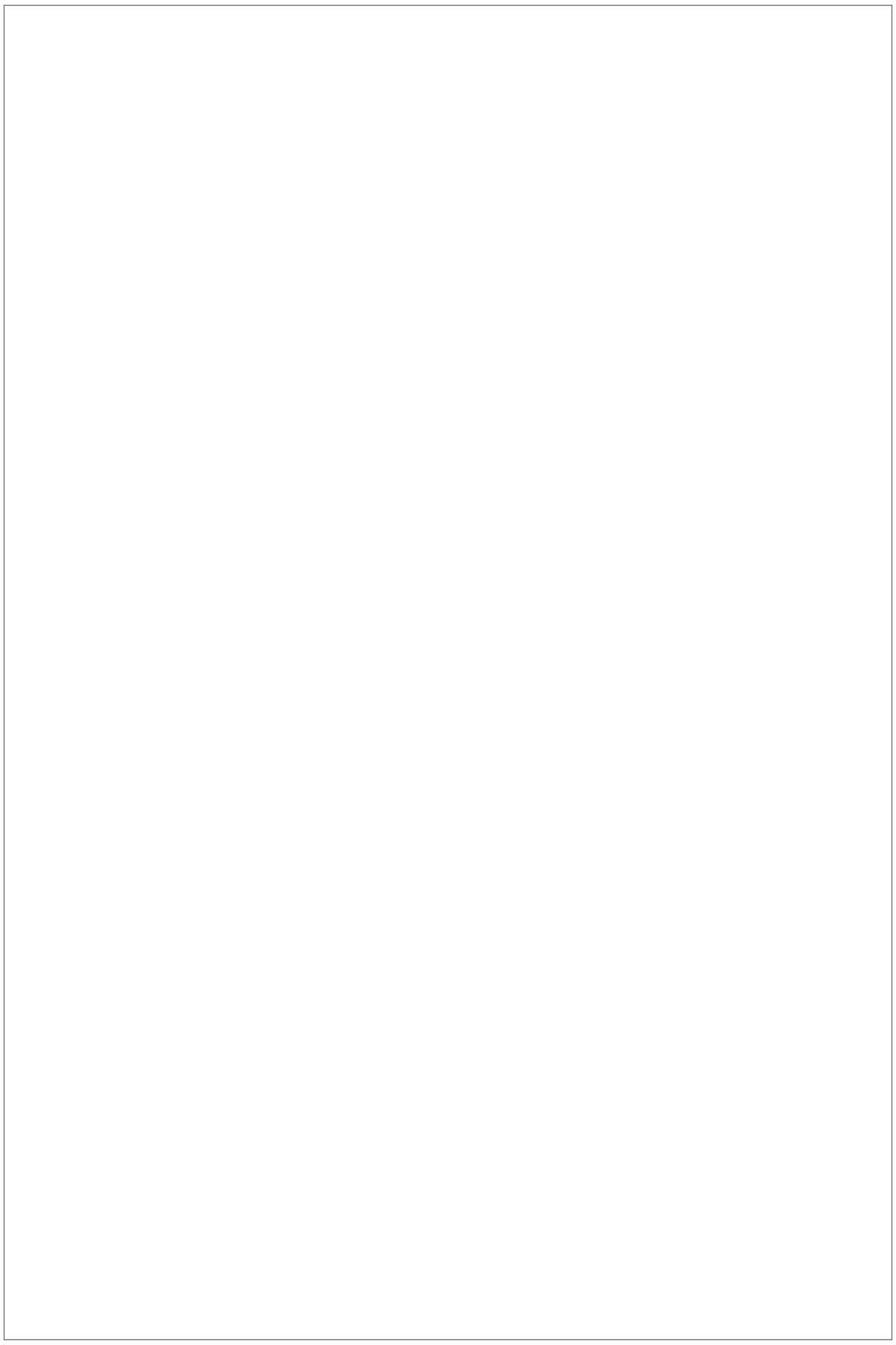
Building on this pioneering effort, CNEA award winners of 2009 were invited to submit their nominations using Prof Harish P Iyer's new template. In addition to describing how their projects had evolved over the five year period from 2009 to 2014, the nominees were required to provide such information as

whether the original initiators of the project and the original ICT team continued to be associated – even after five years – with the initiative, and if not, how had the team composition changed over the years, how many times, how process reengineering, change management, capacity building programs etc have been impacted etc. The nominees were also required to specify how the functionality had grown and how the ICT components had kept pace with the changes during a five year period.

It is heartening that this effort resulted in gathering of significant amount of information which helped improve CNEA's understanding of Sustainability in the domain of e-Governance and the following nine projects were awarded 'Award of Sustenance' for the year 2013-14.

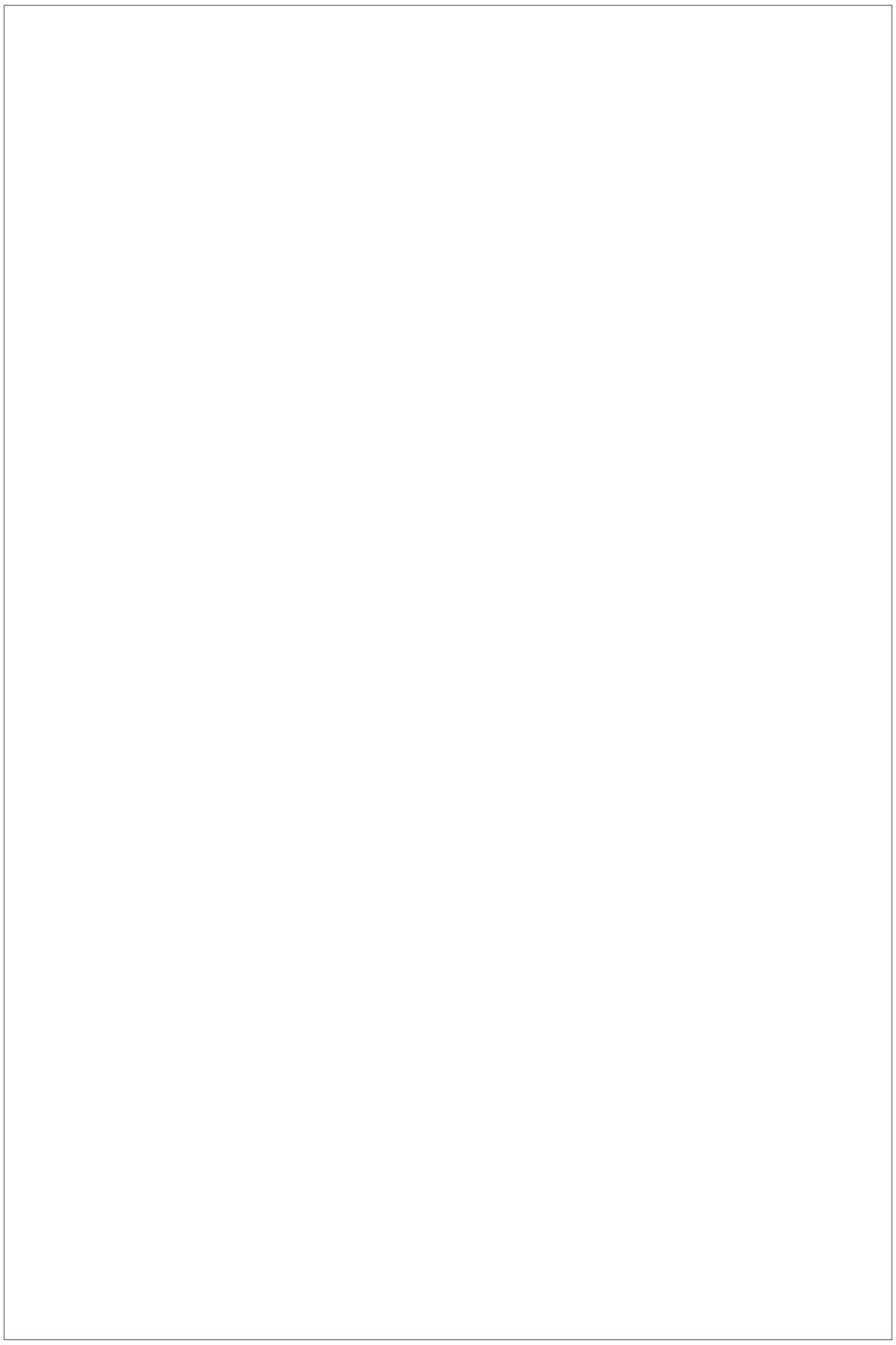
S.No.	Name of the Awardee
1.	Aarogyasri Health Care Trust, Andhra Pradesh & Telangana
2.	Kannur District, Kerala
3.	Towards Excellent e-Governance, Junagadh district, Gujarat
4.	Sulekha - The Online Plan Monitoring System, Kerala
5.	Implementation of Indian National Tsunami Early Warning System (INCOIS), Government Of India
6.	Integrated Financial Management Systems (IFMS), Gujarat
7.	Information Security Management System Implementation for GUVNL, Gujarat
8.	Geographical Information System, Chhattisgarh
9.	MP State Education Portal, Madhya Pradesh

K.S.Vijaya Sekhar holds M Com, MCA, MBA, MSW and is currently pursuing his PhD in Public Administration with a specialization on eGovernance. He has over 20 years of work experience and is a member of the editorial team of this compendium. He is recipient of 'Best Paper Prize Winner' for his paper on 'Measuring Sustainability in eGovernance Projects' presented during 2nd International Conference on ICT for Rural Development held at Institute of Business Management and Rural Development (IBMRD), Ahmednagar during 1-3 November 2014.



Section - III

Projects



Telegram App - A Mobile Tool For Smart Administration

[Srikakulam District, Govt. of Andhra Pradesh]

G. Veera Pandian

Description of the Project

Telegram is a messaging app with a focus on speed and security. It is super fast, simple and free. With Telegram, we can create group chats with up to 200 people so we can stay connected with everyone at once. Plus, we can share videos up to 1GB, send multiple photos from the web, and forward any media we receive in an instant. All the messages are in the cloud, so we can easily access them from any device.

Secret Chats, featuring end-to-end encryption, is included for those Officers who need privacy, to ensure that a message can only be read by its intended recipient. When it comes to Secret Chats, nothing is logged on the servers and the messages are programmed to self-destruct from both devices so there is never any record of it. The developer built the Telegram app to make messaging safe again so one can take back one's right to privacy.

Why to use Telegram?

FAST: Telegram is the fastest messaging app in the market because it uses a decentralized infrastructure with data centres positioned around the globe to connect people to the closest possible server.

SECURE: Security flaws in popular apps like WhatsApp has received a lot of bad press recently, so we made it our mission to provide the best security in the market.

CLOUD STORAGE: Never lose your data again! Telegram offers free unlimited cloud storage for all your Telegram messages and media that you can securely access from multiple devices.

RELIABLE: Built to deliver your messages in the minimum bytes possible, Telegram is the most reliable messaging system ever made. It even works on the weakest mobile connections.

100% FREE & NO ADS: Telegram is free and will always be free. We do not plan to sell ads or introduce subscription fees.

PRIVACY: We take your privacy very seriously and will never give third parties access to your data.

Overview & Objectives:

- To know the overall status of the department wise Activities.
- Avoids duplicity work flow in the Administration.
- Approving the decisions at the Department level.
- Information is available to all Officers in the group.
- Time and cost efficiency improvements in delivering of instructions to the team members.
- In the General Elections 2014, this app played a critical role in coordination, resource mobilization and all accepts of Election Management.
- It is being used for the regular District administration activities.

Achievements:

Since February 2014, Elections were held in a peaceful manner, because of the timely communication through Telegram app.
Now it is being used for regular activities in the district Administration. It becomes an important point for inter-departmental coordination, timely, multiple way of communication, sharing of knowledge and information etc.

RESULT INDICATORS

Key Performance

ICT Based Services

The Services that are currently being delivered using ICT is Government to Government and Government to Citizens.

Current Stakeholder Benefits

- Better Quality and Faster access to Officers concerned; Officers getting faster Response and transparency in their decision making.
- Reduces the time, expenditure and makes the decision process faster and efficient.
- Quick availability of text on the mobile as it is stored in the cloud storage.
- District administration will be able to monitor the work of the district, which helps out to reach the targets.
- District administration can easily identify the situation because of the photographs / Videos communicated by the field Officers.
- It is a bi-lingual application, officer can access the application in both English and Telugu language (Any regional language).
- Customizable
- Easily Maintainable
- Portable
- Ability to adopt changes in the Administration
- Ease of integration with all departmental officers.

Implementation coverage

- The implementation of the project started since Feb, 2014 and is running under district Administration. The District is covered with this app and it is also expandable to any location. The stakeholders are all the officers in the district concerned.

Efficiency and Improvement Initiatives

Time and Cost efficiency

- Telegram is like SMS and email combined — fast, versatile and powerful. You can send messages, photos, videos and files of any type (doc, zip, mp3, etc) to people who are in your phone contacts and having the app. You can also create groups for up to 200 people. With Telegram you can do all of this on any number of your devices, both mobile and desktop.
- It is an effective tool for transformation of the information from the district administration to all the Officers in the group and the Officers to the district Administration under smart Governance.

Levels of Integration

- All key officers are directed to download telegram in their smart phones and added as member into the District level group created for this purpose.
- Instructions are communicated on real time basis simultaneously to all the officers and staff who are added as members.
- Allows the administration to have free flow of information directly from the field in the form of text, photos, documents and videos.
- Instant decision making on the issues and immediate sharing of decisions with the officers and staff in the group.
- Allows collection of data through prescribed formats.

ENABLER INDICATORS

Challenges faced in implementing Process changes

- Collecting the smart mobile phone from the entire district Officers.
- Establishing the internet connectivity to all the mobiles.
- Installation of the Telegram app in all the Mobiles.
- Registering the mobile in the Telegram app.
- Adding the Officer in the created group.
- Imparting training to those added in the group.

The Lessons learnt from the Process re-engineering exercise

- The Officers' changes are frequent and the collection of the new officer's lists is mandatory.
- Processes of the installation are required for those who are in the new list.
- Imparting training to those who are added in the new list.

Change Management and Capacity Building

Leadership Support

- This Telegram App has increased the efficiency of the department due to the timely decisions being received from the District's higher authorities.
- Training and capacity building to all the Department users.
- Due to reluctance of the department users to adopt new system, multiple training programs were conducted at the beginning.

Change Management and Capacity building Strategy

- The initiative works on the internet based Mobile software tool and it also supports Desktop, Laptop and Tablets using single mobile number registration.
- There is a significant achievement as well as improvement over the earlier system as far as the Time and Cost of Service Delivery is concerned. The status of the message can be viewed / monitored in real time without depending upon other resources. Existing Computers and Internet connections are used. So that there is no extra cost incurred in implementing the service

Financial Model

- The Application is an open source and it is free.
- The Officers in the telegram group procure the smart phone of their own.
- Finance involved in the project is to provide the internet facility to the teams who are in the district administration.

Efforts at Sustainability

- This innovative use of technology was started in the Elections 2014 and it is being continued for general administration.
- Communication plays a major role in the general administration and the successful implementation of the Telegram app has lead to Smart Governance.

Challenges faced in Change Management and Capacity building

- The Officers; who are involved in this process may not have good knowledge in the system.
- The hands on training helped them to improve their knowledge in the telegram app and it leads better implementation of the project.

The Lessons learnt from Change Management and Capacity building exercise[s]

- Officers who 3are empowered with knowledge perform better in the smart administration.

- Officers who have poor skills in technology may be poor in the project processes.

Technology

Security and confidentiality standards

- At Telegram we think that the two most important components of internet privacy should be:
  - Protecting private conversations from snooping third parties, such as officials, employers, etc.
  - Protecting personal data from third parties, such as marketers, advertisers, etc.
- This is what everybody should care about, and these are some of our top priorities. Telegram is a non-commercial project with an aim to create a truly free messenger, without the usual caveats that accompany commercial tools such as those from Google, Facebook etc. This means that instead of diverting attention with low-impact settings, we can afford to focus on the real privacy issues that exist in the modern world.
- Telegram is more secure than mass market messengers like WhatsApp and Line. We are based on the MTProto protocol, built upon time-tested algorithms to make security compatible with high speed delivery and reliability on weak connections. The developers are continuously working with the community to improve the security of our protocol and clients.

Disaster Recovery and Service Continuity

- The database is stored in a cloud storage location.

VALUE INDICATORS

Digital Inclusion

- The initiative supports the local language like Telugu etc.,
- The project has succeeded in promoting smart administration even though the initiative is not linked with the public directly.

Green e-Governance

Administration:

- All key officers are directed to download telegram in their smart phones and added as member into the District level group created for this purpose.
- Instructions are communicated on real time basis simultaneously to all the officers and staff who were added as members.
- Allows the administration to have free flow of information directly from the field in the form of text, photos, documents and videos.
- Instant decision making on the issues and immediate sharing of decisions with the officers and staff in the group.
- Allows collection of data through prescribed formats.

Field/Stationed Staff:

- It will help the junior government functionaries be clear about their roles & responsibilities.
- Field staff can learn through mutual sharing of experiences.
- Competitive spirit will develop among the group when performing the programs like SVEEP (Systematic Voter Education and Electorate Participation), Voter enrolment etc.,
- District administration can create standard formats for data collection and updation.

G. Veera Pandian, IAS Joint Collector & Addl. District Magistrate, Revenue, Srikakulam District, Govt. of Andhra Pradesh Email: jcsklm2012@gmail.com

Force Deployment Software

[Election Department, Govt. of Bihar]

Arvind Kumar Chaudhary and Shailesh Kumar Shrivastava

Description of the Project

Force Deployment software, a **Workflow based application system**, leverages spatial and textual data to generate various MIS to serve and facilitate various levels of decision support to force deployment related election machinery across 38 Districts consisting of 534 Blocks/Tehsils, 243 Assembly Segments and 40 Parliamentary Segments of state of Bihar to facilitate District Administration and Police administration, Election Commission of India, Office of Chief Electorate Officer and Citizens of State. The application aims to automate the process of movement of forces in different phases of elections, reporting of home-guards, deployment of state forces to booths and PCCP, reporting from booth, SMS alerts at various stages of deployment. This synchronizes functions of various stakeholders such as SP office, Commandant of Home Guards office, Election Office, Vehicle Cell, Reporting cell, command distribution centre, enquiries etc. Formation of parties, locating members of parties and assembling party for despatch involves huge task as part of police administration during election. First time in the Country, automated software system to manage the entire processes related to movement and deployment of forces has been developed. Randomization software helps to randomly depute forces to election booth and PCCP which brings transparency in the entire process. Help desks have been created across state to assist the forces in locating their parties and collecting command letter. *Software helps to collect force details from various field formations, send SMS alert for reporting, monitor total availability of forces against targets, arrivals, reported, command distribution, allotments, re-allotments in case of causality, communication plan, vulnerability mapping of booths etc.*

The salient features of e-enabled services for force deployment:

- Online workflow based system to assist Police Administration in deployment of forces for Polling Party AND Election booth.
- Identifying each designated polling staff by an unique serial no i.e. Personal Identification Number(PIN) valid for entire state
- Online movement of Police personnel database for different phases of elections
- Monitoring of Force movement/arrival against allotment to the district.
- Deployment of two-tier of random number generation techniques for polling party formation and deployment (booth tagging) with zero bias
- Standardized application for Parliament &Assembly Elections with capability to support local elections to Nagarpalika, Panchayat (Local Bodies Election) etc.
- Support Simultaneous Elections to Parliament and Assembly
- Multi-layer data security at the level of Database, User & Observer
- Facility for locking and unlocking the processed data by the Observer
- Facility of uploading photo to data table from external media and option to download photo from data table to system folder
- Preparation of Force Identity Card, to be used during poll duty
- Generation of Command letters with photograph.
- Automated deployment of police force on election booth for free and fair elections.
- SMS alert
- Help Desk and Online Search facility for duty of Police Personnel and Home guards
- GIS Mapping of Election Booth and vulnerability mapping of election booth.

System inbuilt functions along with complex guidelines of Commission make this approach unique thus keeping users informed and satisfied at each and every step of force party formation. Multi-layered randomization technique is core to this innovation. The software has been integrated to inform to the stake-holder though e-mail various activities during election related processes. Entire internal communication between field formations is through e-mails. SMS integration has been done for both PULL and PUSH service for enquiry as well as reporting purposes.

WEB GIS MODULE

Web GIS module envisages establishment of Bihar State Election Spatial Data Infrastructure for Multi-Layer GIS for planning and e-Governance by taking advantage of existing & available data and ICT infrastructure resources. This is largely meant to visualize MIS data spatially through thematic maps for making quicker and better decisions. This has been introduced to bring dynamism and transparency in the process in order to overcome problems related to planning, development, monitoring & decision-making during election process by Chief Electoral Officer, Observers, DEOs and ROs. District and Block wise maps, AC wise maps, Naxal Affected Areas mapping, Election Phases with timing, Mapping of Polling stations and linking maps with communication plan etc.

RESULT INDICATORS

Key Performance

Transaction Volume

Sl.No.	Services	2014-15	2013-14	2012-13
1.	Force Deployment	15,50,000	8,45,000	1,20,000
2.	SMS Support	56,00,000	12,00,000	3,10,000
3.	Helpdesk/Grievances	6,35,000	6,46,000	3,15,000

PARAMETERS	Original Software	New Software
1. Platform	VB and MS-ACCESS	SQLSERVER 2008 and .net Platform, C#, AJAX, ARCGIS Server, Silver light, IIS
2. Localization	English	English and Unicode Support
3. Online/Offline	Offline	Online Software
4. Force Randomization	Not Available	Force Deployment Module has been added for deployment of Forces to booths with on-line facilities
5. SMS Support	Not Available	SMS Alert and SMS Monitoring facility has been added for monitoring
6. On-line Receipt of Personnel Information	Not Available	On-line submission of manpower details from different departments have been incorporated

7. Help Desk and KIOSK	Not Supported	Available for Search Facilities
8. GIS Mapping of Election Booth	Not Done	Available with web interface
10. Mobile App	Not Available	For Enquiry of Booth and Online Reporting
11. Role Based Software	Not Available	Roles Created for District Election Office, CEO Office, SP Office, Home Guards Office, DIG Home Guards Office

ICT Based Services

G2G

- Smooth conduct of 2014 parliamentary elections involving 20,00,000 transaction ranging over 243 assembly constituencies and 40 parliamentary constituencies.
- Service to 80,000 police personnel deputed to different phases of Parliamentary elections.
- Smooth communication through SMS at different stages of election process
- Locating of police party for booth/PCCP becomes extremely easy.
- Database reusable for deployment of police in law and order.
- Reusable database for by-elections.
- Easy Data Collection from Thana and other formations.

G2C

- Enquiry of location of booth
- Deployment status of forces to Booths
- Characteristics of Booth based on vulnerability
- Enquiry about police party and their locations
- Strength of force at each booth
- SMS alert to Police Personnel
- Enquiries through SMS services
- Help Desk and Online Search facility for police personnel.
- GIS based enquiry of BLO Details

G2E

- Online submission of personnel profile
- Appointment letter related alerts for Election through SMS
- SMS alert for training
- SMS based reporting for duty/dispatch
- Online Enquiry for posting on Booth
- Enquiry regarding tour advances
- Deployment Plan at booths and party details and their contacts

Web-site Hits volume

Sl.No.	Services	2014-15	2013-14	2012-13
1.	Force Deployment	35,70,000	12,37,000	7,80,000

Implementation coverage

- 38 Districts of Bihar
- 40 Police Districts of Bihar
- 38 Dy. Commandants Offices of Home Guard
- 243 Assembly Segments of State of Bihar
- Departments such as ELECTION Department, HOME (Police) Department, DG (Home guards).
- Citizens of Bihar State through Web Site http://elecon.bih.nic.in/

Efficiency and Improvement Initiatives

Time and Cost efficiency

The application has resulted in drastic reduction in efforts required to manage activities related to deployment of forces during elections at district level. Police personnel get information well in advance regarding their deputation to the district so that they can easily plan the journey. Travel arrangement, Vehicle, Stay etc. can easily be planned as dispatch schedule of forces are known in advance. Distribution of command, locating members of parties has become extremely easy. Due to paucity of time in management of forces during elections ICT intervention and latest communication tools is extremely useful for police administration. The cost of the project is very less as compared to effort required to manage database during elections. Thus the work flow based

integrated system has drastically simplified the processes and resulted in new paradigm of force management during elections. The feedback received from police departments, observers, and commandants of home guards, speaks volumes in terms of time and effort required to carry out task as been minimized due to this effort. The effort also has resulted in state-wide data base of constables, hawaldars, police officers, inspectors, sepoy, home guards etc. and is being used for various other MIS activities such as deployment of forces for elections.

Innovative Practices

- Online System facilitating access by all election related offices of the state.
- Integration of SMS service for communication [Both PUSH and PULL Service]
- SMS alert at every stages of process namely registration, deputation to the district, duty allotment, details of members of team, booth details etc.
- E-mail being used as mode of communication to stakeholders.
- Online Transfer of Advances to the Accounts of Police Personnel.
- Help Desk and Enquiry Facilities through Website.
- Mobile App for locating booth locations in assembly segments
- GIS technology to facilitate booth mapping, route charts for forces and booth locations.
- SMS based reporting and DASHBOARD for stakeholders
- GIS based Vulnerability mapping of booths and demarcation of administrative area for POLICE Thana.

Levels of Integration

Interfacing has been done with Voter-ID Database, SMS Gateway and GIS National Database. The CEO Bihar website is hosted at National Data Centre, New Delhi in public domain and is accessible through NICNET/SWAN or any internet connection. The online ELECON application is hosted at NIC data Centre. Application is accessible at Block level through Bihar SWAN. CSC operators have been trained to access the application so that anyone can access from panchayat itself. The web GIS module has been integrated with State GIS framework developed by NIC. SMS services have been integrated with NIC SMS gateway. A separate state of art DATA Centre along with DR centre has been established by the office with in-house ICT facilities.

ENABLER INDICATORS

Process re-engineering

The current system of force deployment was designed to serve the needs of a police administration during elections which is a complex process and results in chaos during deployment process. There was need for simplification of deployment process and ICT intervention in entire process. The entire process had to be done in extremely secured manner. It is also necessary to develop a system which generates most of the in-process documents through the system itself. Complexity of the process can easily be understood as three different members of police party namely magistrate, police and home guards are brought together, so that command can be issued and they can collectively collect arms and ammunitions from a single place. The process of deployment is so cumbersome that even managing elections for by-elections was taking lots of time. There was need to evolve alternate system of deployment with ICT intervention. Hourly assessment of force arrival, command distribution, vehicle arrangement etc. had to be done on priority basis. There have been instances in which deployment of force does not seem to be in accordance with the transparency guidelines of Election Commission leading to inappropriate practices. In addition, due to inadequate number of forces in a district it becomes necessary to move forces from one district to another in different phases of elections to fulfil the required numbers. The movement of forces in each phase range from 3 to 5 thousand per district. For each personnel there are requirements to arrange Advances, Vehicle, Stay and Arms etc. at the election district. Issuing command letter for deployment and tagging with PCCP (Polling-cum-Collecting Party) or static booth using random methods and then serving the letter to the polling team is also a difficult task. In addition as Home guards are not being used on daily basis by District administration and many stays at remote locations makes it difficult to inform them for election duty purpose. Due to paucity of time and volume of police personnel, it was felt difficult to manage them manually or through OFF-LINE mode.

The online force deployment software has resulted in drastic reduction in efforts required to manage activities during deployment of forces at district

level. Police personnel get information well before regarding their deputation to the district so that they can easily plan the journey. Travel arrangement, vehicle, stay etc. can easily plan as dispatch schedule of forces are known in advance. Distribution of command, locating members of parties has become extremely easy. The system automates the process of movement of forces for different phases of elections, reporting of home-guards, deployment of state forces to booths and PCCP, reporting from booth, SMS alerts at various stages of deployment. The system is a web-based online software which integrates functions of various stakeholders such as SP Office, Commandant of Home Guards office, Election Office, Vehicle Cell, Reporting Cell, Command Distribution Centre, Enquiries and Helpdesk etc. Formation of parties, locating members of parties and assembling party for despatch involves huge task as part of police administration during election. First time in Country automated software to manage the entire processes related to movement and deployment of forces has been developed. Randomization software helps to randomly depute forces to election booth and PCCP which brings transparency in the entire process. Helpdesk has been created across state to assist the forces in locating their parties and collecting command letter. Software helps to collect force details from various field formations, send SMS alert for reporting, monitor total availability of forces against targets, arrivals, reported, command distribution, allotments, re-allotments in case of causality, communication plan, vulnerability mapping of booths etc. This has drastically reduced the effort of managing forces in extremely limited time between various phases of elections.

Challenges faced in implementing Process changes

- Need for conducting free and fair polls and making transparent deployment of forces across the State according to ECI guidelines.
- Use of informed Police and Para-military forces has considerably decreased the occurrences of incidents related to Poll violence in the State.
- Management of forces and movement in different phases to Districts.
- Allotment, deployment, booth tagging, Magistrate tagging, Command Letter distribution etc. management across state through an efficient system.

- Time-consuming procedures that result in frustration for users of the system and leading to chaos at SPs office;
- Management of Large scale forces moving from different portions of the State.
- Need for efficient communication system/Plan to inform to the stakeholders.
- Home guards are not regular visitors to offices and they remain in remote locations.
- To assist para-military forces in their deployment plans for booth buildings.
- No such precedence of deployment process in any state of this scale.
- Non-reaching of forces creates chaos

The Lessons learnt from the Process re-engineering exercise

Election activities are time bound processes. Resource requirement for these activities in terms of man, money and material are very large. Resources have not made any obstacles in this democratic process. There is an increasing trend of expenses in each and every election. In addition to taking average 15 minutes to prepare an appointment letter, other resources like trained operators, supporting staff, supervisors, refreshment for the staff on duty, preparation of Registers polling staff wise, photocopiers etc. are few of the activities that are self-indicative of resource intensive There are also chances of duplicate posting of the staff and other errors that cannot be eliminated completely.

The Lessons learnt from the Process re-engineering exercise

- Enforcing ECI guidelines through Software.
- Convincing Political parties for transparent processes
- Convincing Observers for software functionality
- Implementing software functionality within very small time period
- Standardization of processes during elections.
- Facilitation of ICT infrastructure for application
- Implementation of software for large number of locations.
- Training large Number of Operators and Stakeholders
- Issuing Challans to Police Forces
- Using SMS and other ICT tools for effective management of the software.

Change Management and Capacity Building

Project Management

State Level Apex Body

This has been constituted under chairmanship of Chief Electoral, Bihar with Principal Secretary, Information Technology Department, GoB, Addl CEOs, ADG (HQ), DIG (Homeguards), State Informatics Officer, NIC, MD, and BELTRON as members.

State Level Steering Committee
This has been constituted under chairmanship of Addl CEO with Nodal Officer, Police Computerisation, DIG(Homeguards), Two Representatives from districts and Election Co-ordinator, NIC, Bihar as members.

District Level Executive Committee
This has been constituted under chairmanship of District Magistrate of respective district of Govt. of Bihar with Nodal Officers of Police & Homeguards, IT Manager, Two Representatives of Blocks and DIOs/ADIOs of NIC as members.

ORGANIZATION (HIRING TRAINED STAFF, TRAINING)

State PROJECT Core Team:

NIC, Bihar and Election Department, Government of Bihar has notified officers as Project Members of Bihar Election team. This also has members from administrative officers, who advice and assist during project implementation. This team is supported by a team of programmers well versed in adopting online web applications and provides technology implementation of the Project. This team works under overall supervision of Chief Electorate Officer cum Principal Secretary, Election Technology Department, Government of Bihar and State Informatics Officer, Bihar. The project team consists of officers nominated by NIC along with hired programmers well versed in application development using technologies such as web applications, GIS applications, Mobile Applications, other multi-channel delivery Systems.

User Department Core team:

In order to support project at department level it is necessary to create and train a group of resource persons who can work at department level and integrate MIS applications with GIS. User department has formed a cell with hired manpower and domain experts. These people have been trained on using application by Central Core Bihar team. These people not only co-ordinate with Central Bihar team but also interacts with field formation for collecting data. In addition the cell can motivate decision makers to use ICT in decision making process and create an ICT enabled environment for planning and monitoring.

Resource Persons at District level:

In order to support project at district and Block level large chunk of data has to be uploaded to department level at regular basis. Kind of Parameters required at decision making has to be identified by the district. District officials dealing with data have been trained and equipped both for uploading data, data standardization and also they can use ICT as a tool for decision making. Proper h/w and software infrastructure has been created at field formations for updating data. District Informatics Officer/IT Manager has been trained to use the application and provide technical support to the Project. Both SPs office and Dy. Commandant (Homeguards) technical persons have been trained to operate the software and co-ordinate with field formations.

Workshops on adoption of latest technologies:

Workshops have been conducted for various stakeholders of the project to make them understand about available technologies and best practices In order to support project at district and Block level large chunk of data has to be uploaded to department level at regular basis numerous training programme has been conducted by Master trainers. Currently, there is an emphasis on using Mobile technology to deliver services and gather data from field formations.

Technology

H/W and Software Specification	Name of H/W and S/W
1. Servers & Desktop	High End Blade Servers, Local servers, Desktops
2. OS	Windows 2008, Windows 7 & XP
3. DBMS	SQLSERVER 2008
4. Framework	.net Framework 4.0
5. IDE Software	Visual Studio 2010, Java Script
6. Reports	Crystal Reports
7. SMS	NIC SMS Gateway
8. Mobile App	Android based Java Application
9. GIS/GPS Mapping(Spatial Data)	Silver Light, ARC GIS Server
10. Unicode Support	Indic IME, Google API
11. Video Player	Adobe Flash Player

Compliance with Standards

Most of the reports and data are available in Unicode so that people are able to access the services in local language. Software is most effective in providing complete details about various processes, monitoring day-to-day operations, reporting from each district/block through SMS and transparently posting persons through standard operating procedure established by departments. This increases faith of stakeholders and enforces guidelines of department. Conducting free and fair procedure is a challenge to all stakeholders and ICT driven process help to improve quality of decision making both by functionaries. A high-end database configured to support large number of concurrent users has been established. NIC SMS gateway has been integrated to deliver sms services.

The software has been developed on generic principles and has scope for implementation in any Loksabha or Vidhansabha constituency or other election process in the state. The software can be replicated in any of the states

or in case ECI takes initiative to implement the software across the country. The software has been notified by CEO, office, state election commission as well as election authority conducting PACS election. Centre for good governance, Bihar can take the project to remaining departments. A large number of people currently involved working with software can be trained to operate new software. The new software can be replicated easily.

Specific innovative ideas implemented in e-Gov area and their impact on services:

- Online System facilitating access by all election related offices of the state.
- Integration of SMS service for communication [Both PUSH and PULL Service]
- SMS alert at every stages of process namely registration, deputation to the district, duty allotment, details of members of team, booth details etc.
- E-mail being used as mode of communication to stakeholders.
- Online Transfer of Advances to the Accounts of Police Personnel.
- Help Desk and Enquiry Facilities through Website.
- Mobile App for locating booth locations in assembly segments
- GIS technology to facilitate booth mapping, route charts for forces and booth locations.
- SMS based reporting and DASHBOARD for stakeholders
- GIS based Vulnerability mapping of booths and demarcation of administrative area for POLICE Thana.

Security and confidentiality standards

Role-Based Access Control (RBAC) is attracting increased attention in commercial systems. RBAC is based on modelling organizational-specific access control policies. The main components of RBAC are users, roles, permissions, user-role assignments, and role-permission assignments. Access control is enforced in terms of roles. Intuitively, when initiating a session, a user may activate any roles that he or she has been assigned to and use the union of corresponding permissions. Based on practical considerations, such as ease of implementation, database support, and processing needs, we have developed a model that allows view-based access control. Users of the database system are able to access predefined sets of views, based on their authorizations. Views are built from a multi-level database and may be

updated, according to the users' privileges. Any update is then propagated back to the multi-level relation. Users of the database system are the district level users, having direct access needs to some of the SQL Server database items, accessing the database through the this application. These users have different access requirements according to the role they are using in a given scenario. We take advantage of SQL Server's support of role-based access control has implemented security administration based on the users' roles in the system. Beside user roles, SQL Server allows application a role where access to the database depends on the application the user is using.

VALUE INDICATORS

Digital Inclusion

Language, demographic and Cultural differences may result in certain types of stakeholders not getting fully benefitted from e-Governance initiatives. In order to make application reach to masses local language interface in Unicode has been added so that information provided can be used by large set of people. Applications are accessible both for citizen and for government functionaries as per needs. Application has been hosted on internet to facilitate large number of public to access the services. Easy navigation facilities, help files make it accessible to larger audience.

Green e-Governance

- The project has tried to popularize its motto of "THINK BEFORE PRINT - save trees" among stake holders and citizen.
- Special care has been taken to reduce number of maps which can be printed.
- Special training sessions are conducted for participants on Green ICT and its impact.
- Adjust settings of IT systems to save power when not in use for short periods.
- Schedule tasks that need computer processing to be done in a block of time
- For printers that have duplex capability, set their default settings to duplex and grey scale to reduce the amount of electricity, paper, ink and

toner used.

- Avoid printing files if reading the same on the monitor will suffice.
- Operate computers, printers and other IT equipment with proper ventilation.
- Use virtualization on servers, when available, to allow multiple operating systems to run on each machine.
- Use e-mail when possible rather than fax to save on paper and energy used.
- GIS MAPS printing require plotters and extensive printing. Web GIS application can reduce printing requirements as most of the dynamic map requirements can be serviced through Application itself.

Arvind Kumar Chaudhary, IAS, Additional Ceo, Office Of Chief Electorate Officer, Election Department, Govt. of Bihar. Email: arvindkchy@gmail.com/ ceo_bihar@eci.gov.in

Shailesh Kumar Shrivastava, Technical Director, National Informatics Centre, Bihar. Email: sk.shrivastava@nic.in

Mission Mode Project for Computerization of Commercial Taxes

[Department of Trade & Taxes, Govt. of NCT of Delhi]

Sachin Varun and Sanjeev Khirwar

Description of the Project

Prior to the current initiative, the computerised commercial taxes system in operation in the department was offline mode based and suffered from many limitations e.g. it was not interactive enough for analysing and examining the returns of the dealers and the data of the returns were not reliable enough, as many things were required to be manually entered.

The current IT initiative was taken up under Mission Mode Project and was extended to usher in reform toughing the issues directly affecting dealers as well as staff & accountability of dealers through interventions such as:

- Online 2A, 2B filing, online payment of tax, Online Registration, Online Amendment
- Online Cancellation, Online issue of Central Declaration Forms
- Online reconciliation of sales and purchases with the help of a computer programme.
- Development of Business Intelligence Report, Default Assessment of Return, Updation of the dealers details

Sl. No.	Initiative	Process before the initiative	Present Status	Benefits experienced
1	**Online filing of Annexure 2A, 2B** Annexure 2A & 2B are the documents that a dealer submits along with his DVAT/CST returns. These annexure contain the Rate of Tax/ Form type wise	The Dealers were required to manually submit details of all their purchases in a prescribed format to the Department although the same information was already available with the Department in VAT returns. These applications were manually processed by the Department, entered into the	With the introduction of the facility for online filing of VAT returns with its Annexures, Dealer's interaction with the department stand automated.	This obviated the need for the Dealers to visit or physically interact with the Department. A dynamic Mismatch Report is available to the Dealers through their login id and password. This report shows the difference in amounts reported and resultant apparent Tax and Penalty implications. On

	other states. This is the primary data which is to be used by the Department for the purpose of reconciling the claims filed by dealers and plug the leakage of Government revenue.	database and forms were physically issued to the dealers.	With the introduction of the facility for online filing of VAT returns with its Annexures, Dealer's interaction with the department stand automated.	prevents wrong claim of Input Tax Credit by the dealers. More than Rs.14816 crores was prevented from claiming Input Tax Credit by the dealers.
2	**Online Payment of Tax** Value Added Tax collection, deposition is the responsibility of the dealers.	Cash/cheques of tax liability were to be submitted by the dealers in various banks. After, the challans issued by the banks are submitted in the department for records by the dealers. Banks also send a copy of the challan to RBI manually. There was unwarranted delay in compilation of tax actually collected.	Integration of 24 banks for online tax collection. Real time status of tax collected is available to authorised officers of the department.	Real time Compilation of tax. Lakhs of man hours saved. Defaulters are easily identified. Tax Payment Report is available to the dealers and officers in real time
3	**Online Registration** Any person or company intends to do business in Delhi, need to have valid Tax Identification Number issued by the Department of Trade & Taxes, Delhi.	The dealer required to come physically along with the hard copies of the required documents for verification by the concern authorities. After verification, the dealer needs to visit again to collect the registration certificate or needs to receive it through post.	Implementation of online registration process is successfully running. After PAN verification by the department through NSDL website, the link of registration form is generated at dealer's login. After confirmation of VATI's visit at dealer's premises, the registration certificate is send online to the dealer at his login.	No personal interaction is required by the dealer. No need to submit hard copies of documents. As soon as the dealer fills the online Registration request, TIN is generated for the dealer. The registration certificate is sent electronically to dealers' login after the field verification.
4	**Online Amendment** Any dealer intends to purchase/sell other than the items mentioned	Dealers used to come to Physically along with the hardcopies of required documents for	All the amendment applications except that of the change of constitution, authorized signatory and shifting of principle place of business, which involved critical	No personal interaction is required by the dealer in most of the cases. No need to submit hard copies of documents except in two cases.

	in his Registration Certificate or proposes any change in the constitution of the business, needs to visit concerned VATO to get the amendment done in the Registration Certificate.	getting amendment all kinds of changes in their registration certificate. It was observed that these applications were not earnestly disposed of, which accumulated large pendency had resulted in not updation of dealer data.	examination, all other amendment were made auto. The change of principal place of business premises amendment was to be approved online after the field verification and the amendment regarding change of constitution and authorized signatory after the dealer furnished the hardcopy along with the supporting documents, such cases is approved after examining the documents.	As soon as the dealer fills the online Amendment request, the same is approved and details updates, except in three cases as detailed alongside. The amendment orders are sent to the dealer instantaneously on all the cases except the three cases. In those cases the amendment order is sent after completion of the examination.
5	**Online Cancellation.**	Dealers used to come to Physically along with the hardcopies of required documents for getting Cancellation along with the original Registration certificate.	In online mode, basic details such as pending demands and forms etc. are obtained. Thereafter the dealer can apply for the RC cancellation online without requiring dealer to furnish the original Registration certificate and application.	The dealer has been made ease to apply without visiting the department. The complete details of the dealers are available with the department for follow up in case of any pending demand.
6	**Online issue of Central Declaration Forms**	The Dealer used to come physically along with all central purchases and GRs for obtaining the central declaration forms. The dealers were required to furnish the surety and other details also.	The Department has also introduced the facility for online issuance of Central Declaration Forms to the Dealers through an automated software process designed on the basis of relevant provisions of the Central Sales Tax Act and Rules. In this application, users access the purchase related data filed in their returns which is already available in the database. After updating the available information, request for issuance of Central Declaration Forms is submitted online by the user. On submission of request by the dealer, the software application instantly and automatically generates a Central Declaration Form with a unique id and barcode. This form bears details of all transactions	No surety is to be furnished by the dealer for obtaining the central Forms. No physical Forms are issued by the Department. It saved Stationary, its expenditure, safe custody etc. The Central Declaration Forms issued online can be verified by the VAT Departments of other states either by an automated exchange of relevant data at fixed interval or through a secure interface on the Website of the Delhi VAT Department

			made between the buyer and the seller during the period to which the form pertains. This form is instantly downloadable in pdf format.	
7	**Online reconciliation of sales and purchases with the help of a computer programme.**	Many dealers were misusing the provision available for them to claim the Input Tax Credit. Many dealers were not reporting the sales and purchases in their return.	Furnishing of party wise sales and Purchase is been obtained from all dealers. The computer is examining the mismatch where the purchaser is claiming the purchase however seller has shown the different value or no value of that transaction.	The compliance of the Act and Rules has been enforced. Checked the wrong claims of input tax credit. Department had authentic data for generating and realizing the tax on account of additional demand.
8	**Development of Business Intelligence Tools**	No such tools were available.	On the basis of the details of the dealer the department classified the dealers susceptible for Audit, special Audit and Enforcement. Department generated many reports for the monitoring dealers.	Helped the department to weed out the non-filing of return or nil filing of returns. Chase the Tax/Return Defaulter effectively. Cancel the bogus dealers.
9	**Updation of Dealer**	Complete details of the dealer not available.	The online form DP-1 was made available to the dealer to furnish their complete details including premises, Godown, bank details, prop/partners , item dealt, storage capacity etc.	Department has complete details of the dealer available online. All the pending amendment application has been disposed off. Helpful in filing the Return, releasing the refund, sending online notices/SMS, chasing the dealer in case of default of tax/additional demand etc.

RESULT INDICATORS

Key Performance

ICT Based Services

- Dealer information System, Return Processing System, Dealer Audit and Assessment System
- Objection and appeal systems, Enforcement & Raid System, Penalty and offence Systems

- Goods movement Systems, Tax payers Accounting Systems, Form Issue Systems
- Personal Information Systems, Attendance Monitoring Systems, Library Information System
- Resource and Inventory Management Systems, Court, Helpdesk, File movement Systems

Current Stakeholder Benefits

- *Government to Citizen/Dealer/ Business:* Expeditious disposal, Time bound delivery, minimized interaction with the department.
- *Government to Government:* Online availability of data, effective use of business intelligence tools.
- *Government to Employees:* Record keeping digitized/ available in soft copy, instantaneous retrieving of historical record, reliable data, check on misuse and tempering.

Services planned for Future

- Automation of Check post, GSDL Mapping, Inter-Department online Data Migration, Online Billing Software etc.

Transaction Volume

- Apr-2010 - Mar-2011: 697,847
- Apr-2011 - Mar-2012: 728,649
- Apr-2012 - Mar-2013: 1,033,569
- Apr-2013 - Mar-2014: 1,143,313

Efficiency and Improvement Initiatives

Time and Cost efficiency

- The IT initiative allowed the authorities of the department to effectively monitor and manage the realization of Government Revenue.
- It further minimized the cost and working man hours,
- Delivery of service and communication improved,
- Improved the security of Data

Innovative Practices

- 100% online tax payment avoided reconciliation errors
- All returns made online and all application forms online

Levels of Integration

IT initiative has enabled the department to integrate with Directorate General of Foreign Trade, Government of India which provided online e-BRC verification link. Further, protocol has been established with NSDL, Govt of India for PAN verification.

ENABLER INDICATORS

Process reengineering

Challenges faced in implementing Process changes

On introduction of 2A & 2B (capturing of sale and purchase data), it was opposed by dealers and the matter went to the High court. The application filed by the dealers was dismissed and module introduced by the department was appreciated

Project Management

This involved setting up of exclusive Systems Branch with appropriate manpower to monitor day to day progress/working of module through the IT Team of Intelligent Communication Systems India Ltd (ICSIL) - a joint venture of Telecommunication Consultants India Ltd. (TCIL), a Govt. of India enterprise, under Ministry of Communications & IT and Delhi State Industrial and Infrastructure Development Corporation (DSIIDC), an undertaking of Delhi government.

Financial Model

As per GOI scheme (Mission Mode Project of Commercial Taxes Department of all states), eGovernance initiative was under taken by DVAT as precursor for integration into GST regime. (Received grant of Rs 27.05 Crs).

Efforts at Sustainability

Periodic feedback from the concerned Zonal Officers
Training to Department Officers, Bar Association and others stakeholders.

VALUE INDICATORS

Green e-Governance

- The online issuance of Statutory Forms electronically.
- Digitization of Record.
- Online Payment of Tax through eChallan
- Delivery of Assessment orders, Notices to dealer online.
- Seeking Reply notices through online mode.
- Paperless online Registration, Cancellation, Amendment etc.

Sachin Varun, Assistant Programmer, Department of Trade & Taxes, New Delhi. Email: sac11011983@gmail.com

Sanjeev Khirwar, Commissioner (Trade & Taxes), Department of Trade & Taxes, New Delhi. Email: khiru94@yahoo.com

Mukhyamantri Amrutum (MA) Yojana

[Commissionerate of Health, Govt. of Gujarat]

P. K. Taneja, and Dr. S Murali Krishna

Description of the Project

Mukhyamantri Amrutum Yojana provides tertiary care treatment to Below Poverty Line (BPL) population for catastrophic diseases. Families living below the poverty line are pushed into a vicious debt poverty cycle due to excessive expenditures arising out of catastrophic health shocks. To address this issue, the State Government of Gujarat launched a tertiary care scheme called Mukhyamantri Amrutum “MA” Yojana since 4th September 2012. This is a 100% State funded Scheme. The operational costs as well as costs for software deployment, maintenance, upgrades and other costs are borne by the State government.

The objective of the scheme is to improve access of BPL families to quality tertiary medical and surgical care for the treatment of identified life-threatening diseases involving hospitalization, surgeries and therapies through an empanelled network of health care providers. MA provides an opportunity to the poorest of the poor beneficiaries to select hospitals of his/her choice from both private and public (government) hospitals for cashless hospitalization and treatment. Under the Scheme, all beneficiaries can avail cashless quality medical and surgical treatment for catastrophic illnesses related to: (1) Cardiovascular diseases, (2) Renal (Kidney) diseases, (3) Neurological diseases, (4) Burns, (5) Poly-Trauma, (6) Cancer (Malignancies), and (7) Neo-natal (newborn) diseases. The claim load is up to Rs.2,00,000/- per BPL family per annum on a family floater basis. Benefits are against 544 defined tertiary care services.

This is a health protection scheme, to provide Quality Health Care Services to the BPL population of the State. It protects BPL beneficiaries from catastrophic expenditures. No premium is charged from the enrolled beneficiaries (patients). Thus, there is no scope for any intermediary to make profits.

Package rates for the different procedures selected under 'MA' Scheme were derived from the market through competitive bidding process via e-tendering. This was done through a two-bid process, involving a technical and a financial bid from the hospitals, thus discovering a viable level of package cost unlike other states which went by the existing rates of Private Service Providers. Claim status of every patient can be tracked via dedicated iClaims software deployed at the command of State Nodal Cell. The complete process of claims processing and disbursement of payment to network hospitals is online, thereby reducing paperwork.

A dedicated data centre and server is present with a storage capacity of 5 TB to deal with the voluminous data being generated. The IT Support Agency, (n) Code Solutions, is responsible for the development of software, enrolment of beneficiaries, setting up of taluka kiosks etc.

The guidelines of MA Yojana mandate that extensive IEC activities be carried out. Under this, Mega Heath Camps are conducted in every district in which participation of empanelled hospitals, both private and govt. is necessary. In addition to Mega Health Camps, General Health Camps are also conducted by the empanelled hospitals every month. Radio and Print advertisements are given in local radio channels and newspapers to generate awareness about the scheme in the targeted population. A total of 21,58,601 BPL families have been enrolled under 'MA' Scheme from September 2012 to February 2014. This is a population of about 10.7 million persons covered. This is close to 60% of the total BPL population of the State. A total of Rs. 70,07,82,363 have been approved for a total of 35,029 claims till date from September 2012.

RESULT INDICATORS

Key Performance

ICT Based Services

End-to-end services are provided to the beneficiaries of the Scheme. All services being provided to the beneficiaries have been ICT-enabled. The process flow can be summarized as follows:

- Beneficiary approaches Network Hospital with QR-Coded card
- Details of the beneficiary are transferred to the MA server via a dedicated online portal.
- Preauthorization for the required medical procedure is obtained through the portal from the ISA. Any additional preauthorization is also obtained via the same portal.
- Once the preauthorization is received, treatment of the beneficiary commences.
- After the completion of treatment, discharge details are entered in the portal and the claim for the procedure is sent to the Implementation Support Agency for payment.
- The ISA scrutinizes the claims and sends the claims to the State Nodal Cell, which after due verification approves the claims.
- Payment of the approved claims to the hospitals is made directly through RTGS by the State Government. No intermediary agency is involved in the process.

Current Stakeholder Benefits

There are zero direct costs incurred by the beneficiaries of MA Yojana as all costs of treatment, medicines, follow-up and transportation etc are borne by the State. A total of 21,58,601 BPL families have been enrolled under 'MA' Scheme from September 2012 to February 2014. This is a population of about 10.7 million persons covered. This is close to 60% of the total BPL population of the State.

The scheme does not replace the existing public and private health care institutions. Instead, it gives an opportunity to both public and private

health care institutions to promote quality healthcare services. Network Hospitals which are registered under National Accreditation Board for Hospitals and Healthcare Providers (NABH)/ JCI (Joint Commission International)/ ACHS (Australia) or by any other accreditation body approved by International Society for Quality in Healthcare (ISQua) are given 10% extra as quality incentive over and above the package rates.

A robust system to control moral hazard through the use of technology has been deployed, wherein a QR coded plastic card containing photograph of head of the family/spouse, a unique registration no., biometric thumb impressions of all the enrolled family members, is issued to the beneficiary family. The QR coded plastic card ensures the genuineness of beneficiaries and avoids duplication and frauds. Instances of forgery are thus monitored and controlled.

For the claim processing, deployment of Arogya Mitras, District Coordinators, IEC activities, empanelment of hospitals etc., an Implementation Support Agency (ISA), MD India Healthcare NetworXPvt. Ltd. has been selected. The ISA has appointed Arogya Mitras at the network hospitals. The ArogyaMitra facilitates the patient in availing diagnostic services, food, follow-ups and medicines after the discharge from the hospital.

An IT Support Agency, (n) Code Solutions, has been hired by the State for the development of software, enrolment of beneficiaries, setting up of taluka kiosks etc.

Services Planned for Future

Based on feedback from various stakeholders, the Scheme is now being extended to target all the females and their children (below the age of 21 years) belonging to the families having an annual income up to Rs.1.2 lakh per annum'. Sensitization meetings are conducted on a periodic basis with private practitioners.

Implementation Coverage

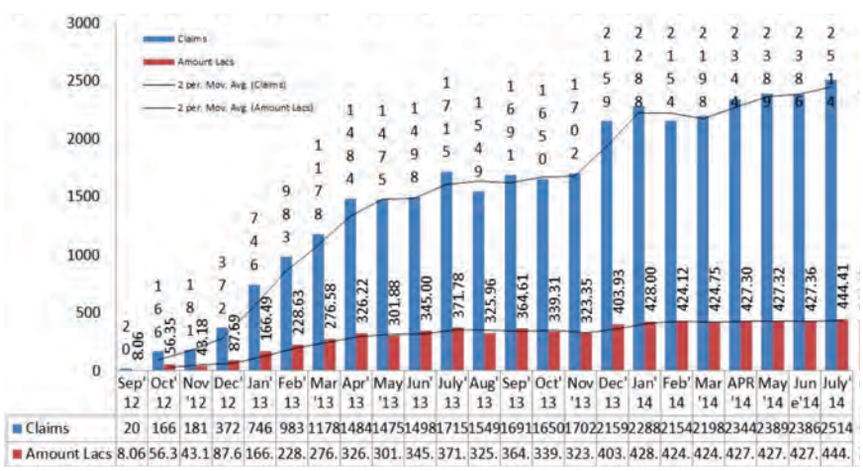
There are 64 empanelled hospitals under Mukhyamantri Amrutum (MA)

Yojana across the state of Gujarat for availing treatment under MA Yojana. For enrolment under the Yojana, 227 Taluka kiosks and 52 Civic Centre kiosks have been established at the taluka level and municipal corporation level where beneficiaries can enrol themselves, can get his/her card split, addition/deletion in family members, and can get a new card in case of a lost card. A total of 21,58,601 BPL families have been enrolled under 'MA' Scheme from September 2012 to February 2014. This is a population of about 10.7 million persons covered. This is close to 60% of the total BPL population of the State.

Transaction Volume

A total of Rs. 70,07,82,363 have been approved for a total of 35,029 claims till date from September 2012.

Type of Hospitals (a)	No. of Claims (b)	Amount of Claims paid to network hospitals (c)
Private Institutes	15,656	Rs. 31,95,35,842
Public/Trust/Grant-in-Aid	19,373	Rs. 38,12,46,521
Total	35,029	Rs. 70,07,82,363



Month-wise transaction details through 3 financial years

Till date 3,32,453 visitors have accessed the Scheme website www.magujarat.com.

Efficiency and Improvement Initiatives

Time and Cost Efficiency

This is a 100% State funded scheme. The operational costs as well as costs for software deployment, maintenance, upgrades and other costs are borne by the State government. Package rates for the different procedures selected under 'MA' Scheme were derived from the market through competitive bidding process via e-tendering. This was done through a two-bid process, involving a technical and a financial bid from the hospitals, thus discovering a viable level of package cost unlike other states which went by the existing rates of Private Service Providers.

Illustrative examples of lower costs in the scheme as compared to market rates:

Sr. No.	Procedures	Other Schemes (Rs.)	MA Rates (Rs.)	Precentage of Market rates
1.	Coronary Angiography (CAG)	4,500	3,500	77%
2.	Coronary Balloon Angioplasty	35,000	21,000	60%
3.	Coronary Artery Bypass Graft (CABG)	1,00,000	68,000	68%
4.	Cysto Lithotripsy	20,000	8,500	42.5%
5.	Brachytherapy HDR 1 application & multiple close fraction	50,000	10,000	20%

With the help of ICT enablement of services, administrative costs have been reduced. The time taken for processing and disbursement of claims has also been reduced. This application has been instrumental

in detecting frauds and 2 such cases of frauds have been detected with the help of this application. Strong legal action has been initiated against the perpetrators of the frauds.

Levels of Integration

Mukhyamantri Amrutum Yojana utilizes the infrastructure set up by Ministry of Rural Development in terms of the database being used for identification of BPL beneficiaries of the state of Gujarat. National Informatics Centre (NIC) comes under the ambit of National e-Governance Plan (NeGP) and MA Yojana has incorporated systems so that it can leverage the database set up under NeGP. SMS alerts are sent to the BPL beneficiaries at 3 instances: after pre-authorization, after treatment and after discharge. Beneficiaries can also enquire about the status of claim amount remaining in their MA card for their treatment in the current year.

Innovative Practices

Innovative Supply Chain, Distribution, Retailing structures: The services are delivered to the beneficiaries by means of a QR coded MA card. For effective distribution of these cards, a Technical Support Agency has been appointed, which is responsible for printing, issuing and distribution of cards to the targeted beneficiaries.

Innovative Management Practices

To have healthy competition and not to replace public institutions, it was very consciously decided to have participation of both private and public/trust/Grant-In-Aid hospitals to render their services under 'MA'. A total of 64 hospitals (45 renowned private & 19 public/trust/Grant-In-Aid hospitals) are empanelled across the state. MA provides an opportunity to all BPL beneficiaries to select hospitals of their choice from both private and public hospitals.

Innovative Financial Model

- This is a completely cashless health protection scheme, where the enrolled beneficiary does not need to pay a single rupee from his pocket.
- A sum of Rs. 300/- is paid to the beneficiary as transportation charges for every instance of availing treatment from the empanelled hospital.
- 5% of the package amount is deducted at the beginning of treatment procedure, which is paid subsequently on every follow-up instance. This is done to ensure that the prescribed treatment regimen is completed and all follow-ups are undertaken.
- At the time of treatment at the network hospital, details of the beneficiary are transferred to the MA server via a dedicated online portal. Preauthorization for the required medical procedure is obtained through the portal from the Implementation Support Agency (ISA).
- The ISA scrutinizes the claims and forwards the claims to State Nodal Cell.
- After due verification of claims at SNC, payment of approved claims to network hospitals is made directly through RTGS.

ENABLER INDICATORS

Process Reengineering

An extensive gap analysis was conducted prior to the formulation of policies of the scheme. Gaps regarding availability of tertiary care treatment services for BPL population in the state, availability of hospitals fulfilling the criteria required to be empanelled under the Scheme, and transportation facilities were identified and policies were formulated based on the need gap analysis.

Prior to the introduction of this Scheme, free of cost treatment was available to the underserved BPL population of the State only at 3 Govt. institutions. Now with the introduction of MA Yojana, private institutions have also been included to offer free of cost quality health care to BPL

population of the State.

While designing the Scheme and formulating the policies of the Scheme, it was consciously decided to enable all services with ICT so that the time taken in transactions can be reduced and paper can also be saved through online transactions. This has been achieved at all levels. The policy document of the Scheme mandates the following:

- Cashless hospitalization benefit of a total amount of Rs.2,00,000/- per BPL family per annum on a family floater basis.
- Benefits to a unit of five members of the BPL family (Head of family, spouse, and three dependents). A new born is covered as 6th member of the family during that financial year.
- To avail benefits, the individual or family should get enrolled under the Scheme. A MA beneficiary will be confirmed only if a QR coded card (Quick Response Coded Card) is produced at the network hospital. This card contains the photograph of the head of the family/ spouse, a unique registration number (URN) and the biometric thumb impressions of all the enrolled family members. These details are also stored in the central server of MA and can be fetched online at the click of a button.

Challenges Faced in Implementing Process Changes

- Lack of comprehensive tertiary level care in terms of hospitalization, treatment and medicines for the underprivileged sections of the society in remote areas
- Lack of uniform package rates for different medical and surgical procedures
- Establishing inter-sectoral coordination between various departments like Urban and Rural Development, gram panchayats and district authorities.
- Establishing internet connectivity at remote areas so that ICT enabled activities could be carried out.
- It was found that a substantial amount of delay in processing and payment of claims was due to the involvement of insurance agencies in other schemes. Therefore, it was decided to completely eliminate the involvement of intermediate agencies in

'MA'. This reduced the delay in payment of claims, bringing about transparency and efficiency in the process, thus delivering quality healthcare to the beneficiaries.

- Long waiting list of patients requiring treatment for life-threatening diseases at govt. institutions.
- Excessive travel time and cost incurred by the population of Gujarat for treatment to travel to govt. institutions.

The Lessons Learnt from the Process Re-Engineering Exercise

Feedback Mechanism: All suggestions and feedback from stakeholders are archived in the database for further processing and decision-making. Some examples of decision making based on feedback received from stakeholders are:

Additional procedures were added upon feedback by the empanelled hospitals so that more life-threatening diseases could be covered under the Scheme.

It was suggested by NABH accredited hospitals that there should be a quality incentive for hospitals that are accredited to National Accreditation Board for Hospitals and Healthcare Providers (NABH)/ JCI (Joint Commission International)/ ACHS (Australia) or by any other accreditation body approved by International Society for Quality in Healthcare (ISQua). Based on this suggestion, quality incentive for hospitals accredited to the aforementioned bodies was increased from 2.5% to 10% extra over and above the package rates.

72 Additional procedures were added upon feedback by the empanelled hospitals so that more life-threatening diseases could be covered under the Scheme. For enrolment under the Yojana, 227 Taluka kiosks and 52 Civic Centre kiosks have been established at the taluka level and municipal corporation level where beneficiaries can enrol themselves, can get his/her card split, addition/deletion in family members, and can get a new card in case of a lost card. Care has been taken to ensure that beneficiaries do not have to travel large distances to avail services under the Scheme.

Change Management and Capacity Building

Leadership support: Organogram of the Scheme

The Scheme is under the direct supervision of Shri. P. K. Taneja (IAS), Principal Secretary (Public Health & Family Welfare) & Commissioner of Health, Family Welfare, Medical Services and Medical Education. The Scheme (Yojana) is spearheaded by a young and energetic Project Director, who takes personal interest in the successful implementation of the Yojana. The other key officers responsible for the successful and smooth operation of this Yojana are Additional Director (FW), Public Health Manager, Operations Manager, SNC Medical Officer along with State Coordinators who collectively form the State Nodal Cell.

For the claim processing, deployment of Arogya Mitras, District Coordinators, IEC activities, empanelment of hospitals etc., an Implementation Support Agency (ISA), MD India Healthcare NetworXPvt. Ltd. has been selected. The ISA has appointed Arogya Mitras at the network hospitals. The ArogyaMitra facilitates the patient in availing diagnostic services, food, follow-ups and medicines after the discharge from the hospital.

An IT Support Agency, (n) Code Solutions, has been hired by the State for the development of software, enrolment of beneficiaries, setting up of taluka kiosks etc.

Change Management and Capacity Building Strategy

Training and development are important aspects of any successful program and Mukhyamantri Amrutum State Nodal Cell has deployed a team of 5 people for support, operation and maintenance of the portal. A demo version of the live application has been provided to ground level executives so that they can be involved in continuous training and quality improvement. State Grievance Redressal Committee has been set up under the Chairmanship of Principal Secretary (Health & Family Welfare) & Commissioner (Public Health, Family Welfare, Medical

Services & Medical Education). This Committee meets every quarter to handle and resolve grievances at the State level and those which have been forwarded by the District Grievances Redressal Committees. District Grievances Redressal Committees have been set up at the district level under the chairmanship of District Collectors. These committees meet every month to discuss and resolve various grievances related to the Scheme. A State Grievance Redressal Coordinator has been appointed under the State Nodal Cell for handling queries and grievances of all the stakeholders. Beneficiaries can call the toll free number 1800-233-1022 or visit the website www.magujarat.com to register their queries. A Frequently Asked Questions (FAQ) section has been included in the website for the benefit of the families. Help desks are available at every empanelled hospital, which provide information and assistance to the general public.

Project Management & Monitoring

The scheme is revised regularly at the state level. An Executive Committee consisting of Principal Secretary (Public Health & Family Welfare) & Commissioner of Health, Family Welfare, Medical Services and Medical Education, Principal Secretary (Finance), Executive Director, Gujarat Informatics Limited (GIL) and other higher authorities take policy level decisions for the benefit of the poor families.

Technology

The enrolment portal is built on Microsoft platform.

- Interoperability: Complete interoperability with different operating systems
- Security concerns: None. The website and its operations are completely secured from external threats and any attempts of data theft.
- Any issue with the technology used: None so far. The technology has so far proved to be faultless. Moreover, frauds have been detected and strict legal action has been initiated against the

perpetrators with the help of the technology.

- Service level Agreements (SLAs): Service Level Agreements (SLAs) exist at all levels, be it on the hospital empanelment front, or on the IT Support agency front or Implementation Support Agency front. These SLAs are available in the form of Government Resolutions (GRs) and are available for public viewing on the MA Yojana website.
- Audit trails: Periodic audits are conducted by an Internal Auditor under MA Yojana. Internal web security audit is performed by our IT Solutions provider at a dedicated data centre. External Audit has also been conducted by an agency empanelled by Gujarat Informatics Limited (GIL).
- Interactive Platform for service delivery: The MA Yojana website www.magujarat.com serves as an interactive platform for service delivery, wherein complete status of the scheme can be visualized by different stakeholders.

Technology Related Challenges Faced

The problem of internet connectivity at remote areas was the only major technology related challenge faced by the scheme.

VALUE INDICATORS

Digital Inclusion

- Encryption of data is performed through the website. Finger print of beneficiaries and family members are stored in the MA Card for quick fetching of data from the central server.
- Mukhyamantri Amrutum State Nodal Cell has deployed a team of 5 people for support, operation and maintenance of the portal. A demo version of the live application has been provided to ground level executives so that they can be involved in continuous training and quality improvement.
- The information in the website is available in both English and Gujarati. The percentage break-up of English and Gujarati content is: 60% information is available in English and 40%

information is available in Gujarati. Any update being done in the website is synced in both languages at the same instance, so that there is no lag between dissemination of bilingual information. Other file formats like .xls, .doc and .pdf are also supported in the web application. Mobile and responsive versions of the website are available. The updation of website is done on a weekly basis and new and additional information is added whenever required. The website is being promoted through various modes of mass communication like print media, radio advertisements, and through health camps. SMS alerts are sent to the BPL beneficiaries at 3 instances: after pre-authorization, after treatment and after discharge. Beneficiaries can also enquire about the status of claim amount remaining in their MA card for their treatment in the current year.

Green e-Governance

Cashless transaction of claims is one of the steps being taken to ensure green e-governance of the MA Yojana. Claim status of every patient can be tracked via dedicated iClaims software deployed at the command of State Nodal Cell. The complete process of claims processing and disbursement of payment to network hospitals is online, thereby reducing paperwork and reducing the carbon footprint.

P. K. Taneja, Additional Chief Secretary & Commissioner, Commissionerate of Health, Family Welfare, Medical Services & Medical Education, Gujarat. Email: cohealth@gujarat.gov.in

Dr. S Murali Krishna, Project Director, Mukhyamantri Amrutum (MA) Yojana, and Mission Director, National Health Mission, Commissionerate of Health, Family Welfare, Medical Services & Medical Education, Gujarat. Email: md-nrhm@gujarat.gov.in

eKalyan

[Social Justice & Empowerment Department, Govt. Of Gujarat]

M S Dagur and Suresh Kanabar

Description of the Project

Social Justice and Empowerment Department has been entrusted with the duty of empowering people belonging to the backward and underprivileged sections of society. The Department has been following a pro-active approach for effective implementation of various schemes for the protection and welfare of people belonging to vulnerable sections. SJED took a holistic view and conceptualized an ambitious project of making all the schemes catered by its various offices online with an integrated Management Information System (MIS). SJED has created a comprehensive integrated database for all its Directorates and Corporations.

Social Justice & Empowerment Department, Government of Gujarat took a comprehensive approach to implement e-Governance by developing eKalyan portal. The eKalyan Application has enabled SJED to deliver 200+ social welfare schemes of SJED implemented under all its Directorates, Boards and Corporations; at the door step of the beneficiaries. eKalyan aims at providing a composite solution to handle existing schemes as well as any new scheme. It consist features such as Direct Benefit Transfer, ECS, SMS and Email Notifications to citizens, a framework approach which enables it to integrate with other state level applications.

Citizens of the state falling under the following criteria are the key beneficiary of the project. Services are provide across all the districts and talukas of the state across all the offices delivery services of SJED department:

- Scheduled Castes
- Socially and Economically Backward Classes
- Minorities
- Physically and mentally challenged persons/persons with disabilities
- Children in need of care and protection/Children in conflict with law
- Orphans, destitute persons, beggars and Senior Citizens
- Women
- Poor
- Illiterate

Overall approach to the project with plan:

Growing social pressure and the thrust for expeditious implementation of the inclusive Social Welfare initiatives had created huge volume of paperwork, very large number of outstanding applications. This motivated SJED to search for the alternatives using ICT.

- SJED and GoG were aware of internal constraints for formulating and implementing such solution completely with GoG based human resources. Accordingly, it was decided to utilize competitive bidding for the project formulation and initialization.
- SJED thought of multifunctional programme development due to the large number of schemes targeted at different categories of beneficiaries and varied rules, regulations, eligibility criteria and also the task of delivering the services in the entire State with different levels of social/economic development and infrastructure facilities;
- Basically, the implementation plan was to carry out the services module wise; each module consisting of relevant schemes. It helped the department users giving them the control to process the applications with similar flow.
- The priorities that were defined in implementing the 7 modules (remaining 3 modules are for administration configuration purposes) were:

Priority 1: Certificate and Licenses module

This module is designed to handle various schemes in which benefit is some kind of card or certificate and to manage the end to end approval to hand over process. Reason behind beginning implementation with this module was to start with non-financial schemes first and more importantly, the schemes under this module are for the basic Certificates required to avail of other schemes.

Priority 2: Loan and Finance module

The Finance Module is designed to manage the end to end process from approval to disbursement to recovery of loan, Administrative Grants and Share Capital. This module covers the schemes of all the corporations as well as some schemes are carried out by the different Directorates.
This module covers all the schemes in which money is given to beneficiaries and it is expected that the beneficiaries shall return the money, with decided interest rate, within a specified duration.

Priority 3: ICAP (Incentive, Compensation, Awards, Pension)

ICAP module will handle the schemes where application approval is followed by the disbursement of money to the beneficiaries. This module is designed to manage the end to end approval to disbursement process.

Priority 4: Training and Stipend

This module is designed to handle the schemes in which some kind of training is provided and while attending that training, beneficiaries get regular stipend. The Compensations and Stipends Module manages the end to end process of approval to disbursement of allowances. This module manages the applicant verification, expedites the approval process and disbursement of allowance.

Priority 5: Scholarship Management

The Scholarship Management Module is designed to manage the schemes in which there is more than one beneficiary. E.g. In case of scholarship the student gets the maintenance allowance and the college gets the fees/freeship amount.

Priority 6: Facility Management

Facility module is designed to manage the schemes in which the benefit is in form of kind. e.g. Book Bank, Hostel/Accommodation, etc. The organizations which are providing the facilities receive the finances from the department.

This Module is designed to manage the end to end process from approval to hand over of non-cash benefits and manages the verification of details about the procurement of facilities in the aided institution.

Priority 7: Works Management

This Module is designed to manage the end to end supervision and management of works undertaken by the Department.
The module manages the approval process for grants given for the development works like construction of hostels and other facilities and to release the disbursements in tranches according to the stage of implementation.

Achievements:

To organization

End-to-end integrated eKalyan framework allows any welfare scheme to be defined and operationalized very easily. All other transactions from enrolment to MIS and auditing can be easily processed correctly, securely and expeditiously irrespective of the volumes and variety of schemes. This would have been next to impossible with manual paper-based procedures.

To citizen

The eKalyan Portal is accessed by registered users (citizens) for various transactions for the services offered under these schemes through Internet. The weaker sections not familiar with the ICT are able to use the Citizen Service Centres (CSCs) facilities established in the State. Consequently, visits of the beneficiaries to the SJED Offices are reduced saving time and costs significantly.

Some of the terminal functions such as alerts, status reporting, inspection and queries are made available on Mobile improving the effectiveness significantly and making such services to the beneficiaries while they are on the move.

Other stakeholders

The Workflow, rule engine and the robust security features ensure the adherence to the processes and pre-defined responsibilities. This coupled with escalation alerts, MIS and Dashboards make all operations totally transparent. These features along with the Audit Trails would improve accountability among officers responsible for service delivery.

The Efficiency, Mobility and Accountability related features described above essentially contribute to the Responsiveness. N-tier Architecture, Modular Design, Real Time updates, adequate Infrastructure along with SMS, e-mail and IVR integrations makes eKalyan Responsive. The status updates to beneficiaries helped in timely disbursement of the benefits which has in turn raised the image of public service and enhanced trust in the Government.

Transparency relates to bringing in complete visibility of operations at different levels of supervision and also to the beneficiaries by providing information or case status through implementation of ICT. This is achieved through the Accountability and Responsiveness processes described above.

Value proposition for the project

The various sections faced challenges in travelling miles to the location of the office to get the benefit. There were multiple visits of the beneficiary to the offices which sometimes incurred travel cost same as the benefit amount. Also, the time consuming manual processing of applications led to delayed benefit disbursement. eKalyan has made the services accessible as near as possible to their door step by making online 200+ schemes catered by the various HODs/ Boards / Corporations. Services have been made affordable to the beneficiaries by notifying them about the status of their application through SMS/email and reducing their number of visits to the office; hence reducing their travel cost.

Timely disbursement of services has been possible due to faster processing of applications than in manual processing. Funds are mobilized timely which has raised the image of public service and enhanced trust in Government significantly.

Application being user-friendly reduces time and efforts invested by users. Also, the department has envisaged a scenario where the person wanting any service would visit the CSC/eGram or the Panchayat office which would be within walking distance from their home and also can apply for the service online. eKalyan also has a grievance system to address user queries and issues to provide timely support to its users. Below are the summarized outputs which are successful

- Made the services accessible as near as possible to their door step by making online 200+ schemes implemented by the various HODs/ Boards / Corporations.
- Made the services affordable by notifying them about the status of their application and reducing the number of visits of the beneficiaries to the office; hence reducing their travel cost.
- Made the services available in time by faster processing of applications than in manual processing.

Feedback Mechanism

Provision of a dedicated helpdesk and feedback mechanism has made it possible for beneficiaries to gain knowledge about the schemes or any other information, resolve their queries and communicate their suggestions through email/phone.

Audit trails

The Workflow, rule engine and the robust security features ensure the adherence to the processes and pre-defined responsibilities. This coupled with escalation alerts, MIS and Dashboards make all operations totally transparent. These features along with the Audit Trails would improve accountability among officers responsible for service delivery.

Interactive Platform for service delivery

Provision of a dedicated helpdesk and feedback mechanism has made it possible for beneficiaries to gain knowledge about the schemes or any other information, resolve their queries and communicate their suggestions.

Bi-lingual interface has made it convenient for the beneficiaries to apply for the schemes through their choice of language.

The eKalyan portal can be accessed by registered users (citizens) for various transactions for the services offered by the portal through Internet where adequate security features are implemented. This is generally attained through role based access mechanism, login password, encryption of data, workflow control etc.

- Project Start Date: October 2011
- Planned Completion Date: August 2012
- ctual Completion Date: August 2012

RESULT INDICATORS

Key Performance

The eKalyan Portal is accessed by registered users (citizens) for various transactions for the services offered under these schemes through Internet. Every village and town in Gujarat is covered by eGram, CSC and ICT facilities are easily available to the beneficiaries at the local level.

The Social Justice and Empowerment Department (SJED) is entrusted with empowering people belonging to the backward and underprivileged sections of society. The Department has been following a pro-active approach for effective implementation of various schemes for the protection and welfare of people belonging to vulnerable sections. Through its various Directorates and District Offices, it runs around 200+ schemes such as Scholarships, Loans, Incentives and Training for SC, SEBC, Developing Castes, Minorities, and physically challenged people and provides welfare services to nearly 70% of the population of Gujarat.

Government of Gujarat's SJE Dept. focus is on the Economic development and Empowerment of persons belonging by covering Society's underprivileged sections as below:

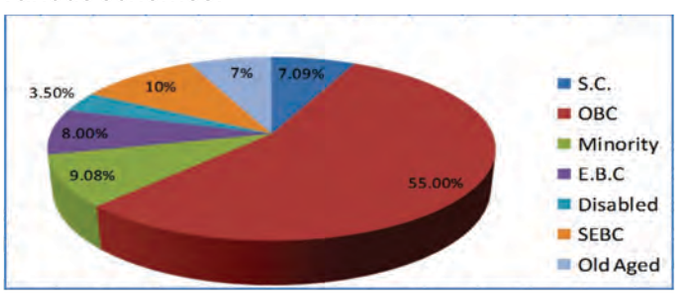
- Scheduled Castes
- Developing Castes
- Socially and Economically Backward Classes
- Minority communities
- Children in need of care and protection/Children in conflict with law
- Physically and mentally challenged persons/persons with disabilities

Protection and Welfare Schemes are also being implemented by this Department for the orphans, destitute persons, beggars and old aged persons. The protection and welfare schemes being implemented by this Department can be mainly classified as under:

- Education
- Economic Welfare
- Health and Housing
- Social Protection/Defence
- Other schemes

The eKalyan application has enabled SJED to deliver all social welfare schemes of SJED at the door step of the beneficiaries. eKalyan is one of the biggest "Citizen to Government (C2G)" internet applications in India. Fortunately, in Gujarat, due to good IT infrastructure, GSWAN (Gujarat State Wide Area Network) availability in district offices and the State Data Centre (SDC), it has been possible to launch eKalyan on such a big scale.

Below is the pictorial graph of citizens of the state is using the system for various schemes.



eKalyan has been implemented in Social Justice Department, HODs (Gandhinagar), Corporations (Gandhinagar), District Offices and Corporation offices.
End-to-end processing of 100000+ applications till date is successfully accomplished.

Coping with transaction volume growth

System is capable of processing 18000+ concurrent users at a time and highly scalable servers are used to mitigate the transaction volume growth.

Efficiency and Improvement Initiatives

Time and Cost efficiency

The various sections faced challenges in travelling miles to the location of the office to get the benefit. There were multiple visits of the beneficiary to the offices which sometimes incurred travel cost same as the benefit amount. Also, the time consuming manual processing of applications led to delayed benefit disbursement. eKalyan has made the services accessible as near as possible to their door step by making online 200+ schemes catered by the various HODs/ Boards / Corporations. Services have been made affordable to the beneficiaries by notifying them about the status of their application through SMS/email and reducing their number of visits to the office; hence reducing their travel cost.

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Application being user-friendly reduces time and efforts invested by users. Also, the department has envisaged a scenario where the person wanting any service would visit the CSC/eGram or the Panchayat office which would be within walking distance from their home and also can apply for the service online. eKalyan also has a grievance system to address user queries and issues to provide timely support to its users. Below are the summarized outputs which are successful:

- Made the services accessible as near as possible to their door step by making online 200+ schemes implemented by the various HODs/ Boards / Corporations.
- Made the services affordable by notifying them about the status of their application and reducing the number of visits of the beneficiaries to the office; hence reducing their travel cost.
- Made the services available in time by faster processing of applications than in manual processing.

Innovative Practices

The eKalyan application has enabled SJED to deliver most social welfare schemes of SJED at the doorstep of the beneficiaries. Accordingly eKalyan an internet based application has led to a considerable decrease in the service delivery time for all 200+ services delivered through eKalyan.

Some distinctive features/accomplishments of the project

- UID integration
- GIS integration
- SMS/email integration
- Scalable Server architecture
- Bank account ECS
- Framework based approach
- Decrease in duplication of beneficiaries
- Multi-lingual interface (localization)
- Proposed IVR system
- Choices of various themes and font size convenient to the user
- Various databases integrated in the system
- Several workshops have been conducted for building the capacity of the employees

Levels of Integration

The efficiency, effectiveness and speed of processing any and every valid request had already made the eKalyan indispensable to SJED. The initiative is being sustained through various state-wide measures. Several workshops have been conducted for capacity building of the employees.

Integration

The solution is developed with an integration/service layer, enabling the integration between eKalyan and external systems. The benefits of using this layer are:

- Eliminate tight coupling between eKalyan and external applications.

- Standard protocols / formats based communication between eKalyan and external applications.
- Potential opportunity to reuse existing logic / to reduce effort.
- Easier maintenance due to an identified layer that facilitates all communication.
- Usage of Microsoft Enterprise Library 5.0 to address cross cutting concerns.
- Facilitate swapping or mixing of UI technology (ASP.Net, WPF, Silver Light, or Win forms).
- Extensible and maintainable framework; most of the vital and generic behaviour is present in base classes.
- Scalable deployment options.
- All these features make eKalyan sustainable in the dynamic and fast evolving scenario in the social sector.

Measures to ensure replicability

N Tier Architecture

The solution comprises of a multi-tier architecture with web-based clients. This promotes a clean separation of user interaction, core business logic, and data management. This also extends client/server computing to support application partitioning, more effectively develop and deploy application business logic and to manage the reliable execution in a network environment.

Component Based Architecture

The solution is built on the principles of component based architecture such as flexibility, adaptability, reusability, maintainability. The key benefits of this approach are:

- Loose Coupling: Components integrate with other components without needing to know how other components are implemented.
- Flexibility: Components can easily be replaced with other components (with the same interface).

A component can be invoked either synchronously or asynchronously as applicable.

Increased productivity: Easier to integrate components together to form a composite application.. All components have service based interface giving the flexibility of deploying and consuming it as a service.

ENABLER INDICATORS

Certain obstacles encountered during implementation of the system and their resolutions are mentioned as below:

- Issue: Reluctance of the staff due to 'keyboard' syndrome.
  - Resolution: Repeated self-training exercises and constant monitoring by the seniors.
  - Issue: Initial difficulties in setting up Masters and defining the Schemes.
  - Resolution: Close monitoring by the seniors and repeated self-training.
  - Issue: Slow internet connection/ GSWAN connectivity in some areas;
  - Resolution: Offline form filling mechanism in the system and then uploading the data when connected.

However, the major obstacle in the implementation of the project was building up of user confidence and participation. One of the issues discovered during the implementation of the project was that for a large number of schemes especially educational scholarships and housing schemes, the applications were not processed individually at the initial stage and the approval process was collective in nature. A large number of beneficiaries would be listed out in one proposal based on their community status and the scheme wise requirement of data. These previously existing hybrid computerized formats required to be integrated into eKalyan and the process was successfully carried out. Another major issue was the integration of different computer based modes of payment linked to the Direct Benefit Transfer (DBT) scheme of the Government of India (GOI). The different scholarship and direct assistance schemes of the GOI had different procedural methodologies and different authorization patterns. eKalyan was suitably modified to incorporate these different types of transfer payments to beneficiaries

and to include them in the eKalyan project.
The principal obstacles in the implementation of the project as set out above were overcome successfully due to open architecture of the eKalyan project. As a result the benefit of ICT enabled expeditious implementation of the welfare schemes could be provided to the beneficiaries from the marginalized sections of the society.

Lessons learnt

Gujarat State Wide Area Network (GSWAN) is End to End IP based Multi Service Backbone (IT infrastructure) that supports Voice, Video, and Data on the same Bandwidth from State Capital Gandhinagar /Centre to all 33 Districts, 225 Taluka Centres and eGram Centres at all village Panchayats (Village local bodies).

Sachivalaya Campus Area Network (SCAN), having 7000 Fast Ethernet Input / Output ports, connects all the Government offices and Government buildings / complexes in State capital on Gigabit backbone.

Web server, DNS server, Mail server and database servers have been installed at the State Data Centre and have been integrated to the GSWAN / SCAN networks.

More than 3300 District / Taluka Government offices of 32 Government departments and semi government offices and the Citizen Service Centres at the Town and Taluka level have been connected with GSWAN. More than 13000 village panchayats are connected with the eGram network to the GSWAN system.

In order to gain the most out of the available infrastructure, the use of latest technologies was adopted which has significantly simplified the work, helped save administrative and beneficiary time which has been useful for other productive activities and has provided better output and beneficiary satisfaction than before.

eKalyan (e-Welfare) is a proven flexible framework platform; fulfilling

the goals of the department to reach out to marginalized people for social welfare.

The overall experience of eKalyan has been very positive; however one of the lessons learnt is that ICT can not completely replace the human element in the implementation of the social sector schemes for the marginalized sections of society. Even though the ICT enabled eKalyan portal is available at the village level itself, a substantial number of beneficiaries also contact the offices delivering the social services as this also provides information, two way communication and a human face to the implementation process.

Face to face human interaction also reinforces the self-confidence of the beneficiaries belonging to the weaker sections as well as provides them with an assertion of their self-respect. The ICT enabled eKalyan serves as reference point and also the delivery mechanism for the majority of the schemes for the SJED. The eKalyan system provided expeditious standardized delivery mechanism for the various schemes of SJED and also incorporated the different DBT schemes of GOI. However it was learnt that the ICT solution can serve as a facilitator and in the foreseeable future, it may not replace completely the human interaction based delivery system.

Several workshops have been conducted for building the capacity of the employees.

Following is the scope of the training program covered by Joint team of SJED Department, GIL and Mastek Ltd., to make all officers efficiently trained for eKalyan application.

- Background and Walkthrough of eKalyan application.
- Providing information about the 7 modules of the eKalyan application.
- Providing training on the different types of Users Registration.
- Training on the new processes to be adopted by the officers for maximum use of the eKalyan application.
- Training Videos to be provided on the eKalyan website for

continuous training of the officers.
- 900+ officers have been trained on the project in first phase.
- Sustainability of the application is based on:
- The Implementing agency is providing 5 years Warranty and Maintenance Support.
- Minimal infrastructure and familiar and easy to use software fields for grass root workers.
- Involvement of regular staff.
- The time, cost and effort saved through the IT tool.
- One time feeding of the basic details and then just updating it through the regular field level work.
- The application is hosted at Gujarat State Data Centre, highly secured and ISO certified centre.

Software Architecture (functional)

eKalyan solution is entirely developed using .Net stack (no third party software used), using open standards like XML and communication technology like WCF with the objective to promote interoperability and integration.

The e-Kalyan is developed with an integration/service layer, enabling the integration between e-Kalyan and external systems.

The benefits of using this layer are:

- Reduced coupling between E-KALYAN and external applications.
- Standard protocols / formats based communication between E-KALYAN and external applications.
- Potential opportunity to reuse existing logic / to reduce effort.
- Easier maintenance due to an identified layer that facilitates all communication.
- Usage of Microsoft Enterprise Library 5.0 to address cross cutting concerns.
- Facilitate swapping or mixing of UI technology (ASP.Net, WPF, Silver Light, or Win forms).
- Extensible and maintainable framework; most of the vital and generic behaviour is present in base classes.
- Scalable deployment options.

The Workflow, rule engine and the robust security features ensure the

adherence to the processes and pre-defined responsibilities. This coupled with escalation alerts, MIS and Dashboards make all operations totally transparent. These features along with the Audit Trails would improve accountability among officers responsible for service delivery.

Technology Platform used

Database on which the initiative in based	SQL Server 2012
Operating system on which the database mounted	Windows Server 2012
Web-server	IIS8

eKalyan Framework includes adequate and elaborate security features. This is generally attained through role based access mechanism, login password, encryption of data, etc.

Security audit of the website was done by a third party certified by CERT-In. Security clearance note was issued certifying that the web application is secure from the vulnerabilities.

VALUE INDICATORS

Feedback Mechanism

Provision of a dedicated helpdesk and feedback mechanism has made it possible for beneficiaries to gain knowledge about the schemes or any other information, resolve their queries and communicate their suggestions through email/phone.

Audit trails

The Workflow, rule engine and the robust security features ensure the adherence to the processes and pre-defined responsibilities. This coupled with escalation alerts, MIS and Dashboards make all operations totally transparent. These features along with the Audit Trails would improve accountability among officers responsible for service delivery.

Interactive Platform for service delivery

- Provision of a dedicated helpdesk and feedback mechanism has made it possible for beneficiaries to gain knowledge about the schemes or any other information, resolve their queries and communicate their suggestions.
- Bi-lingual interface has made it convenient for the beneficiaries to apply for the schemes through their choice of language.
- The eKalyan portal can be accessed by registered users (citizens) for various transactions for the services offered by the portal through Internet where adequate security features are implemented. This is generally attained through role based access mechanism, login password, encryption of data, workflow control etc.
- Provision of agency (CSC/eGram or the Panchayat office) login mechanism and handholding support to apply for services on behalf of the beneficiaries has helped the weaker beneficiaries get support to avail the benefits.

Status tracking

Services have been made affordable to the beneficiaries by notifying them about the status of their application through SMS/email and reducing their number of visits to the office; hence reducing their travel cost.

Green e-Governance

All the data involved paperwork right from application processing to disbursement of benefits; maintaining the departmental as well as beneficiary data; various registers, reports and papers were maintained for years. This voluminous paper-work was eliminated and starting with less paper governance; paperless governance is on way to be adopted

M S Dagur, IAS, Principal Secretary, Social Justice & Empowerment Department, Gandhinagar, Gujarat. Email: secswd@gujarat.gov.in

Suresh Kanabar, Deputy Secretary, Computer Cell (SJED, GoG), Social Justice & Empowerment Department, Gandhinagar, Gujarat. Email: sosje@gujarat.gov.in

Integrated Web – Mobile Projects Monitoring System

[District Urban Development Agency, Valsad District, Govt. of Gujarat]

Dr. Vikrant Pandey and Paresh Joshi

Description of the Project

Good Governance with a sound management framework is critical for high growth to become both inclusive and equitable. If Good Governance is fundamental, E-Governance is instrumental in achieving this growth.
Key to success in implementation of organizational policy, programs, projects, schemes and activities lies in its effective monitoring by top leadership and their management team. Modern technology and the power of innovation have been leveraged to make the complex task of monitoring somewhat simple and effective. The way this is done is through empowerment of the apex leadership and decision makers by providing them easy access to right information backed by real-time/near real-time data and its analytics from anywhere, any time on click of a mouse. In short, this process uses Remote Monitoring mechanism to provide both a Bird's Eye-view and an Ant's Eye-view simultaneously to the top leadership to help them in speedy and efficient decision making that is data driven and thus evidence-based.

Overall aim of the Integrated Web – Mobile Project Monitoring Solution (dudavalsad.in), as an e-Governance solution, has been to provide anytime, anywhere monitoring facility using Internet and Mobiles to all stakeholders including citizens, Nagarpalika and District Urban Development Agency (DUDA) officials and works contractors participating in creation, management and utilization of horizontal and vertical construction and infrastructure projects / programs of five Nagarapalikas of Valsad District under the aegis of District Urban Development Agency, Valsad, Gujarat.

The following steps enumerate the plan of action to implement the project,

- Work with the district administration in understanding the project workflow.

- Develop customized web application for effective project management, with mobile based remote monitoring capabilities
- Train the staff in capturing geo-stamped photos through mobiles and how to use the website to view project details
- Deploy the solution initially in one area and ensure smooth functioning of the system
- Expand the solution for the rest of the areas

Save the additional features / modules of the project mentioned under "Deviations from the Plan and Current Status", aim of this project / plan has been achieved.

Achievements in relation to Plan - Integrated Web – Mobile software based Projects Monitoring Solution has been deployed for DUDA, Valsad District and the system is in use by officials of 5 Nagarpalikas of Valsad District, who are keying in data pertaining to all projects being undertaken by respective Nagarpalika. And officials of DUDA at District HQ level are monitoring all project data being put up by the Nagarpalikas.

Deviations from the Plan and Current Status - Additional modules and features such as Citizens Complaint Redressal Module, Task Management Module and Contractors' Logins are under development and will be added to the project. There have been no deviations from the original plan. Planned Objectives of the project as mentioned below have been achieved.

Objectives / Goals of the Project

- To provide officials of Nagarpalikas of District to remotely key in data and digitally keep summary records of all schemes proposed and implemented by them.
- To provide remote monitoring capability to District Urban Development Agency of the District such that it can keep a virtual eye on all projects under various schemes being implemented in all Nagarpalikas across the District.
- To provide convenient facility to end beneficiary viz., individual or community or contractor undertaking project on their behalf to be able to provide authenticated photo evidence of work initiation, progress and

completion along with other information about the project on the project web page.

- To enable all citizens of the District to become aware of all public works that have been initiated, under progress or completed in their neighbourhood and how public money is being put to use for public works, through a comprehensive, secure online web application.
- To provide officials of Department of Urban Development at State level a near real time feedback with locational intelligence of amount being spent and progress of works under various schemes being implemented at the District level.

Benefits to stakeholders – System provides for effective beneficiary/end-user monitoring and feedback mechanism to the Apex Leadership & top management directly without any mediation, details of which are carried below.

Economic, Technological and Social agenda or "Value Proposition" it was expected to fulfil

- Economic efficiency realized in project, program, scheme & activity management due to effective multi-layered, multi-dimensional monitoring based on real-time/near real-time data flow from the field sites & offices.
- Use of mobile-internet integrated technology- driven strategy for data collection (real-time, at source & in multiple formats), data management and data processing leverages the unmatched advantages of modern technology stack SMAC with open source. It results in provision of a rapid development and continuous delivery system that is high performance, secure, scalable, flexible and low in ownership, operating, support & maintenance cost.
- Since the process helps greatly enhance efficiency with transparency and accountability in decision making across organizational hierarchies it results in better & timely implementation of projects with reduced wastages and leakages. This way public resource gets utilized optimally due to superior life cycle management of the project from its commencement to completion and subsequent service delivery. This

way social benefit is imparted to the end users/beneficiaries and the society as a whole.

Project Original Start Date	02 Jan 2014
Planned Completion Date	09 Jan 2014
Project Actual Completion Date	09 Jan 2014

RESULT INDICATORS

Key Performance

ICT Based Services

G2G (Multi-level), G2C and G2B.

Current Stakeholder Benefits

- Nagarpalika officials can check for duplications in projects if any, based on past records
- District Urban Development Agency Officials can monitor works / projects from office location only and generate various reports
- Citizens can view transparently all sanctioned works / schemes on the web portal
- Contractors executing works / projects can view details of their projects in public access part.

Services planned for Future

- Online Citizens' Complaint Redressal Module for Citizens
- Online Task Management Module for Government Employees
- Login IDs for Contractors

Implementation coverage

G2G (Multi level) – Data entry by officials of 5 X Nagarpalikas of Valsad District and Monitoring by officials of DUDA at District levels covered 100%
G2C – Citizens of 5 Nagarpalikas of Valsad Dsitrict covered 100% for viewing project details via website www.dudavalsad.in Details of population covered is carried below.

All citizens of urban / metropolitan areas of Valsad District, Gujarat as given

below benefit by using solution:

Valsad	1,70,235
Vapi	1,63,605
Pardi	30,000 (Approx)

(Population figures quoted above represent Census of 2011 as quoted on web site www.citypopulation.de)
G2B – Contractors logins will be created in the next phase of the project.

Transaction Volume

2013 - 14	217 Projects being monitored
2012 - 13	18 Projects being monitored (More projects will be added from past records)
2011 - 12	17 Projects being monitored (More projects will be added from past records)

In all 360 infrastructure projects from 5 Nagarpalikas of Valsad District are being tracked

Efficiency and Improvement Initiatives

Time and Cost efficiency

- Near real time online monitoring of Nagarpalika projects by District Urban Development Agency and Nagarpalika officials possible.
- Scheme wise, Palika wise, Contractor wise, Cost / Time Savings / Overruns wise reports and customized online reports can be generated in real time can be done conveniently.
- Citizens can come to know at anytime from anywhere using web portal dudavalsad.in about details of all the Nagarpalika schemes / projects going on in their towns / District.
- District Urban Development Agency officials do not have to physically visit project sites and thus a lot of time, energy and resources including money is saved on physical monitoring
- Also it is possible to carry out 100% checks of all projects without physical visit to sites.
- It can be checked that funds are not released for same project already completed earlier

- It is possible to check about partially completed projects or not completed projects and amounts having been paid.
- Projects data can now be effectively analysed for time or cost overruns of projects in real time.

Innovative Practices

Web – Mobile integration, authenticated data upload directly from web site including photos stamped location and date –time stamps from GPS directly into specific web page
Business Analytic engine allows for generation of reports and also extract relevant intelligence
Dashboards provides colourful charts / graphs that aid in proper visualization of aggregated data/information
GIS map provide geographical overview of the extent of projects being monitored

ENABLER INDICATORS

Process reengineering

Major ICT and Non-ICT changes

The number of Processes re-engineered – Four processes of digital data input, authenticated visual evidence of projects, data analytic, search and archiving

- District Urban Development Agency officials need not physically visit all project sites and yet have authenticated photo of project site and project progress
- Scheme wise, Palika wise, Contractor wise, Cost / Time Savings / Overruns wise reports and customized online reports can be generated
- Citizens can come to know at anytime from anywhere about details of all the Nagarpalika schemes / projects going on in their towns

Challenges faced in implementing Process changes

- Evangelizing, spreading awareness and persuading stakeholders about advantages
- Changing mind set of stakeholders in adapting to the new solution
- Making lay persons understand technological aspects of the solution

The Lessons learnt from the Process re-engineering exercise

- Win – win paradigm design model has greater acceptability
- Driving change has to be a top – down exercise
- Communication with all stake holders of the system is essential
- Appropriate IC Technologies when correctly applied have the power to bring about transformational changes in the field of governance.
- It is possible to provide cost effective e-Governance solutions using Innovative technologies such as in case of dudavalsad.in
- User convenience increases early acceptability of the solution.
  - Process Reengineering- major ICT and Non ICT initiatives planned/incorporated –Remote mobile-internet enabled monitoring saves huge time, cost and effort while making the results free from error and vastly improving the efficiency and productivity.
  - Anytime anywhere monitoring means front-end is streamlined and largely automated by providing credible timely information and decision making support system to leadership. Back-end data based reporting, information management and its processing is all taken care of by automated systems with minimum human intervention and effort.

Change Management and Capacity Building

Leadership Support

Complete support made available from top down at District and Nagarpalika levels. Training sessions were conducted by making all requisite official staff available centrally. As a community capacity building step, launch / inauguration of system was done at a public function where about 15,000 people had gathered and vernacular media covered the event.

Change Management and Capacity building Strategy

Both the components of capacity building viz., Community capacity building and organizational capacity building was visualized and successfully attempted as described above.

Project Management

Rapid development and deployment model of software development was used. Highest levels of business and technology leadership from the private vendor interacted with the departmental officials at the highest levels to better understand and communicate nature of requirement. Development team comprising Project Manager, Designer, and two Programmers worked at the development centre at Bangalore, whereas Director and CTO camped on site during part of the preparation and launch of the Project for coordinating with Government officials. Under the active guidance of the Chairman DUDA, District Municipality Officer coordinated availability of all input required for design, development, testing and launch of the project.

Financial Model

- The project was implemented by using services of a private ICT company via the tender route.
- Extremely cost effective solution with stable, state-of-the-art IC technologies.
- Only one time upfront creation cost which is also rather low as compared to the features and capabilities being provided.
- For subsequent years only low cost hosting and maintenance charges can keep the solution running on an on-going basis.
- Total cost of the solution
  - One time upfront cost of creation – Rs. 1,63,596.00 including taxes
  - Annual recurring cost – Rs. 57,600.00 per annum

Efforts at Sustainability

Pricing of renewal of annual contract for hosting and maintenance provisioned for in the tender document. Low one time upfront cost and minimal recurring annual costs will help considerably ensure sustainability of the system.

Challenges faced in Change Management and Capacity building

- Vernacular language challenge for community capacity building for technology understanding..

The Lessons learnt from Change Management and Capacity building exercise

Apply change solution for correction for prospective effect rather than retrospective effect

- Involve media in community capacity building
- Drive change from top-down
- Involve all stakeholders, particularly the end beneficiaries

Technology

ICT Solution adopted

Open source stack LAMP (Linux, Apache, MySQL and PHP) used as major platform for solution development amongst combination of host of other programming languages and technology components. Drupal is used for Content management system and as Rapid Application Development Tool. Etamine PGG's Mobile application is developed on Android Operating System for capturing the Project monitoring Last mile data.

Security and confidentiality standards

Dudavalsad.in website is both accessible by General Citizens as well as by Duda Office Staff. General Citizens get Read only access to most part of the website while the Write access is eligible only to the Duda Office staff. Login protection allows authenticated users to access authorized areas of the website. Android based Mobile application is also login protected and allows only the authenticated users to access the application to capture the Last mile Project monitoring data.

Disaster Recovery and Service Continuity

Dudavalsad.in is hosted on Asia's Largest Tier 4 Datacentre CTRLS, is based in Hyderabad and provides the best of Hosting & Networking bandwidth services. Dudavalsad.in data is backed up on a daily basis to ensure there is negligible data loss in case of eventuality.

Mobile application is pretty robustly built and ensures there is no loss of data in case of Battery run-downs, Bad connectivity/No Connectivity areas etc. Data transfer is very smooth and seamlessly architected between the website and Mobile application.

The Lessons learnt from Technology choices and implementation strategy adopted

Drupal used as Content Management System and Rapid Application Development Tool helped in Speeding up the Development curve. Flexible technology framework for workflow ensures proposed projects get smoothly regularized and Complaints management system ensures easy traversal of complaints across different departments.

VALUE INDICATORS

Digital Inclusion

Launch of the program involved inauguration of the project at a public function by Urban and Infrastructure Development Minister of Gujarat State. About 15,000 people were present during this launch function, which was given wide publicity in the local newspaper

Training program of the concerned officials were conducted using combination of English and vernacular language.

Language, demographic, cultural barriers to inclusiveness-these get largely addressed due to usage of multiple data formats in the form of photo and simplified data input from project site using smartphone.

Green e-Governance

As the entire solution is web and mobile based only, its on-going use is expected to provide considerable advantages of producing minimal or no e-waste and minimal or no use of paper.

Huge reduction in time, effort and resources of / by officials achieved for carrying out physical monitoring.

Also remote monitoring-of which remote inspection/Survey and Audit can be treated as extended arms-of programs, projects etc. can save huge amounts of travel budget thus saving substantial consumption of fuel etc. in the process.

Dr. Vikrant Pandey, Chairman, District Urban Development Agency, Valsad District, Gujarat. Email: collector-val@gujarat.gov.in

Paresh Joshi, Project Coordinator, District Urban Development Agency, Valsad District, Gujarat. Email: pareshcj@gmail.com

Mobile Application of Rural Development Works

[District Panchayat Sabarkantha, Govt. of Gujarat]

Nagarajan M

Description of the Project

Under guidance of District panchayat Sabarkantha various development works are carried out by various departments. It was very difficult to supervise and monitor all the development works from district level and due to this exact information or progress about the construction work of Awas/Toilet/C.C. Road/MGNREGA Work/BNRGSK/BRGF work/Anganwadi was not communicated to the ordering authority on time. Monitoring of the payments distributed to the beneficiary for Awas/Toilet/ MGNREGA works etc. were not able to be carried out. Inspection and monitoring of various schemes /projects of State/Central government didn't yield desired results.

Sabarkantha District Panchayat office has developed **"MOBILE INSPECTION SYSTEM FOR RURAL DEVELOPMENT WORKS"** which helps them in inspection of MGNREGA, TSC Toilets, Indira Awas Yojana Awas and Backward Region Grant Fund works using latest technology and user friendly m-governance tools like mobile application. The project uses the latest technology to eliminate delays and errors in inspection and monitoring of various projects/schemes laid down by State/Central Government. The project has a facility to capture the stage details, Images and Videos of work with other relevant data, carrying out Geo-tagging of work at various stage with GPS coordinates, generating inspection order and mailing the same automatically to inspection officer and ordering authority in pdf format. There is a linkage provided in the system where inspection report's GPS co-ordinate link would be located and shown on map.

As the system uses GPS linkage the duplicity of the work would be avoided.

Also one can upload photos and videos into the system which will help the inspection officer and ordering authority in monitoring the progress and quality of the work carried out at the GPS mapped location. Using these facilities of the system and the MIS reports generated from the system the authorized officials are able to know the stage wise, work wise actual status of the projects and help them to carry out further processing of the same.

Inspection of 12,000 households in last five years was taken in September 2013 through 40 teams to cover 1,440 villages of both Sabarkantha and Aravalli district. After that regular inspection of BRGF and after one month scope was expanded to all rural development work of district Panchayat and DRDA. Since 8.8.2014 the scope was further expanded to cover District Planning Board (Ayojan Mandal), TSP, ATVT, health facility, Anganwadi and others. Effective coverage of 100% of all works implemented in district is done.

Capacity building of GramSevak, Talati (Patvari) and other staff, who were going to use mobile application, was done. Sensitization workshop for supervisor regarding importance of timeliness and reliable data collection and reporting were held. Review Meeting with various level officers and staff for gathering information regarding current reporting system and suggestions for improvement in current reporting system.

RESULT INDICATORS

Timeliness and quality of development works have improved. Due to timely reporting of work payments are done quickly with photo and GIS proof of development works. We can now ensure accuracy of reports up to 99%. Reliability and validity of data generated with Mobile Inspection has improved. Monitoring at district level has become very simpler. Dashboard review gives real time progress of all development works at a glance to district authority. Authenticated data gives opportunity to make evidence based decision making by district authority.

Key Performance

ICT Based Services

- **Government to Citizen:** Qualitative and timely delivery of development

work is done due to Mobile Inspection. Benefit is given to person for whom development work is sanctioned.

- **Government to Government:** Inspection and Monitoring of all type of development works done by district panchayat under various schemes. Real time submission of report is done. Desktop review of progress of all type development works is done.
- **Government to Employee:** Use of latest technology for improving performance with minimal use of resource. Mobile application gives facility of real time submission of report. Account officer have authenticate data for payment of development works. Real time availability of data for district authority.

Current Stakeholder Benefits

- **Government to Citizen:** Quality and progress of development work has been improved.
- **Government to Government:** There is an improvement in reliability and validity of data for various development works. So now district authority is able to do evidence based decision making. With Mobile application inspection and monitoring of almost 20,000 development works have been completed with photograph of beneficiary, beneficiary's photo identification proof and development work with GPS tagging with minimal use of human resource. District authority is now able to do desktop review with backend web application and gives feedback to all level government servants. Due to completion of work in time, payment for development work has become speedy and transparent. Corruption has decreased with use of Mobile Application. Government staff from any department can do inspection of any development work done in district. This type of third party evaluation has reduced a chance of corruption and false report submission.
- **Government to Employee:** There is an improvement in efficacy and efficiency of employees. Employees are able to complete inspection of all works in time with minimum resource utilization. Real time submission of report with GPS tagging has improved authenticity of report submitted by employee. District authority and all level other officers can easily monitor progress of all development works with necessary information. There is a reduction in paper work.

Services planned for Future

District Panchayat has planned to do monitoring of all the facilities of health and woman and child department.
Currently only Pre, Mid and Post inspection of development work is done. District Panchayat has planned to monitor development work from primary proposal to completion of full payment of development work.

Implementation coverage

Mobile Inspection has covered 14 taluka of Sabarkantha and Aravalli district. It has covered Development works done by District Rural Development Agency, Tribal Sub Plan, and BRGF etc.
Branch Officer of each department is assigned as ordering authority and other staffs are given role of inspecting authority.

Transaction Volume

No	Name of Development Work	2010-11	2010-12	2010-13	2010-14	2010-15	Total
1	IAY	0	0	0	12170	1092	13262
2	SAY	0	0	0	0	112	112
3	C.C. Road	0	0	0	25	566	591
4	Toilet (NBA)	0	0	0	122	3725	3847
5	MGNREGA Work	0	0	0	66	583	649
6	BNRGSK	0	0	0	6	57	63
7	BRGF & Other works	0	0	0	14	963	977
8	Kacha Makan	0	0	0	0	2917	2917
	Total	0	0	0	12403	10015	22418

Web-site Hits volume

Year	Number of times the project's website has been accessed.
2014-15	5420 (1,08,400 data downloaded and 1,08,400 data uploaded, Total photos uploaded 1,08,400))
2013-14	3996 (59940 data downloaded and 59940 data uploaded, Total photos uploaded 59940)
2012-13	0
2011-12	0
2010-11	0

Efficiency and Improvement Initiatives

Time and Cost efficiency.

The cost of each tab with software and services is fixed for three years and can be used for unlimited inspections without any extra cost. Tab and software licenses are permanent assets to the organization and any number of departments/schemes and works can be added for inspection. Hence over a period of 3 years the cost per inspection will go down drastically. Moreover latest technology like mobile and cloud have been used to keep overheads and running cost low in future. The data collected viz. Work status and GPS help in GIS based planning and decision making which cannot be quantified in money terms.

Innovative Practices

- Use of Mobile Technology for field works monitoring.
- Use of GPS and Geo tagging for government development works.
- Data store and Sync to cloud on connectivity to overcome data connectivity issue.
- API and web services for two-way data sync.
- Map based visualization of reports for reviews, decision making support and planning of rural development works.

Levels of Integration

- The application is developed in modular and extensive manners.
- Standard based approach is adopted.
- Extensive use of web services / API to enable Electronic Data Interchange (EDI).
- Application is built for quick scalability and state wide using cloud mode in (Software-as-a-service) SaaS mode.

ENABLER INDICATORS

Process reengineering

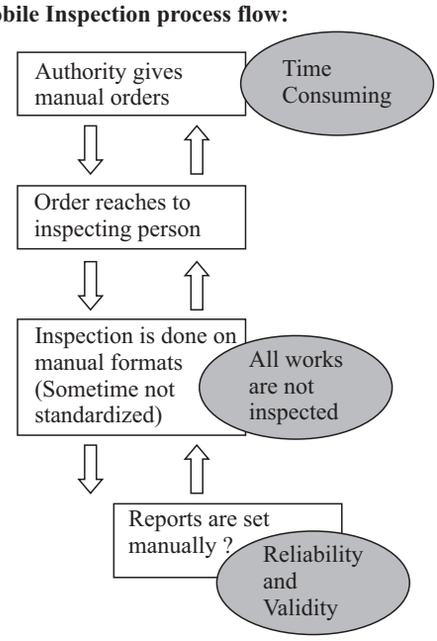
Major ICT and Non-ICT changes

- Entire process of inspection of rural development works has been

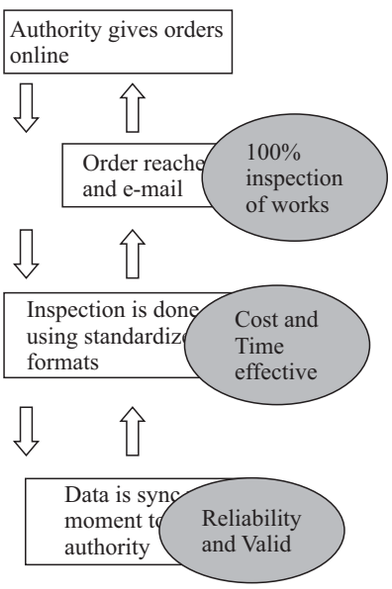
moved from manual to ICT based workflow.

- It is an agile approach with minimal viable products (MVP) followed by quick iterations of product.
- Perpetual Beta- Constant up gradation and changes are made based on user feedback and requests.

Mobile Inspection process flow:



Mobile Inspection Sytem:



Front-end process changes:

No	Process Change	Planned	Implemented
1	Online generation of inspection order by ordering authority	Yes	Yes
2	Order by SMS and e-mail to inspecting authority	Yes	Yes
3	Download order in mobile application only after order is dispatched	Yes	Yes
4	Data fill up forms in mobile with temporary save option	Yes	Yes
5	GPS and Geo tagging	Yes	Yes
6	Report submission intimation via sms and E-mail		
7	Sync data when data connectivity is available	Yes	Yes
8	Availability of data for public	Yes	Yes

Back-end Change process:

No	Process Change	Planned	Implemented
1	Print out of inspection in file for payment process	Yes	Yes
2	100% inspection of development works	Yes	Yes

Challenges faced in implementing Process changes

- Fear of changes in current system
- Fear of use of mobile
- Fear of use of mobile application
- Adaption of new standardized formats.

The Lessons learnt from the Process re-engineering exercise

- Capacity building of all stakeholders is done.
- Mobile application is made user friendly
- Small informal gathering for how to use mobile and mobile application.
- It is made in such a manner so even if stakeholder with low level orientation to ICT technology can use easily.

Change Management and Capacity Building

Leadership Support

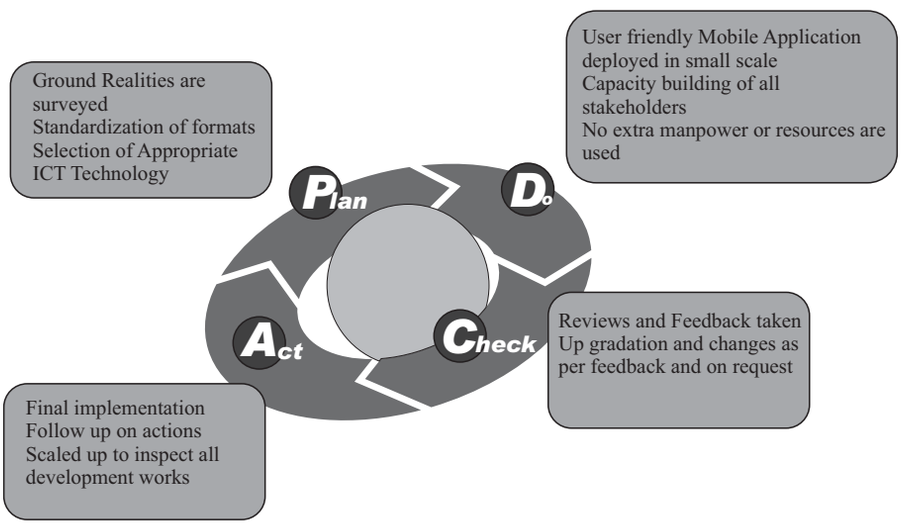
- All the branch officers took possible steps to implement this project in filed under guidance of Mr. Nagarajan M. (IAS), District Development Officer, Sabarkantha-Himatnagar.
- Informal gather approach, call on need approach and feedback mechanism are used to increase adaptability in field.
- WhatsApp group is made for continuous discussion and feedback by DDO Sabarkantha.

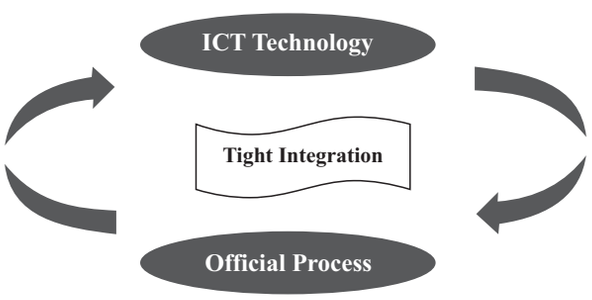
Change Management and Capacity building Strategy

- Informal meetings were held with all stakeholders involved in the project. Forms are discussed and standardized.
- Users were shown power point presentations which covers various aspects of ICT technology. Screen cast video were made and shown to all users to adopt ICT technology.

Project Management

PDCA cycle approach was adopted for this project as follows.





Financial Model

Administrative fund from Backward Region Grant Fund was used. There after Monitoring and evaluation or administrative fund of respective department was used.

Efforts at Sustainability

- Tight integration of ICT technology and official processes.
- Loop follow up system is established.

- Any department can do inspection of any development works in district. So it serves the purpose of third party audit or inspection.

Challenges faced in Change Management and Capacity building

- Difficulty in adoption of newer ICT technology and Mobile application
- Use of android mobile
- Technical specification of ICT device like battery backup, heating of phone, dusting of device, speed of device.

The Lessons learnt from Change Management and Capacity building exercise

- User friendly mobile application is developed.
- Capacity building through informal meetings, whatsApp messenger, power point presentation and screen cast video.
- Up gradation and changes in mobile application as per need and request from users.
- Use of branded ICT device with Flip cover.

Technology

ICT Solution adopted

- Use of branded mobile with latest specifications with high speed.
- Flip cover is given to avoid dusting, direct sunlight and direct damage to device.
- Android application runs in any android based device and data can be communicated to any website in xml format with permission of administrator. Data can be easily shared with other application as and when required through Web Services.

Compliance with Standards

- xml schema is used for generation of data elements.
- Land region codes are used as per government standards.

Security and confidentiality standards

- All Passwords encrypted with MD5 Algorithms - The MD5 message-

digest algorithm is a widely used cryptographic hash function producing a 128-bit (16-byte) hash value, typically expressed in text format as a 32 digit hexadecimal number. MD5 has been utilized in a wide variety of cryptographic applications, and is also commonly used to verify data integrity.

- Complete Source code is encoded in dll files - DLL stands for Dynamic Link Library: is a container of Classes each Class is a container of Methods. Method that represent Block of Code that contains Business Logic that the DLL Structure. Why we need to build it? To collect all of our code to one place that makes the accessing to our code easier. To reference to .dll file after create it.
- URL Rewriting- URL rewriting is the process of intercepting an incoming Web request and automatically redirecting it to a different URL.
- Database is not remotely accessible.
- Web service access only with developer's team

Disaster Recovery and Service Continuity

ICT device with software and services are fixed for three years and can be used for unlimited inspections without any extra cost. Tab and software licenses are permanent asset to the organisation and any number of departments/schemes and works can be added for inspection.

Technology related challenges faced

- GPRS and Internet connectivity is not available.
- Speed of ICT device.

The Lessons learnt from Technology choices and implementation strategy adopted

- Data store facility is given and can sync data whenever data connectivity is available.
- Branded ICT device is used to overcome ICT device limitations like speed, heat protection.

VALUE INDICATORS

Digital Inclusion

- User friendly mobile application is made for even if low level stakeholder can use this application.
- The mobile application is available in local for better adaptability.
- Capacity building of all stakeholders are done through review meetings, informal gathering, power point presentations, screen cast video of mobile application, mobile application demo, whatsApp messenger.

Green e-Governance

Particular	With existing system	With mobile application	Total pages saved
Paper used for each	Oreder-2 Formats-8 Report-2 Add 20% of total papers-3 Total:15 pages per	Print out of order-2 Printout of Inspection report-2 Total pages used:4	11
Total development works inspected are:22418	Total pages might be used:3,36,270	Total pages used: 89672	246598

Nagarajan M, IAS District Development Officer, District Panchayat Sabarkantha, Gujarat. Email: ddo-sab@gujarat.gov.in

Revenue Court Monitoring System

Department of Information Technology, Govt. of Himachal Pradesh

Priyanka Basu Ingty and Rajeev Sharma

Description of the Project

RCMS is a web portal developed by IT Department of Himachal Pradesh to enhance the online filing and management/ monitoring of revenue cases at different levels across the State. The RCMS has been implemented in all the Revenue Courts of Himachal Pradesh.

The RCMS serves as a citizen friendly tool through which they can not only know the status of their Revenue Court Cases but also can download the interim as well as final orders, thereby reducing the need to frequently travel great distances to access such information from these Courts.

Not only has the citizen been benefited from the software, but it has also enhanced the functioning of the Revenue Courts.

Objective of the Project:

- Better citizens services:
  - Online access available to citizens to check current status of cases
  - Online availability of court-wise cause list
  - Online availability of copy of judgments
  - Online availability of summons
- Better management & effective monitoring of revenue cases
- Checking the status and maintaining the history of cases
- Easy updating of case status
- Generation of various administrative reports

Benefits of RCMS:

- Manual maintenance of Peshi registers made redundant
- The cause list is generated automatically
- Case status is available on internet
- Advocates now get more time for preparing their cases

- Saving of money & time of stakeholders
- Case history of the particular case can easily be located
- Decision of all the cases including interim orders are available on Internet
- Summons can also be downloaded through the software

In RCMS, there is provision to capture all the case proceedings of the case right from filing of case, updating stages i.e. interim orders, entering next date of hearing and final judgments/ appeals etc.

Result Achieved/ Value Delivered to the beneficiary of the project:
Current utilisation of portal is depicted below:

Total No. of Courts using RCMS Software	239
Total No. of Case entered in the RCMS software	51,036
Total No. of Decided cases in RCMS Software	27,746
Total No. of Judgements uploaded in RCMS Software	20,123
Project development starts Date	January 2008
Project development completion Date	March 2008
Project LIVE Date	April 2008

RESULT INDICATORS

Key Performance

Current Stakeholder Benefits

- Manual maintenance of Peshi registers made redundant
- The cause list is generated automatically
- Case status is available on internet
- Advocates now get more time for preparing their cases
- Saving of money & time of stakeholders
- Case history of the particular case can easily be located
- Decision of all the cases including interim orders are available on Internet
- Summons can also be downloaded through the software

Services planned for Future

- Register new Case by Revenue Court
- Show Current Status of cases to all the stakeholders
- Show Cause list of cases to all the stakeholders
- Stakeholders can download judgment

Implementation coverage

As RCMS is dealing with revenue court cases of Himachal Pradesh only, that's why only Himachal Pradesh is covered through this software.
All the Revenue Courts and Citizens especially the farmers who own the land or involved in the agricultural activities are the stakeholders of this project.

Efficiency and Improvement Initiatives

Time and Cost efficiency

- Manual maintenance of Peshi registers made redundant thus reduces paper wastage
- Advocates now get more time for preparing their cases
- Saving of money & time of all the stakeholders as they do not have to go to the court or advocate office for taking copy of the judgment.

Innovative Practices

Now the stakeholders do not have to go to the court or advocate office for taking copy of the judgment and thus it saved a lot of time and money.

ENABLER INDICATORS

Process reengineering

Major ICT and Non-ICT changes

- Now Complete case history right from institution to its disposal including judgement is being maintained electronically resulting in no manual file keeping
- Orders and judgement are being uploaded online to the RCMS
- Cause list being generated through software and made available online for all.

Challenges faced in implementing Process changes

Lack of readiness & awareness among the planning and implementing authorities

- Field level authorities are sceptical about the need and success of the project
- Lack of accessible environment
- Lack of necessary data including disaggregated data

Change Management and Capacity Building

Leadership support

All the Training and Support is provided by RCMS authorities to the designated Revenue court officers. Technical Manpower is in place for operational support.

Change Management and Capacity building Strategy

Workshops and training sessions were held at various locations to train the designated Revenue court officers.

Financial model

The development of the RCMS was done in house by Department of Information Technology.

Efforts at Sustainability

Repeatedly compulsory workshops and training sessions were held at various locations to train the designated Revenue court officers.

Challenges faced in Change Management and Capacity building

- No prioritization
- Employees are not involved
- Benefits at individual level are not demonstrated
- No urgency is created for Change
- Continuity of team not ensured

The Lessons learnt from Change Management and Capacity building exercise

- Assemble the right team of experts
- Start planning early and continually integrate all efforts
- It takes time to reorganize and redesign organizational structures, process and working relationships
- Understand More, Implement Less
- Embrace Existing Processes where it makes sense

Technology

ICT Solution adopted

The architecture of Revenue Court Monitoring System (RCMS) is based on Microsoft ASP.Net 4.0, Microsoft SQL Server 2008, Windows Server 2008 and related services of Microsoft .Net Framework 4.0.

The solution adopts a layered architecture approach with clearly defined layers, namely:

- Presentation Layer for user interface
- Business Layer for business logic
- Database Layer for data services

Adoption of this approach provides benefit of flexibility in changing functionality at any layer without having to modify the other components of the system. Besides, such a loosely coupled, services-oriented approach makes the system extensible, allowing us to add additional components to the system as it grows without affecting the other components in the system.

Presentation Layer is primarily built using Microsoft ASP.Net 4.0. Business Layer is built using .Net libraries.

The key Microsoft .Net 4.0 services utilized are ASP.NET membership and roles. ASP.NET membership validates and manages user information for the Web application. Role management helps to manage authorization, allowing you to specify the resources, which users are allowed to access. These features have been used extensively in the system for:

- User Registration and Authentication (creating new users and passwords).
- Storing membership information (user names, passwords, and supporting data) in Microsoft SQL Server 2008.
- Authenticating users who visit the site. The ASP.NET login controls are used to create a complete authentication system which requires little or no code.
- Managing passwords (creating, changing, and resetting). The membership system can also provide an automated password-reset system that takes a user-supplied question and response.
- Exposing a unique identification for authenticated users that integrates with the ASP.NET role-management (authorization) systems.
- Role management for managing roles and authorization.

Database Layer is a comprehensive data platform providing enterprise-class data management capabilities. Microsoft SQL Server 2008 is used as the enterprise database platform for the solution. Microsoft database engine provides more secure, reliable storage for both relational and structured data, which helps to build and manage highly available, performing data applications that can be used to take the business to the next level. Apart from regular RDBMS, the database provides a complete stack including ETL, OLAP (data warehouse and business intelligence), reporting services and notification services.

Compliance with Standards

Microsoft ASP.NET 4.0 which is used as frontend for RCMS website has inbuilt many features which automatically help in designing and building Web sites that are compliant with XHTML and accessibility standard as per e-Government standards.

Security and confidentiality standards

This system has been designed, developed and hosted at secure Himachal Pradesh state data centre. The web interface is designed by latest technology available keeping in mind the security and easy to use by common person. This has been designed considering the skill set of rural citizen at large and for every

service available in the systems, separate links are provided at home/welcome page.

For security of data at RCMS website we had used mechanism as follows:

- User Registration and Authentication (creating new users and passwords).
- Storing membership information (user names, passwords, and supporting data) in Microsoft SQL Server 2008.
- Authenticating users who visit the site. The ASP.NET login controls are used to create a complete authentication system which requires little or no code.
- Managing passwords (creating, changing, and resetting). The membership system can also provide an automated password-reset system that takes a user-supplied question and response.
- Exposing a unique identification for authenticated users that integrates with the ASP.NET role-management (authorization) systems.
- Role management for managing roles and authorization.
- All the data to and fro from RCMS is encrypted for security

Disaster Recovery and Service Continuity

The Server for RCMS is hosted at secure Himachal Pradesh state data centre. All the backup policies, security policies and service continuity policies of the datacentre are applicable to the project.

Technology related challenges faced

As a lot of field level officers are using computer for the first time it's become tiresome & cumbersome to train them so that they can easily work on the RCMS website with ease.

The Lessons learnt from Technology choices and implementation strategy adopted

RCMS has been developed on tried and tested .NET framework and SQL Server for which experienced man force are readily available at Himachal Pradesh. Lessons learnt from Technology choices:

- Ease of Implementation

- Easy availability of domain experts
- Low total cost of ownership

The Department of IT, Himachal Pradesh team took up this Project as an In-House software development project. The DIT team worked very closely with Revenue Courts and studied their functional requirement. The detailed functional requirement specifications combined with deep understanding of business requirements were translated into the Technology Design. The DIT in-house software development team put in efforts to Design, Develop, Test and Deploy the Project as per the requirements and schedule. This resulted in ensuring that project met the detailed functional requirements and the technology was put to best use to deliver the business requirements. The DIT Himachal team has been responsible for imparting training to the end users as well as to ensure smooth operations of RCMS Project.

VALUE INDICATORS

The Value Indicators are high level goals and objectives which can be used as guiding philosophies for defining visionary scenarios within which to place e-Governance projects.

Digital Inclusion

From time to time various Workshops and Awareness Campaign at different revenue courts had been conducted to train the concerned officers, CSCs and citizens. Also the User Manual has been available at RCMS website for reference. For 24*7 availability of RCMS website, last mile connectivity is provided by Himachal Pradesh SWAN at various court complexes and through VSAT at CSCs.

Green e-Governance

Reduction in Footfall at the Revenue Court: The flow of the RCMS has been designed in such a way that the citizens have to make minimum number of visits to the Revenue Court. Information on cases etc. can be availed from the portal without visiting the office. This will result in reduced consumption of fuel that may be used in multiple visits.

Online availability of Case history, Peshi registers Interim orders and Summons: As Case history, Peshi registers, interim orders and summons are easily available online thus citizens and advocates can save it as soft copy in their systems, this would reduce the wastage of stationary and reissuing of paper documents.

Priyanka Basu Ingty IAS, Director (IT), Department of Information Technology, Himachal Pradesh. Email: dirit-hp@nic.in

Rajeev Sharma, Joint Director (IT), Department of Information Technology, Himachal PradeshEmail: rajeev.sharma@hp.gov.in

e-Services

[Motor Vehicles Department, Govt. of Kerala]

R. Sreelekha and P K Stephen

Description of the Project

Computerization of RTO/SRTOs was started in RTO, Thiruvananthapuram in 2002 by customizing **Vahan-Sarathi** (SMART-Move) developed by NIC. Government has decided to replicate the software in all other RTOs and SRTOs as a BOMT model and ECIL has been entrusted for the implementation and replication of software. After the computerization of all the offices, department decided to enable G2C, G2E, G2G and G2B services to the public, employees, other government and business agencies. For this purpose e-services enabling online submission and e-payment were implemented with the help of NIC. The e-service applications are developed in LAPP (Linux-Apache-PGSQL-PHP) platform and proven web technologies. They have been built above the legacy application SMART Move and both these application are functioning as compliment to each other. The major challenge for implementing e-services was the building of a Central Data Base for department using the digitalized data capturing at RTO/SRTO level and connectivity of offices to the State Data Centre. For building the central database by data consolidation and synchronization from RTO databases in SQL Server to Central database in PGSQL NIC has developed a replication technology called is **SMART-Sync**. The KSWAN (Kerala State Wide Area Network) connectivity between the offices and the State Data Centre has been established in all offices for enabling the e-Services effectively to the public. The SMART-Sync technology was extended to provide the data required by Government of India for building the National Register (NR) of Motor vehicle and driving license holders. The Motor Vehicles Department's central database contains, details of around 73 Lakhs vehicles and around 1.2 Crore driving licenses. From this central database, various G2C, G2G, G2B and G2E services are planned to initiate

through the department portal. For this purpose a web site for the department is developed (http://keralamvd.gov.in) using Joomla – open source content management tool and various e-Services and m-Services has been enabled through this portal. Many facilities like submitting e-Application for various departmental services and information related to vehicles, driving license, file status etc. has been enabled through the portal. Also application called **SMART-DataXchange** is developed by NIC for data exchange between Offices of KMVD, transferring E-Application details to the respective RTO/SRTO, data exchange between department and Government Citizen Service Centres (CSC). By the implementation of this project, the public is provided with various service access points like SMS (mobile telephone), touch screen kiosks, Internet, Akshaya, FRIENDS etc. So they need not go personally to the departments concerned to know the details on application status or for other department related information. They can also submit application for availing the services from the department through e-Application facility provided in the department's web portal. Thus they can save the cost and time, which will be otherwise spent for the agents. This system ensures more efficient and satisfactory service to the public by avoiding unnecessary procedures and undue delay in processing applications. As a G2B/G2E model, authorized user-Id and password is provided to the vehicle dealers to submit vehicle sale details through the portal. This will help the employees in the vehicle registration process and ensures the accuracy of data and speedy generation of Registration Certificates. Also, as part of 'm-Governance' initiatives of Government of Kerala, Motor Vehicles Department has taken another step forward to make available the departmental information through SMS. For this purpose, an application called **SMART m-Transport** was implemented recently by the department with the help of KSITM and NIC.

RESULT INDICATORS

Key Performance

Major stakeholders of the projects are

- Citizen
- Dealers, Driving Schools, Insurance Companies, Financial companies etc.

- Employees of the Motor Vehicles Department
- Law Enforcement Departments like Police, Excise, Customs,etc.
- Government Service Delivery Centre like FRIENDS, AkshayaCentres
- Non-Governmental Agencies conducting surveys for vehicle manufacturing companies and agencies working on Road Safety measures

ICT Based Services

Government to Citizen: - The G2C services with advanced features are available through the official website, KIOSK provided in all the offices and through mobile phones. Citizen can also submit e-Application for 24 services of the department through the portal for getting various services from the department. This important initiative for Electronic Service Delivery will provide significant benefits to the citizens. The following e-Services are enabled for the citizen through this project.

- E-Application for DL related services like New Learners License (LL) and Driving License (DL), Booking date for LL test, Renewal of DL, Duplicate DL, Change of address in DL, etc.
- E-Application for the vehicle registration related services like Transfer of vehicle ownership, Re-assignment of Vehicle registered in other state (RMA), Duplicate RC, Renewal of RC, Vehicle Fitness certificate and booking date for fitness test etc.
- E-Application for various services of All India Tourist Taxi Permit
- Citizen can book their Learner's License Test and vehicle fitness test date
- Assured electronic delivery of the request from the citizen to the office of the department
- The electronic acknowledgement of successful submission of application/request from department to the citizen
- Complaint redressal system and Learners License Mock Test

Department introduced a new system called "FAST Track Counters" in its offices across the state for providing fast and better services to the public. Through the new system 15 services will be delivered within 30 minutes after the receipt of application. E-Applications received through the web portal helped a lot in the implementation of this Government policy.

Citizen can file grievances to respective RTO/SRTO, Zonal Office or Transport Commissioner Office of the department through the internet. An instant automatic email reply will be given as acknowledgement. The citizen can book date for appointment for submitting grievances directly to the authorities. Transport Commissioner's office and Zonal Offices will monitor the complaints and redressal of complaints by the respective RTO/SRTO.

Before the introduction of e-Applications, the citizens were forced to take services of local agents to get and fill the prescribed application forms. For this, the agents charged the citizens and entries made in the application were wrong and illegible to read. The introduction of the new system has stopped this. Citizens do not need to fill majority of the columns, as relevant data is fetched from the central database, ensuring accuracy and helping speedy processing of the service. The e-Applications received through the portal are pulled to the respective offices by the web service in the central server to complete the service.

SMS based services introduced by the department also help the citizens to get services through mobile phone. The information on Vehicle details, Application status, STA permit application status, permit application status, allotted registration number of vehicles, etc. are available through SMS service. The formats for sending SMS are available in the MVD portal. Automatic SMSes regarding new registration number and e-payment remittance are also provided.

Government to Business: - G2B service enabled through vehicle dealers for new vehicle registrations in the state. The vehicle dealers in Kerala upload the vehicle details through the web site of the MVD portal. E-Application for registering new vehicle through internet has received a very good public feedback, as this has drastically reduced the vehicle registration time.

Driving schools are another stakeholder of the SMART e-Transport. They are using the e-Application facility for booking date for learner's license test. Pre-booking of test date and time helps the citizen to avoid the long queue in the offices.

Banks and financial companies can verify the already availed vehicle loans to

the vehicles. This prevents the misuse of taking loans with same vehicle from different financial institutions and banks.

Another G2B model is through CSC's like AKSHAYA Centres. Citizen can also remit tax, fees, cess, etc. and file e-Applications through Akshaya Centres. For filing e-Application citizen can avail the help of Akshaya consultants, after paying the Government prescribed CSC fee. This will be earnings for the people running Akshaya centres. Integration and data exchange between these Akshaya centres and the KMVD is also implemented through the Kerala State Data Centre. The remittances are updated daily to the department's central database and replicating back to the respective RTO/SRTO.

Government to Employee: - E-Application procedure and acceptance helped the employees by reducing the back end procedures, to ensure the accuracy of data and speedy generation of Registration Certificates, Driving Licenses and other documents issued from the department. This system ensures more efficient and satisfactory services for the public by avoiding unnecessary procedures and undue delay in processing applications.

In the organization perspective, improved productivity and efficiency, reduced costs are direct benefits. The ability to handle growth in activities is a consequence of the increased productivity of employees. Data Exchange between offices from the central database through web service technology has helped the employees in avoiding double entry of data and eliminates chances of mistakes and malpractices. Before the new system, if a vehicle or driving license came in for owner change or address change, related data had to be manually entered. Now it is possible to pull the data from the central data base. The application has also eased out the following processes:

- Verify the genuineness of temporary registration certificate by actual registration authority, before the vehicle registration process
- Daily reports on Tax collection, Fee, Compounding Fee and User Fee collection and CESS collection
- Periodical statements to the Head office and Government are easily available
- CALLS test statistical report
- Online Accident and Incident reporting service

- Complaint monitoring and Actions
- SMS based services strengthen the enforcement of MVD Act & Rule by the vehicle inspectors

Government to Government: The department also provides G2G services for various departments like Police, Excise and Sales Tax etc. by sharing information like Driving License Details, Vehicle Details and Vehicle Permit Details through the website using the authorized login provided by MVD. The following are some of the facilities provided to other Government departments.

- Exchange of data between other departments & e-governance applications of State government like FREES
- Details of driving license including photo, by giving the driving license number and date of birth of the license holder for verification by the enforcement team using authenticated login id
- Full details of a vehicle registered in the state by giving the registration number of that vehicle for verification by the enforcement team using authenticated login id

The National Register for Vehicle and Driving Licenses has been developed for the interconnectivity and data exchange between states. The National Register will be very helpful for the processing of National Permit System introduced by the Central Ministry of Road Transport and Highways.

The SMS facility enables easy access of information to the enforcement officers of Police / MVD/ Excise departments who are on field duty, with all the necessary and correct information about the offenders.

Efficiency and Improvement Initiatives

Time and Cost efficiency

Cost Savings for Delivering e-Services:

- Number of vehicles, number of driving licenses, and amount of Revenue collection has increased exponentially, while the increase in the number of staff is meagre. Computerization and e-Application processing helped employees to handle larger number of services for the citizen.

Thus the Government could save expense on appointing additional staff or running additional offices based on the huge growth in the number of services.

- SMART eServices is developed in Open source platforms Linux, Apache, Postgresql, PHP which helped to save a large amount comparing to the proprietary software
- Home page of SMART e-Transport is also developed in Joomla open source content management framework
- Software design, development, consultancy and management are provided free of cost by National Informatics Centre
- Common infrastructure like KSWAN, SMS gateway and State Data Centre of the Government are used which resulted in reduction of project cost.

Time Savings for Availing e-Services:

e-Services will be available 24 hours a day, 7 days a week, and accessible from anywhere in the world via the internet and SMS service and enabling tracking of the status of the application through internet or mobile by giving the unique e-application ID.
The following table comparing the pre and post implementation impact for a few services.

Services	Before the introduction of e-Services	After the introduction of e-Services
New Vehicle Registration	>10 days	2 - 4 days
Issue of Duplicate RC	> 7 days	Same Day
Change of Address In RC	>7 days	Same Day
Additional endorsement vehicle class in License	>7 days	2 - 4 days
Issue of Driver's Badge	>7 days	2 - 4 days

Cost Saving for Availing e-Services

- Before the introduction of e-Applications, the citizens were forced to take services of agents sitting near the RTOs and SRTOs to get the

prescribed applications and for filling the application. For this the agents will charged an amount to the citizens to fill the application. Now using SMART e-Transport, citizen can directly use the online application and can save the amount to be given to the RTO agents.

- Before this, the citizens were forced to take the service of an RTO agent or to travel to the respective office (3- 4 times) by taking leave from office/ job place

Innovative Practices

- In the conventional system, the citizens were forced to take services of agents sitting near the RTOs and SRTOs for purchase the application, filling the application, submitting the application, follow up of submitted application and its present status and finally for getting the documents like RC book, driving license etc.
- After the introduction of eServices, the application form filling has become citizen friendly. Citizens need not fill majority of the columns in the application, as the data corresponding to the relevant columns are fetching directly from the central data base. There is no more application filling phobia for the citizen.
- As the appointment date can be pre-booked through the SMART e-Transport, the citizen can directly go the RTO office and take service on the availed date by submitting the e-Application form printed from portal without taking the help of an outside agent. This avoids the long waiting in the normal queue in the offices.
- The conventional system is re-engineered for SMART e-Transport the citizen needs to go to the respective RTO/SRTO only once for submitting the application. All other movement of the application status are provided through internet and SMS. Finally the document (RC book, DL, Permit etc.) will be sent to their home through speed post.
- Acceptance of e-Application has reduced the time-taken in application processing in the offices by avoiding repeated backlog data entry and eliminates chances of mistakes and malpractices
- The e-Application processing helps the employees to regain the image of the department and reduce the per-capita workload of the staff to some extent and thereby reduce the stress and strain of each employee.

- Complaints against the department is minimized, presence of agents are minimized.
- Retrieval and access of data have become easier as every data is available in the central data base.

Levels of Integration

Web Service applications have been developed for data sharing between SmartMove software and online services, mobile services, State Service Delivery Gateway and e-District services.

ENABLER INDICATORS

Process reengineering

Major ICT and Non-ICT Changes

Major Front End Process Changes and Implemented

Service requests submitting by the citizens against the service levels which shall involve the following steps:

- Taking the printout of the e-Application form
- Push the application to the concerned offices through web service and process it in the offices through the customized Vahan-Sarathi application.
- Updating the status of application and process stages on the department portal from time to time
- Sending the registration certificate/license/permit etc. to the applicant through speed post.
- Enabling tracking of the status of the application through the unique e-application ID

Major Back End Process Changes and Implemented

The e-Application is the major change management and in the first phase, it was a difficult task to for the implementation team to educate the vehicle dealers, driving school people and citizen with the new concept. By training, workshop and support from department staff and top managements, the

stakeholders were made to appreciate the new change. Once the submission of e-Application is done to the department Portal, the data will be routed to the respective offices through web services. Citizen will get periodic status update and other information on the Portal. The back end process for data synchronization between RTO and central services could handle with the custom developed synchronization tool. It is one of the department, using the KSWAN connectivity effectively for the networking services of its offices for data exchange.

Change Management and Capacity Building

Project Management

Department's IT cell, called SSG (Smart Support Group), is constituted with IT interested and enthusiastic officers for the management, monitoring and implementation of the project. The team consists of a Nodal Officer and 4 subordinates. The following tasks are handled by the team for the successful implementation of the project.

- Examine and enable formalization of changes required in the departmental processes and Review the progress of implementation of BPR and Change management
- Conducting regular meetings for evaluating the progress of the implementation and updating the status to the Transport Secretary, Transport Commissioner and higher officials of Motor Vehicle Department
- To improve the Server response, better infrastructure is in plan.
- Manage tendering process for selection of Consultant/Implementation Agency(ies)/Content Service Provider/Data entry agency/ies and recommend for approval to apex committee
- Manage Communications and Training plans.
- Assess the progress of work on the project and advice the project execution team on new directions/approach and ensure its linkage with related work in the concerned departments
- Exercise strategic control including budget controls

Achievements of Training of Internal & External Members on the New System

- Training is given to vehicle dealers and driving school people for using e-Applications.
- Officials from the department are identified and trained as master trainers for giving training to others on handling the e-Application processing. It is proposed to train a minimum of 2 officers per office for processing e-Applications.
- Training to the master trainers of support providers of the department (SPMVD) has been given by NIC and trained employees of the department.
- Training has been given to staff of FRIENDS on the MVD.

Change Management and Capacity Building Strategy

- Giving better working ambiance to the employees is one of the visions of project. Also the users are proud of working on latest ICT technologies and they are able to give better services to the citizen. Internal stake holders have recorded their appreciation
- By centralizing all the data available in the state data centre 24X7, information is made available through multi-channel service delivery access points like Touch Screen Kiosks, SMS, Service Counters, e-mail and Internet. This not only ensures transparency but also availability of the data to all its stakeholders.
- Acceptance of e-Application and processing achieved very good acceptance from the citizen, dealers, driving schools and employees of the department.
- Registrations of new vehicles too are accepted through the online application submission of Vehicle Dealers and this has been implemented successfully. All the vehicle dealers in Kerala state are the using this new system.
- Online submission of applications for Learners License and Driving License are warmly welcomed by the driving schools. Pre-booking of Learner's License Test date helps avoiding long waiting in the queue and capturing data from e-Applications directly for registration of applicants for learner's license test helps the speedy process of the service.
- Information sharing between other Government departments on

vehicles and driving license details are decided and implemented successfully. The facilities provided by this department is effectively used by departments like Police, Excise, Passport etc. and recruitment agencies like Public Service Commission, Employment Exchange etc.

- Enforcement departments like police, excise, and MVD inspectors are accessing the data through internet, kiosk, mobile devices etc. and they could immediately identify vehicles and drivers met with road accidents, details of offenders of motor vehicles laws, theft vehicles and vehicles used for criminal purposes etc.
- With the implementation of the ICT driven programs, the delays in processing the applications can be avoided to a great extent and the department could get a better image from the public.
- Acquired the accuracy in data which helps correctness and speed in generating reports for the queries from Government and Public.
- Payment integration between FRIENDS and other CSC's helped the citizen to remit their vehicle Tax, CESS, Fee etc. from other nearby places.

Leadership Support

The department is under the Ministry of Transport, Government of Kerala. The Department is headed by the Transport Commissioner. The leadership, valuable advice and suggestions given by the officials of the department, for the utilization of the advanced technology of the IT, are tremendous. They are always keen to fulfil the vision and goals of the ICT initiatives of the department in the following area

- To review the financial and technical progress of the project
- To assess the progress of work on the project and to advice the project execution team (SSG) on new directions / approach and ensure its smoother progress
- To ensure advance action regarding completion of the project, establishment of facilities. Its utilization and transfer of know how etc. for successful replication.
- Internal inputs from employees and external inputs from other stake holders helped a lot to improve the system. The timely change requests based on these inputs made the system an acceptable one.

- The state level needs are reviewed by the IT Secretary and other senior secretaries of Govt. of Kerala.

Financial Model

- This is a Government-owned project implemented by Kerala Motor Vehicles Department and the technical support is provided by NIC
- Government gets benefit in terms of man power redeployment and enhancing the quality and quantity of services. Financial benefits occurred when services are charged either through PPP model or through govt. delivery channels like AKSHAYA centres
- This is one of the good BOMT models of Kerala Government
- Data Centre infrastructure is used for server collocation, security and data protection
- Kerala Motor Vehicles Department meets the miscellaneous funding requirements
- As the department is using the already available network infrastructure and computers, this does not incur any extra cost on the department except for the scanners. Maintenance charges are too minimal. An initial capital to buy central servers was the only expenditure met by the department.

Technology

In developing e-payment applications and web services, open source platform PHP has been used. The software for Computerized Vehicle Testing Station and Driver Testing Tracks has been developed by the respective Service Providers and the web interface has been developed by NIC in open platform. All necessary security measures have been taken by the Department to prevent data leaking. The Central Server of the Department is located in the State Data Centre owned by the Government of Kerala. All the web applications are being installed at the Central Server. Regular back up of data stored in the Central Server is taken in the backup server. It is possible to restore normal operations within a short period on service breakdown of Central Server.

VALUE INDICATORS

Digital Inclusion

The Department has taken necessary steps to ensure that all e-governance initiatives are accessible to each and every layman in the State. At the onset of implementing various e-governance initiatives, the Department itself doubted the publicity and use of e-governance initiatives among the citizens. But, it has been found that public is using the e-governance initiatives largely. For including each and every category of citizen under the e-governance, the Department has extended its services through AKSHAYA centres where an applicant without minimum computer knowledge can also avail his service. Also in all the offices, touch screen kiosks have been installed for the facility of the public.

Green e-Governance

The Department is always taking care to implement green governance in all its e-governance initiatives. Care is taken to rectify and use the ICT hardware which is not working. In utmost cases only, where it is not possible to repair the hardware, new hardware is procured after obtaining an irreparable certificate from NIC or any competent authority. The replaced equipment is disposed by way of money-back policy and hence the irreparable equipment are taken back by the companies and replaced by new ones. Hence, there is no digital waste in the offices of the Department.

R. Sreelekha, I.P.S, Transport Commissioner, Motor Vehicles Department, Kerala. Email: tc@keralamvd.gov.in

P K Stephen, Joint Transport Commissioner, Motor Vehicles Department, Kerala. Email: jtc@keralamvd.gov.in

Computerization of MP Commercial Tax Department

[Department of Commercial Tax, Govt. of Madhya Pradesh]

Amit Rathore, Praveen Bagdikar, Dharmapal Sharama and Deepak Shrivastava

Description of the Project

Commissioner Commercial Tax (CCT), Madhya Pradesh is the largest revenue earning Department of MP Government having 5 zonal offices, 16 divisional offices, 80 circle offices, 6 Anti evasion Bureaus, 5 Tax Audit Wings and 28 check posts spread over the State for administering the activities of tax collection for the Government. With the computerization of the Commercial Tax Department (CTD), we are providing our dealers, taxpayers and departmental users, a gamut of services through an interactive public web portal and a VAT-enabled application.

This project has helped us in improving our tax collection from Rs. 9,416 crores in 2009-10 to Rs. 19,706 crores in 2013-14. One of our biggest achievements has been the growing popularity of our web portal. The web portal/ application modules already launched by the department are, Registration, Return, Tax Accounting System, Industrial Incentive System, Appeal and Court Cases, Enforcement, Assessment, Luxury Tax and Professional Tax.

Various e-Services being provided by the Department are generation of Waybills; verification of Waybills, TIN and Statutory forms through SMS, Mobile App and Web Portal; and online facilities for e-Registration, e-Returns, e-Payments, etc. The Department is working continuously towards enhancing Stakeholder Satisfaction by frequent interactions with dealers and taxpayers through emails, Push-SMS, Pull-SMS, Mobile Apps, trainings and departmental Helpdesk.

The computerization project of the Department has resulted in saving around

14 Crores rupees of taxpayers, around 18 Crores papers of stationery and around 3.5 Crore man-days of time of dealers. It is also helping in reducing corruption, overheads, time and cost and enhancing efficiency and staff productivity. Above all it is helping the government in increasing revenue, reducing tax evasion and cost of internal communication between various offices of the Department.

The department is soon planning to provide many more services like e-Refund, automated scrutiny, facilities for continuous uploading of interstate declaration forms and sale/purchase lists, automatic communications to dealers regarding assessments, etc. which will provide a more conducive business environment and better tax compliance. The department is also planning to do away with waybills by sending a unique number on dealers' mobile, instead of sending complete forms.

RESULT INDICATORS

Key Performance

ICT Based Services

The Department is providing following **"Government to Business"** Services

- Generation of Waybills
  - Waybills for interstate transaction through road transport (Form 49), interstate transaction for personal use (Form 50), interstate transaction through railways (Form 60), interstate out-to-out transactions for transporters (Form 59)
- Generation of Statutory forms
  - Form C, Form F, Form H , Forms E-1 and E-2
- Verification of Waybills, TIN and Statutory forms
- Online facilities for e-Registration, e-Returns, e-Payments, etc.
- Enrolment of Transporters and Transhipment Transporters

The department is providing following services under **"Government to Employees":**

Check posts

- Verification of waybills, Issuing e-Gate pass, Automatic detention of

vehicles in case of submission of bogus or reused waybills, Automatic detention of vehicles in case of defaulter TIN, Automatic detention of vehicles on the basis of various configurable parameters.

Assessment

- Early assessment, Schedule assessment hearing. Assessment hearing, Issue demand notice, Impose penalty, Refund process, Search and re-open assessed case, Rectification of calculation mistakes, Transfer assessment proceedings.

Audit

- Selection of Mandatory Audit Dealers, Schedule of Audit Visit etc

Recovery

- Issuing Demand Notice to the defaulter, Issuing Warrants to CTIs, Attachment of dealer's property (Movable/Immovable) and Auction procedure, Issuing FORM 36 etc

Appeal and Court cases

- Filing an appeal, Disposal of appeal, Generation of OIC orders though system for court cases, Provision to enter court judgment.

Current Stakeholder Benefits

Benefits to Dealers / Taxpayers:

- The computerization project of the Department has resulted in saving around 14 Crores rupees of taxpayers, around 18 Crores papers of stationery and around 3.5 Crore man-days of time of dealers.
- Reducing corruption by avoiding direct interaction with officials, reducing discretion, fixing accountability and publication of data.
- Enhancing efficiency by bringing tax payers online instead of in-line, increasing staff productivity, reducing time and cost and by stream lining the processes.

Benefits to departmental officials:

- Increased government staff productivity- Reduce overheads, less paper management, and increase revenue.

Benefits to the Government:

- Reducing tax evasion by data-centralization and empowering Anti Evasion Bureau to access information through mobile app, pull SMS, etc.
- Reducing the cost of internal communication between various offices of the Department by establishing online communication through email and SMS services.

Services planned for Future

- **e-Refund:** Direct credit of refund amount in the accounts of dealers through CTA Server.
- Automated Scrutiny and identification of risky dealers
- Linking of VATIS to Appeal Board at Bhopal
- Facility for dealers to continuous uploading of Inter-state trade declaration forms and doing away with need of hardcopies in case of online issued forms.
- Facility to dealers for continuously upload of sales/purchase list.
- Grading System of dealers for facilitating/ limiting the downloading of statutory forms
- Online module for generation of TDS certificates and accounting for TDS by Government/PSU/Local bodies and credit to such deductees.
- Input tax rebate Ledger for dealer-wise accounts.
- Serving of notices (unsigned/digitally signed) to dealers through email.
- Provide unique number on mobile and do away with waybills.
- Make web portal mobile compatible.

Implementation coverage

Geographical Coverage: The application usage is spread across 5 zonal offices, 16 divisional offices, 80 circle offices 6 Anti evasion Bureau, 5 Tax Audit Wings and 28 check posts. The 5 zonal offices are based in Indore Zone 1 & 2, Bhopal Zone, Jabalpur Zone and Gwalior Zone. The 15 Divisional offices include Bhopal Div. 1 & 2, Chhindwada Div., Gwalior Div. 1 & 2, Indore Div. 1, 2 & 3, Jabalpur Div. 1 & 2, Khandwa Div., Ratlam Div., Sagar Div., Satna Div. and Ujjain Div.

Transaction Volume

e-Services	Launch Date	2010-11	2011-12	2012-13	2013-14
e-Registration	19th August 2010	1,915	14,525	45,721	54,973
e-Return	19th August 2010	11,766	2,04,386	5,15,026	8,95,157
e-Payment	13th November 2012	----	----	6,975 (collected Rs. 1,352.92 crores)	47,234 (collected Rs. 8,057.20 crores)
Form 49 download	19th August 2010	5,12,600	16,78,424	20,35,060	20,09,342
Form 59 download	1st July 2013	----	----	----	8,28,735
Form 60 download	19th August 2010	----	6,403	11,604	13,672
C-Form download	9th January 2012	----	44,599	4,58,446	5,37,660
F- Form download	16th April 2012	----	----	40,638	71,273
H-Form download	16th April 2012	----	----	3,309	6,103
E1-Form download	16th April 2012	----	----	2,551	5,638
E2-Form download	16th April 2012	----	----	364	700
Form 50 download	25-Sep-13	----	----	----	14,450
Enrolment of Transporters	29-May-13	----	----	----	1,44,772
Enrolment of Transhipment Transporters	03-Mar-14	----	----	----	5

Efficiency and Improvement Initiatives

Time and Cost efficiency

- The computerization project of the Department till date has resulted in overall saving of around 14 Crores rupees of taxpayers, around 18 Crores papers of stationery and around 3.5 Crore man-days of time of dealers.

e-Services	Total Transactions up to 31st July 2014	Page Saving	Cost Saving (Per Transaction) (in rupees)	Time Saving (Per Transaction) (in days)	Overall Page Saving for Dept. =([1] * [2])	Overall Cost Saving for Dealers =([1] * [3])	Overall Time Saving (in days) =([1] * [4])
	[1]	[2]		[4]	[5]	[6]	[7]
e-Registration	135468	4		3	541872	135468000	406404
e-Return	1920438	4		3	7681752	0	5761314
Form 49 download	6109483	2	1	4	12218966	6109483	24437932
Form 59 download	6301	2	1	4	12602	6301	25204
Form 60 download	245418	2	1	4	490836	245418	981672
C-Form download	1061277	1	1	3	1061277	1061277	3183831
F- Form download	113886	1	1	3	113886	113886	341658
H-Form download	11265	1	1	3	11265	11265	33795
E1-Form download	8438	1	1	3	8438	8438	25314
E2-Form download	1064	1	1	3	1064	1064	3192
Total	9613038	19	1008	33	18,26,47,722	14,30,25,132	3,52,00,316

Innovative Practices

Generation of Waybills and verification of Waybills, TIN and Statutory forms **through SMS, Mobile App and Web Portal** has lead to considerably reduced corruption, time, cost, efforts and tax evasion along with increased revenue for the State.

Online facility for e-Registration, e-Returns, e-Payments, etc. has resulted in saving significant amount of time, cost, efforts and papers for dealers and department.

Continuously enhancing Stakeholder Satisfaction by frequent interactions with dealers and taxpayers through **emails, Push-SMS, Pull-SMS, Mobile**

Apps, trainings and departmental Helpdesk.

Levels of Integration

- Integration with Banks (SBI, ICICI, PNB) for e-Payments
- Integration with CTA (Commissioner Treasury and Accounts) for e-Payments and e-Challans (In progress)
- Integration with Tinxsys for exchanging Statutory Forms data
- Integration with ICP (Integrated Check Post)
- Integration with e-Taal (Electronic Transaction Aggregation & Analysis Layer)
- Integration with NSDL for PAN verification

ENABLER INDICATORS

Process reengineering

Major ICT and Non-ICT changes

- Generation of Waybills and verification of Waybills, TIN and Statutory forms through SMS, Mobile App and Web Portal is leading to considerably reduced corruption, time, cost, efforts and tax evasion along with increased revenue for the State.
- Online facility for e-Registration, e-Returns, e-Payments, etc. has resulted in saving significant amount of time, cost, efforts and papers for dealers and department.
- Continuously enhancing Customer Satisfaction by frequent interactions with dealers and taxpayers through emails, Push-SMS, Pull-SMS, Mobile Apps, trainings and departmental Helpdesk.

Change Management and Capacity Building

Training

- The Training plan was incorporated in Agreement with Software Application Vendor TCS.
- The plan was divided in two phases :
  - In first phase TCS delivered training to around 1000 CTD employees.
  - In second phase other set of 1000 employees were trained.

- The training of officers was of 2 weeks and that of operating staff was of 3 weeks.
- Training for new employees is conducted as and when required.

Project Management and Monitoring:

- Full-time Project Management Consultant has been appointed to provide end to end technical consultancy and for project management services. The Project Management Consultant regularly measures and monitors progress of the project to identify the variances from the plan so that necessary actions may be taken to meet project objectives. PMC adopted following methodology to monitor the project activities:

  - Monitor progress against schedule
  - Monitor commitments of vendors
  - Monitor project risks and suggest mitigation plan
  - Monitor stakeholders involvement
  - Conduct progress reviews on a continuous basis
  - Review the progress of the project with the help of Fortnightly Status Report (FSR)/Weekly
  - Status Report (WSR) of the vendors
  - Suggests MPCTD for corrective and preventive actions from time to time.

- Roles and Responsibilities of Consultant:
  - Project monitoring and implementation till commissioning stage.
  - Ensure delivery of the requisite equipment at various locations as per purchase order.
  - Ensure coordination between the various agencies (Bandwidth provider, System Integrator, Software Vendor, Auditor and Department).

- Roles and Responsibilities of Department:
  - Overall project conceptualization, project implementation and project management.
  - Conduct project implementation meetings.
  - Coordinate among all stakeholders.
  - Provide guidance to all stakeholders.

- Verify & approve payments for system integrator and 3rd party consultants.
- Finalize and approve network, system architecture after reviewing latest competing technologies.
- Finalize and approve Bill of Material, technical specifications, budgetary estimates, project proposal.
- List out all the nodal officers for co-ordination required for implementation and operational phases.
- Approve and implement training plan for stakeholders.
- Provide administrative support, to the system integrator and consultants.
- Review and approve deliverables of consultants.
- Review project implementation and progress.
- Change management initiatives and training programs.
- Ensure availability of funds and timely payment to all vendors.

Financial Model

- The project falls under MMP-CT. Hence, funded by Central and State Governments.
- Total budget allocated for the project is 71.76 Crores.

Technology

ICT Solution adopted

System is based on open standard and platform independence to ensure interoperability and prevention of technology lock in. Java is used as front end development tool and Oracle 11g enterprise edition is used as backend. Linux is the platform used for the server procured.

J2EE is being used for portability, easy maintenance of software developed and for higher performance. The solution will primarily involve J2EE applications along with BC4J framework to be hosted by the various servers along with some infrastructure services like FTP, DNS, Mail, Firewall services, etc.

Security and confidentiality standards

- Various security hardening controls have been deployed at the operating

system, application, database and other network and server components.

- The servers are distributed in various DMZs with the help of layered firewall architecture. The perimeter firewall layer is an application/software based firewall having web servers behind them. All other servers are behind the hardware based internal firewall.
- Security through the network is achieved with the application of granular ACLs between routers, switches, and VLANs, which gives administrators control to permit traffic that is relevant to the needs.

Disaster Recovery and Service Continuity

- To ensure business continuation and seamless operation of application, a Disaster Recovery site is established at State Data Centre, Bhopal. The objective is to protect against loss of data and disruption of operations. The data replication from the CTD Datacentre servers/storage to DR site is being done in a synchronous mode through the dedicated lease line having the adequate bandwidths between the CTD Datacentre and DR site.
- DR site is connected to the source through a dedicated leased line. This is to ensure live data availability at DR site.
- The link between DR site and Primary site can be utilized for data replication between the two sites along with redundancy.

VALUE INDICATORS

Digital Inclusion

Digital Inclusion ensures that individuals and disadvantaged groups have access to, and skills to use, e-Services provided by the department and are therefore able to participate in and benefit from facilities being provided by the department to its dealers and taxpayers. Following measure taken by the department are ensuring digital inclusion amongst dealers, tax payers and departmental officials-

- **Push SMS-**
    - Pro-business (Confidence building measures)-
        - Intimation of new registration to applicants.

- Confirmation of e-return filing.
- Intimation of completion of Assessment of a period.
- Alerts on downloading of any waybill and statutory forms (49, 59, C, F, H, E1, and E2) from his login.
- Transporter login creation.
- Updates on Latest Notifications and Circulars related to MPCTD to all dealers.
- Updates on new facilities on web Portal.
- Changes in return templates, form 49, statutory forms, etc.
- Total SMS sent- 62.31 lacs.

- Pro-Revenue-
  - Intimation of duplicate / fraudulent use of waybills to officers.
  - Alerts to officers about lost/Stolen/destroyed statutory forms.
  - Total SMS Sent- 0.70 lacs.

- **Pull SMS-**

  - Dealers can generate Waybill (Form 49) through single SMS from registered mobile numbers.
  - CTD executive staff involved in enforcement related activities such Anti Evasion Bureau and Check posts can verify authenticity and usage status of the waybill of import (Form 49).
  - To verify TIN number of any dealer by anyone.

- **Call Centre-**

  - Numbers (18002330440, 9425912502) provided to dealers to log problems, issues, queries and resolving and intimating about the same.
  - Three executives working to resolve customer queries.
  - Resolving around 1500 calls per month.

- **Mobile Apps-**

  - Two mobile apps (MPVAT Public and MPVAT Dept.) have been developed for dealers and departmental officials-

  - Request Wabills for:
    - interstate transaction through road transport (Form 49),
    - interstate transaction for personal use (Form 50) and
    - interstate transaction through railways (Form 60)

- Verify Waybills for interstate transactions through road transport (Form 49)
- Verify Statutory Forms (C, F, H, E-1 and E-2 Forms) issued by the department
- View status of Return filed by the dealer
- Track status of various applications submitted to department.

Green e-Governance

- E-Services maximize transportation efficiencies, reducing carbon admission, since dealers and taxpayers can avail various services from their own home/offices. In general, online services use around 30% less energy than manual services.
- The computerization project of the Department has resulted in saving around 18 Crores papers of stationery till now from the launch of the project.

Amit Rathore, Commissioner, Commercial Tax Department, Madhya Pradesh. Email: rathore.amit@mp.gov.in

Praveen Bhagdikar, Director Commercial Tax Department, Madhya Pradesh. Emai: p.bhagdikar@mptax.mp.gov.in

Dharmapal Sharma, Assisstant Commissioner, Commercial Tax Department, Madhya Pradesh. Email: dp.sharma@mptax.mp.gov.in

Deepak Shrivastava, Assisstant Commissioner, Commercial Tax Department, Madhya Pradesh. Email: deepak.shrivastava@mptax.mp.gov.in

Vatsalya Mandla

[District Women & Child Development department Mandla, Govt. of Madhya Pradesh]

Lokesh Kumar Jatav, Manish Seth, Sushma Taywade, Bhagwat Ahirwar and Neha Gupta

Description of the Project

District Mandla, Madhya Pradesh has introduced 'Vatsalya', an online MIS to identify and monitor the status of malnourished children by removing various Manual Processes like manual identification of malnourished children (manual growth chart), inaccurate/unauthentic child data reporting and record keeping, and Nutrition Rehabilitation Centre admits etc. It maintains and regularly updates digital records of every child (0-5 years) including monthly measurements.

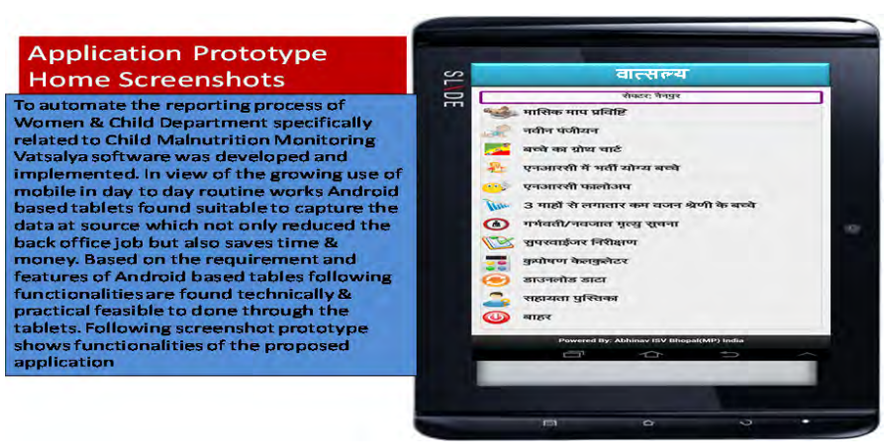
It is the only district in the state of Madhya Pradesh where Women and Child Development sector Supervisors are using a GPS enabled Tablet/Mobile Android based Application operating in both online/offline modes for data capturing/reporting. We are also monitoring the field visits of various related field staffs.

The traditional system for identification of malnutrition status of a child was manual, in which weight and age of a child was platted on WHO graph sheet. This manual process was a bottleneck in identification of malnutrition category of a child. It was observed many times on the field that many Anganwadi workers did not know how to plot WHO Graph of a child which was affecting actual identification of severely malnutrition category children in the district and their NRC admits and follow-ups. It was also observed that field staffs (Anganwadi Worker) were not taking regular measurements of every child at required time intervals, and hence identification of actual category of malnutrition was suffering (inaccurate). The regular and intensive monitoring and follow-ups of malnourished children were also not strong enough in the manual process which is achieved through 'Vatsalya software'.

The Vatsalya software automatically identifies malnourished children as per WHO standard and sends alerts to various key officials about severely malnourished children to be sent to NRCs. It also ensures regular monitoring of data entries and follow-up of severely malnourished children through regular alerts to various key officials and generates various required reports. A monthly malnutrition status report is automatically sent through Email and SMS to all key officers (like Collector, CEO Zila Panchayat, DPO Women & Child Development, PMRDF, Chief Medical & Health Officer, CDPOs etc. Other important features of Vatsalya are as follows:-

- Communication started with Parents through SMS Alerts
- Tablet based data capturing from source
- Geo-mapping of Aanganwadis
- GPS tracked Field Visits/Anganwadi Inspections of supervisors
- Alerts for children above 5 yrs. –these children must be enrolled in school

Online record of more than one lac children already being maintained and monitored using the software.



RESULT INDICATORS

The project is on concept of capture the data at source and for this tablets are being used. Tablets are provided to WCD Sector Supervisors for data capturing at source. The geo-tagged data ensures that the data is collected on the field. We

had used diverse technologies like Web, Mobile Android Application, GPS & GIS to accomplish the task.

Some of the important result indictors of this project are as follows:-

- No of children registered.
- No of field visits done or number of inspection reports uploaded by Supervisors.
- No of severely malnourished children treated from NRCs
- Percentage of timely data capturing from source by Supervisors
- No of reported deaths (maternal and infant)

In May 2013, total number of children (0-5 years of age) registered in the Vatsalya software were 83692, whereas total registered children in May 2014 were 91385, and in July 2014 total registered children are 90192. MUAC measurements of 66753 children were entered in May 2014, which had increased to 77692 children in July 2014. It shows increasing trends in MUAC measurements of low weight children and hence minimum risks of exclusion in the severely malnourished category of malnutrition.

Weight information of children entered in the software has increased exponentially from 2902 (3.47% of registered children) in May 2013 to 82805 (91.81% of registered children) in July 2014, which clearly indicates that WCD Sector Supervisors are confidently using tablet installed with android based application for data entries in the portal. It is also an important indicator of timely data entries in the portal.

Inspection Report uploaded through Tablets has increased from 198 (field visits by Sector Supervisors) in May 2014 to 506 (field visits by Sector Supervisors) in July 2014, it is an indicator of ensured field visits and timely data entries in the portal by Supervisors and hence an effective monitoring and follow-up tool for district administration.

Key Performance

ICT Based Services

Government to government (G2G), government to employees and government

to citizen (G2C) services are delivered through Vatsalya Mandla. Maintaining digital records of measurements of each child, auto-identification of malnutrition categories, ensured field visits of supervisors, maternal/infant death reporting, regular NRC follow-ups and various reports generation for analysis/monitoring are the important services delivered to government. Dashboard for key performance index, data capturing from source with the help of GPS enabled android based tablet application, effective monitoring & follow-ups are the services delivered to employees. Identification of malnutrition categories of children of 0-5 years of age and regular follow-ups of severely malnourished children for Nutritional Rehabilitation Centre (NRC) admission are the important services delivered to citizen.

Current Stakeholder Benefits

Children of 0-5 year of age, ICDS department, Health Department and District Administration are the key stakeholders. Each child of 0-5 years of age is now auto-identified for its malnutrition category and hence having high chances of getting required anganwadi services and treatment through NRC admits. These children will be enrolled in schools after 5 years of age. ICDS department is now getting actual figures of various categories of malnourished children in the district for effective monitoring and planning, as chances of errors are least in auto-identification of categories of these children. ICDS department is also capturing data from source; it is also getting effective monitoring by ensuring regular field visits of Sector Supervisors through GPS based inspection tracking system, emails/sms to key officials, and regular follow-ups of severely malnourished children for NRC admits. Health department is using optimum Nutritional Rehabilitation Centre (NRC) capacities for the treatments of severely malnourished children. District administration will use it as a tool for focused area planning as analysis of various reports generated along with poor performance areas or areas with high risks may be taken on priority.

Services planned for Future

In the subsequent year district administration may plan various required interventions for areas having higher malnutrition. Administration may plan to register all the pregnant women in the portal to ensure institution delivery and

to disburse Motivational fund of Janani Suraksha Yajana (JSY) through self-help groups (SHGs) of respective areas. Data of children of 0-5 years registered in the portal will automatically be deleted from the portal after completion of their 5 years of age; alerts of list of these children will appear on the portal to ensure their enrolments in the school. In future district administration may also provide tablets installed with applications to Anganwadi workers for effective monitoring and to ensure required service deliveries.

Implementation coverage

Vatsalya Mandla is operational in all the nine blocks of the district. Almost all the children of 0-5 years of age are registered in the portal. Tablets installed with android applications are provided to all WCD Sector Supervisors (72 Nos) for monthly data capturing from source. Online record of more than one lac children is already being maintained and monitored using the software.

Transaction Volume
Year wise transactions volume is given below in the table:

FY 2013-14 [April to March]	269789
FY 2012-13 [April to March]	259149
FY 2011-12 [April to March]	NA

Web-site Hits volume
Year-wise transaction count for "hits" in Vatsalya Mandla is given below in the table:

FY 2013-14 [April to March]	60000
FY 2012-13 [April to March]	33000
FY 2011-12 [April to March]	NA

Efficiency and Improvement Initiatives

Time and Cost efficiency

Efforts and time required for data collection and data compiling to generate various required reports has reduced remarkably. Efforts are more organised

and productive now as related officials are more accountable for their duties and responsibilities. Government machinery in the district is now more proactive and responsive towards severely malnourished children. Strong follow-ups of severely malnourished children are achieved through Vatsalya application. It has also reduced costs of stationary materials invested for collecting huge numbers of data offline across all Anganwadis of the district.

Innovative Practices

Vatsalya application has greatly helped in auto-identification of various categories of malnourished children as per WHO standard. It has also improved intensive monitoring of malnourished children and regular follow-ups of severely malnourished children for NRC admits. Previously identification of malnutrition was carried out manually by using WHO graph, which was inaccurate in many cases because of lack of skills to use that graph, negligence by Anganwadi worker/field staffs and lack of effective monitoring mechanism and follow-ups etc.

Data capturing with the help of Tablet (inbuilt with Vatsalya android application) by Sector Supervisors has removed various manual data collection and reporting processes. It has improved accuracy of data collection and reporting drastically. Data capturing by Supervisors can be done at site only, therefore it is mandatory for them to visit Anganwadi centres.

Now top level officials can easily monitor status of malnutrition and field visits of sector Supervisors by sitting on desk. The follow-ups of NRC admit is increased significantly by top level officials.
It has also minimized time taken for data collection & data processing to generate various required reports.

The application has helped greatly to severely malnourished category children & their families as they were having higher risk of exclusion in that category because of negligence of Anganwadi Worker or lack of skills with her. It will also generate list of 5 year children to be enrolled in school every year.

Levels of Integration

State level authorities may plan to integrate Vatsalya MIS with state Women & Child development MIS for 0-5 year age of children with focus on malnutrition. It will also be integrated with Health department to strengthen NRC services.

ENABLER INDICATORS

Process reengineering

Major ICT and Non-ICT changes

Manual processes of Identification of category of malnutrition of a child, Monitoring, regular follow-up, record keeping and reporting etc. are re-engineered in the "Vatsalya Mandla". Some processes re-engineered through Vatsalya are as follows:-

- **Auto–identification of malnourished children** as per WHO standard by Vatsalya Software. Previously identification of malnourished children was done by Anganwadi Workers through manual process of plotting child measurements on a WHO graph. In this manual process child of 0-5 years were having more chances of exclusion from severely malnourished category of malnutrition because of lack of skills/interest of Anganwadi Workers or negligence by them and hence more chances of their exclusion from NRC admits & follow-ups. Now automation through Vatsalya for identification of malnutrition category of children has eliminated the risk of exclusion of children from severe malnutrition category and improved regular follow-ups of the same. As per Vatsalya software number of children falling under SEVERE-UNDERWEIGHT category in July 2014 are 2655, which were 501 in April 2013.
- **Data capturing by using Tablet (android based application) from source** in offline/online modes. Regular data entry in the portal was a serious issue in the initial stages of launch of Vatsalya Mandla as manual data collection of children from all the Anganwadi centres and their entry in the portal was a time taking and tedious task. Therefore in order to remove

bottlenecks of data collection and data entry in the portal, District Mandla has provided tablets installed with android application to its WCD Sector Supervisors to ensure regular and timely data capturing at source. Mandla is the only district in Madhya Pradesh which is using tablets to ensure timely data capturing. This application works in offline mode also, data captured at site is synchronised when tablet comes in network. It was very much required in Mandla as it is having low network connectivity because of dispersed population and high forest cover (around 50%).

- **Geo Mapping of Aanganwadi** – Monitoring the movements of WCD field staffs (Supervisors) by using GPS tracking system. GPS tracking system has remarkably increased field visits of Supervisors and hence improved monitoring and service delivery. Now they are bound to visit Anganwadi centres for data capturing because data can be captured from site only. Previously it was not possible to regularly ensure field visits of WCD Supervisors.

- **Other Innovative Features included are:**

    - Communication with Parents of severely malnourished category children through SMS Alerts.
    - Data capturing by Sector Supervisors can be done at site only.
    - Alerts (SMS/Emails) to key officials for NRC admits and regular follow-ups of severely malnourished children
    - Alerts for children above 5 yrs. – these children must be enrolled in school.
    - Reporting of death of pregnant women and infant also.

Challenges faced in implementing Process changes

It was little challenging to make WCD field staff (Sector Supervisors) technology friendly as many of them were afraid of using mobile technology because many of them have not used anything in past. Regular data entry in the portal was a serious issue in the initial stages of launch of Vatsalya Mandla because manual data collection of children from all the Anganwadi centres and their entry in the portal was a time taking and tedious task. Therefore in order to remove bottlenecks of data collection and data entry in the portal, District

Mandla has provided tablets installed with android application to its WCD Sector Supervisors to ensure regular and timely data capturing at source. Mandla is the only district in Madhya Pradesh which is using tablets to ensure timely data capturing.

The Lessons learnt from the Process re-engineering exercise

Planning, degining, updation and implementation of features of Vatslaya Mandla initiatives were a great learning experience for the district administration. The use of ICT for process er-engineering has remarkably strengthened continuous monitoring and follow-ups processes for malnourished categories of children. It has also minimized risks of exclusions of severely malnourished category children. Efforts are more organised and productive now as related officials are more accountable for their duties and responsibilities. Government machinery in the district is now more proactive and responsive towards severely malnourished children. It has also enhanced acceptability of innovative ICT technologies in field level staff along with other senior officials of WCD department.

Change Management and Capacity Building

Leadership Support

The initiative is successfully running since 2012 under the leadership of District Collector, District Project Officer, WCD department and Prime Minister's Rural Development Fellows, Mandla. All the users of Vatsalya Mandla portal and mobile application (android based) are trained enough in almost all related aspects and they are operating and using the application smoothly & confidently. As of now 25 trainings of DPO, CDPOs and sector supervisors has been conducted at district and block levels. A user manual is available in the application and hard copies of the same were also distributed during trainings. WCD Sector Supervisors are confidently using that application installed in tablet device for data capturing from source.

Change Management and Capacity building Strategy

Changes can be done as and when required with the help of application

developer. Changes may be done to upgrade technology used and/or to add innovative ideas in the application. Capacity building of all the respective users will be done when it is required at times.

Project Management

Existing project management teams of WCD department has given the responsibilities for execution and monitoring of project on regular basis. This project was developed for effective monitoring and follow-ups of malnourished children of the district. It is also used to monitor field visits of Sector Supervisors. Roles and responsibilities of the project are linked with responsibilities of existing field staffs.

Financial Model

Funds from WCD department (Atal Bal Mission) and Integrated Action Plan (IAP) were used for the purpose. Around 12.83 lakh fund was allocated for the project. This fund was utilized to purchase tablets, for the development of Vatsalya Mandla application (android application for tablet and web portal) and annual maintenance costs.

Efforts at Sustainability

In order to ensure sustainability of the project, special focus was given for data capturing from source by Sector Supervisors for which tablet installed with android application were provided to Sector Supervisors. It was very much required because data entry in the web portal was a burning issue in the initial stages of launch of Vatsalya Mandla project because collection of data manually from all the anganwadi centres and their entries in the web portal was a time taking and tedious job. Mandla is the only district in Madhya Pradesh where data entry capturing is done at source by tablet installed with android application.

Challenges faced in Change Management and Capacity building

Lethargic behaviour of officers towards innovative technologies and lack of skills in field staffs to use new technologies were main challenges faced during

implementation of Vatsalya Mandla project. It was tried to nullify the effect of these by motivating and training them effectively in required area.

The Lessons learnt from Change Management and Capacity building exercise

Motivation of concern officials and field staffs and their capacity building is very much required for successful implementation of any project.

Technology

ICT Solution adopted

The project is on concept of capture the data at source and for this tablets are being used. Tablets are provided to all 72 WCD Sector Supervisors for data capturing at source. The geo-tagged data ensures that the data is collected on the field. We had used diverse technologies like Web, Mobile Android Application, GPS & GIS to accomplish the task. The android application development is based on open source but web application is built-on Microsoft technologies. The application is built on modular approach and service oriented architecture is used. All the communication between web and tablet application is being done through web services. The data is encrypted before transmitted between tablet & server.

Compliance with Standards

The tablet application developed for the data collection at Supervisor/ Aanganwadi level is adhering the guidelines issued by DeitY (available at https://egovstandards.gov.in/node/2227) on the points like Use of HTML5 based forms, Mobile CSS, Unicode based data display/ data entry and minimum free text entry, Auto transliteration for Hindi, Use of client side local storage, Replication of local storage with server, Device IMEI base automatic sign-in, Optimized network request, Use of Ajax, Click to Call for mobile numbers etc.

As the application is developed for internet users and targeted audience so it is optimized for tablets only. The web application is based on service oriented architecture. All data communication is being done through web services and JSON objects.

Security and confidentiality standards

Data is encrypted before it is transmitted over the internet especially when the data synchronization held between web & mobile application. The security auditing of the application is in process.

Disaster Recovery and Service Continuity

State Data Centre has its own DR arrangements so the district administration is not taking any other steps for the same. Very soon the application is being transferred in State Data Centre.

The Lessons learnt from Technology choices and implementation strategy adopted

Mobile based workflows should be promoted as it has distributed the centralized work and staff can perform their departmental task from the field or home. Dedicated support personnel's plays major roll in successful implementation of the project.

VALUE INDICATORS

Digital Inclusion

Vatsalya Mandla is implemented in all nine blocks of the district. This android based tablet application works in both online/ offline modes in Hindi and English language. User can switch from Hindi to English or vice versa. The project is primarily developed for all the children of 0-5 year age in the district. Almost 1 lac children are already registered in the Vatsalya portal and their digitized records are maintained, updated and monitored regularly. Separate user ID and passwords are provided for district and block level officials for effective monitoring and follow-ups in their areas of operations.

Green e-Governance

Monthly data collection of measurements of each child from all the Anganwadi centres and various report compilations from these data at block and district

level in the district was consuming large quantities of stationary materials which is minimized by using Tablet installed with android application for data capturing and uploading in the Vatsalya Mandla portal.

Lokesh Kumar Jatav, Collector Mandla, District Administration, Madhya Pradesh. Email: dmmandla@nic.in

Manish Seth, District Project Officer, District Women & Child Development department Mandla, Madhya Pradesh. Email: wcdmal@mp.nic.in

Sushma Taywade, PMRDF, Mandla, Email: dr.sushmataywade@gmail.com

Bhagwat Ahirwar, PMRDF, Mandla, Email: zbhagwat@gmail.com

Neha Gupta, PMRDF, Mandla, Email : nehaguptapmrdf@gmail.com

Rural Drinking Water Monitoring System

[Public Health Engineering Department, Govt. of Madhya Pradesh]

N.K.Sehra and Ajay Kumar Jain

Description of the Project

Hand-pumps are the back-bone of Water Supply in rural area of Madhya Pradesh. More than 5 lacs hand pumps are installed to provide drinking water to the rural population. The monitoring of these sources are basically done at district level, however, monitoring at various other levels is also performed on monthly basis. The present monitoring systems takes long time to address the problems associated with the facility provided. Senior officials often lack information regarding persisting omissions by any lower level functionaries, which makes the facilities defunct for a long time. Since the department is involved with providing the basic minimum facility to the masses, therefore, the micro level monitoring at every level is essential, which is lacking in present system of monitoring. By implementing the online monitoring systems, these drawbacks have been taken care-of. Now, status of the hand-pump as well as the quality of water can be observed online.

Objectives

- To make available the real time information of each and every hand pump to all officials as well as public.
- To facilitate the departmental officers to identify the quality affected habitations/ sources and to facilitate them to prepare appropriate schemes.
- To provide the real time status of a hand pump to the concerning officers so as to attempt immediate corrective measures.
- Awareness amongst the people regarding portability of available drinking water sources. 5. To Facilitate the officials in selection of site for new drinking water sources.

RESULT INDICATORS

Key Performance

Current Stakeholder Benefits

- **Rural Public** - The department is solely responsible to provide water supply in rural area of the state. Through these systems the response of the department to the hardship of the rural people has been expedited
- **Departmental officers** - Information related to the sources is available on the click of the mouse and it facilitates the officers to take appropriate action whenever required.
- **Public representatives** – MPs and MLAs are provided with the funds to take up development activities in their constituencies. Through this application they can check for any inadequacy of drinking water facility in a particular habitation/ village. They can then allot funds for the particular habitation to provide drinking water facility. The other public representatives can also pull the department's attention towards the inadequacy of drinking water facility in a particular habitation/village.

Since the information is available to all, the RTI applications will be avoided

Implementation coverage

Entire rural area of Madhya Pradesh

Efficiency and Improvement Initiatives

Time and Cost efficiency

- The real-time status and structural information of any particular source surveyed is available on the departmental website.
- Ambiguity regarding the location of source has been eliminated.
- Water Quality profile of a particular source is available online.
- Availability of online data facilitated the officers to prepare appropriate schemes for quality affected habitations.

Innovative Practices

Tablet PC has been used to collect live data i.e. image with longitude, latitude,

date of the data collection etc. A customized form has been designed to collect the information of the water sources as well as water quality aspects. The collected data has been published graphically on online portal.

Levels of Integration

The software generates a unique code for each water source. This unique code will be used to in SMS based grievance redressal system for quick disposal of complaints about drinking water sources.

ENABLER INDICATORS

All sources are identified through their geographic co-ordinates i.e. latitude and longitude with the help of tablet PC.
Sources have been mapped with already available records on GoI websites.
Tablets PCs are made available to departmental employees at block level.
Relevant data such as Latitude, longitude and photograph of all sources are automatically recorded through PC tablets. The data collected are transferred to central server through GPRS.

Process reengineering

Major ICT and Non-ICT changes

All the data has been collected through field level officers of department with the tablet pc based application. A proper training to the departmental officers has been provided to operate the application and to collect and to send the data to central server. Software has been developed to generate the unique code of the drinking ware sources after completion of the survey through tablet PC.

Change Management and Capacity Building

Leadership Support

The project has been regularly monitored by senior officers of head office of the department. Technical and operational Problems were resolved by them instantly. Training and support from the developing agencies was also managed by top officers of the department.

Change Management and Capacity building Strategy

Training to the departmental officers at their location was provided to use the application and their day to day operation problems were also removed by telephonic conversation and online support.

Project Management

Progress of the project was monitored by various from head office. Day to day status of sources surveyed was monitored at head office. Appropriate instruction was also delivered to field level officers for implementation of the project.

Financial Model

The project is developed to monitor the status of the drinking water sources thus the expenditure in implementation and collection of the data was done under the fund available for hand pump maintenance.

Challenges faced in Change Management and Capacity building

Lack of knowledge of operation of tablet PCs was the main challenge for the implementation. Frequent training and telephonic support and online support was provided to officers to overcome with his challenge. .

Technology

ICT Solution adopted

The web based application is developed in .net technology with my sql database. Google API was use used to represent the information on online maps. Tablet PC based application is an android application which collects the GPS information with inbuilt GPS instrument of Tablet.

Security and confidentiality standards

Access to tablet PC software and online web based application is restricted by user ID and password of the departmental officer. A user can access the information only of his jurisdiction with his user ID and password. Security

standards are also incorporated in application to make it safe from hacking etc.

Disaster Recovery and Service Continuity

The application has been hosted in a renowned data center where all the measures for Disaster Recovery exist. Regular backup of the data and the software is also being carried out. Process of hosting the software in government data center is also in process.

Technology related challenges faced

Non availability of mobile network at rural area of the state was the big challenge for sending the data to central server. To overcome this challenge, provision has been made to store the collected data locally on tablet PCs with facility for onward transfer to the central server on availability of mobile network

VALUE INDICATORS

Digital Inclusion

The application was developed in Hindi Unicode.

Green e-Governance

Before implementation of this project all the data was collected manually and maintained in registers. Proforma for collection of the information were printed and distributed to the concerned officials. Bundles of the forms were maintained in offices to keep the record of the information. After implementation of this project, all information is collected electronically and stored on servers..

N.K.Sehra, Engineer In Chief, Public Health Engineering Department, Madhya Pradesh Email: encph@nic.in

Ajay Kumar Jain, Superintending Engineer (MIS), Public Health Engineering Department, Madhya Pradesh Email: sephmoni@nic.in

Panchayat Darpan

[Department of Panchayat Raj & Rural Development, Govt. of Madhya Pradesh]

Raghuveer Srivastava

Description of the Project

Panchayat Darpan (www.mppanchayatdarpan.gov.in) is an excellent initiative by Govt. of MP to ensure that proper financial accounting is done at GP level, keeping in mind the lack of extensive accounting knowledge with GPs. Each pie of the funds granted to Panchayats will be monitored and tracked closely through this software.

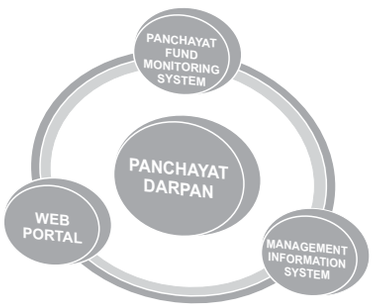
The unique feature of this software is that the Panchayat has to do only two entries i.e. cash book and work register. All the statutory scheme-wise details for financial maintenance of accounts and the Auditor General's statutory reports are generated by this software. The data in this software has been captured from the financial year 2011-12. The Panchayat Darpan has enabled that all accounts are maintained with full details at the Panchayat level and also available on public platform for citizens through the website, the amount disbursed and the works undertaken by the 3 tiers of Panchayats.

The project was started in April 2012, and got completed in September 2013. So far, approximately 1 lakh 25 thousand works done/to be done by Panchayats have been entered in 'Panchayat Darpan', with total value of Rs. 313162.32 Lakh. As per the posted figures in 'Panchayat Darpan', 40,316 works have been completed of the value of Rs. 130370 Lakh.

Currently, the phase 2 of 'Panchayat Darpan' is in progress, with an objective of integrating the application with 'PRIASoft', which is an accounting software and is one of the PES (Panchayat Enterprise Suite) applications mandated by Ministry of Panchayat Raj.

The application **'Panchayat Darpan'** can be broken into following 3 parts:-

- Panchayat Fund Monitoring System (PFMS)
- Web Portal
- Management Information System



PFMS: Broad objective of PFMS is Financial e-Governance by maintaining the complete and up to date records of every transaction enacted at the level of gram panchayat and above. More precisely the objectives are:-

- Ease in data entry i.e. Minimum effort and time to enter the required data.
- No duplication of effort i.e. Data already available in other software as well as in soft copy to be captured to the maximum possible extent.
- A single source to provide report for Physical and financial monitoring of schemes implemented by DPRD.
- To reflect financial position based on fund allotted from different level.
- Maintaining /preparing records and reports prescribed by C&AG.
- Synchronization with PRIASoft.

Features of PFMS:

- **Simplified transaction:** User can enter voucher to get desired financial and MIS reports.
- **Budget Allotment:** The Proposed form is used to allot budget based on work or without work.
- **Work Master:** The Proposed form is used to create work for building work or road work for any locations like state, district, block, gram panchayat and villages.
- **Update Work Status:** The Proposed form is used to update status of work progress. Here user enters valuation, completion details of work. Photo can also be uploaded for selected work.
- **Financial Transaction Bulk Data Import:** Used to import Financial transaction data from an excel sheet .Excel sheet will be in a prescribed format.

- **Work bulk data import:** Used to import data for work from an excel sheet.
- **Reports:** Job status report, Work details report, Budget allotment report & Fund allotment report.

Web Portal: Panchayat Darpan is also a web portal for exhibiting the host of information for Panchayats in the state of M.P. The website provides the information related to the profile of:

- 50 Zila, 313 Janpad, and 23006 Gram Panchayat profile
- Online monitoring of their offices
- Panchayat Schemes Details
- Last three year budget allotment information
- Funds and Activities
- User management module
- User Security and Management workflow

Management Information System (MIS): The website captures all funds that are devolved to the PRIs. The web-site and software works on the simple principle of having only two input formats, namely cash-book and work register at the level of Gram Panchayat and all the rest of the data is generated by the software thus ensuring proper accounting, track of works and activities done by the panchayat.

Following 8 CAG formats can be taken from this:

- Format I Receipt & Payment Account
- Format II Consolidated Abstract Register
- Format III Bank Reconciliation Register
- Format IV Statement of Receivable & Payable
- Format V Register Immovable Assets
- Format VI Register Movable Assets
- Format VII Inventory Register
- Format VIII Demand Collection & Balance Register

RESULT INDICATORS

Key Performance

This Software has shown very impressive results and within a very short time more than 125,000 works for an amount of Rs. 3,100 Cr. got entered in the system and also expenditures of more than Rs. 1,300 Cr. booked against

these works. Concurrent auditors also have appreciated the approach for capturing data from simplified forms. In nut shell, approach is to enter transaction in software with minimum required information and generate maximum number of reports/information.

Impact:

- Paradigm shift from traditional voucher entry form to simplified entry form. Which helps the user at grass Root level to make entry quickly with minimum errors and mistakes.
- Capturing MIS data while doing accounting entry.
- Different type of entry forms as per the users' requirement at different level.
- Simplified entry forms compliment maintenance of books of accounts on double entry system separately for each scheme.
- Based on transactions entered through simplified forms various financial reports specially eight format prescribed in model accounting system MAS by C&AG could be generated without any additional efforts.
- Very little effort is required to abreast people at grass root level to train on PFMS.

Further PFMS has enabled the department:

- To establish Physical and financial linkages.
- To monitor Physical progress of work
- To have better financial e-governance by putting the financial data on public domain
- To have organized financial data for concurrent auditors so that more thrust on auditing then accounting.
- To integrate all the schemes/fund received under the umbrella of Panchayat and rural development department

Efficiency and Improvement Initiatives

- It was a too difficult and cumbersome task earlier to track down the funds transferred to panchayats for any particular scheme, and find out the actual utilization of funds for any financial year. Through 'Panchayat

Darpan', one can get this information for the whole state in minutes.

- As the funds related data is public, it has put an automatic pressure on the PRIs to ensure the proper utilization of funds granted.
- The 'Panchayat Darpan' also provides a means to do concurrent audit of PRIs, which will further ensure that the data entered in 'Panchayat Darpan' is authentic and correct.
- 'Panchayat Darpan' will be integrated with 'PRIASoft' – which is an accounting software for 'Ministry of Panchayat Raj, GoI' under PES (Panchayat Enterprise Suite) of e-Panchayat MMP. This work is in progress under Phase 2 development.

Process reengineering

- 'Panchayat Darpan' has proved to be a paradigm shift from traditional entry form to simplified entry form, which helps the user at grass root level to make entry quickly with minimum errors and mistakes.
- Key information related to schemes, expenditure of funds, grants of funds etc. has been made available in public domain now. Earlier, there was no visibility of such data in public domain.
- The accounting books were not being maintained properly at Gram Panchayats. As now all GPs have to make entry of vouchers in 'Panchayat Darpan', there is an automatic need and pressure on GPs to ensure proper maintenance of funds spent.

Change Management and Capacity Building

- The training on 'Panchayat Darpan' has been given to all Zps
- Planning underway to prepare Master trainers on 'Panchayat Darpan'.
- CRISP is the SI partner in 'Panchayat Darpan', and State Project Management Unit consultants are coordinating with them for proper implementation of 'Panchayat Darpan'.
- Phase 1 of 'Panchayat Darpan' has finished, and Phase 2 is in progress.
- The database is hosted in 'State Data Centre' – Bhopal.

Technology

- Unicode compliant as per the orders of the government for website coding.
- Security audit has been done on 'Panchayat Darpan', as per the

government guidelines.
- Web enabled application, with robust user access mechanism in place.
- Compatible on mobiles and PDS
- Dynamic portal and CMS based website
- Browser friendly and compatible with IE, Firefox and Chrome

The robust user security mechanism which has been placed, requires user to follow strict password rules and captcha. It took some time initially to ensure that, users at grass root level can follow these rules and can understand their reasons.

One of the lessons learnt during implementation is that, web portal needs to be developed to full extent before providing training to grass root level users. It is difficult to communicate and educate users about any significant changes made in the application thereafter.

VALUE INDICATORS

The value indicators of 'Panchayat Darpan' can be conceptualized in following 4parameters:

Quantitative Indicators

Portal's effectiveness can be best reflected by number of transactions that are entered through the system
FY 2011-12 [April to March]- 29936 works
FY 2012-13[April to March]- 39332 works
FY 2013-14[April to March]- 51400 works

Qualitative effectiveness of Panchayat Darpan is assessed by
- Ease of accounting in user friendly method and effective records availability along with transactional capture.
- Generation of Utilization Certificate and Balance sheet are additional outcomes of the portal.
- Reports are getting generated of Panchayat Darpan as per 8 C&AG formats enhancing the qualitative effectiveness of the same.

Operational Indicators

Portal's effectiveness is also reflected by its effective maintenance and support since it has come in production. It can be further measured and assessed by

following parameters:-

- Documentations given to user,
- Trainings to users
- Supporting infrastructure.

Technical Indicators

Technical effectiveness of Panchayat Darpan is assessed by following parameters:

- Ease of learning
- Absence of bugs
- Scalability
- Performance
- Ease of deployment
- Integration with other key portals

Digital Inclusion

Panchayat Darpan is made in two languages – Hindi and English so that it can reach the masses. The development and implementation of application right from the inception phase (requirement gathering) has been carried out in a way to involve participation of all the 3-tiers of the panchayat (Zila, Zanpad and the Gram panchayats) across all the state. This has ensured the application development and implementation to benefit all the 3-tiers of major stakeholder- panchayat.

Green e-Governance

Panchayat Darpan is a big step towards a green initiative for accounting and auditing as well as a move towards IT based accounting and auditing. This is the solution to endless communication trails and paperwork.
Concept of Green office is evolving at the Gram Panchayat level and the learning of this concept can be extended to other state and central departments for a paperless and highly efficient Government system.

Raghuveer Srivastava, IAS, Commissioner, Panchayat Raj Directorate, Department of Panchayat Raj & Rural Development, Madhya Pradesh. Email: dirpanchayat@mp.gov.in

Monitoring System for improving Health and Nutrition in ICDS

Department of Women and Child Development , Govt. of Madhya Pradesh

Pushpa Lata Singh and Mahendra Dwivedi

Description of the Project

Department of Women and Child Development (DWCD), Government of Madhya Pradesh, implements the Integrated Child Development Services (ICDS) programme to tackle malnutrition and health problems in children below 6 years of age, pregnant and lactating mothers, and adolescent girls.

ICDS in the state of Madhya Pradesh is currently implemented through 92230 Anganwadi Centre (AWCs) spread across 56000 villages in all 51 districts. Each AWC is managed by an Anganwadi Worker (AWW), who is primarily responsible for providing supplementary nutrition, early childhood care and education, nutrition and health education, immunization, health check-up and referral services of which later three services are provided in convergence with public health systems. Based on the geographical distribution, groups of AWC are grouped as Sectors and each sector has a Sector Supervisor, who supports AWW in planning and organizing delivery of ICDS services at AWC. A group of sectors form a Project area, which is headed by Child Development Project Officer (CDPO), and each district has a District Program Officer (DPO) reporting to the Regional Joint Directors at Divisional level and Regional Joint Directors Reporting to the State ICDS Commissionerate.

Thus, Madhya Pradesh ICDS has about 92230 AWWs, 3219 ICDS Supervisors, 453 CDPOs, 51 DPOs and 10 Regional Joint Directors apart from the state level staff working for ICDS. ICDS system requires each AWW to submit a multiple page Monthly Progress Report (MPR); these reports are reviewed by the supervisor and the CDPO, then compiled and sent to the State Commissionerate. Before June 2012 all this was done manually using a paper

based system. As a result of which the Commissionerate, never had complete and real-time reports at hand for decision making.

Realising these limitations, the State ICDS started thinking in terms of developing an integrated web-based reporting system to report and manage various function of the department in one portal in 2011. The objectives for the systems were to;

- Minimize paper based reporting.
- Make comprehensive and latest data available for decision making.
- Improve quality of data and its utilisation at all levels for planning.
- Introduce e-dispatch and e-receipt.

Development of this project started in 2011 and the first phase of developing and testing AWW MPR reporting module was completed by May 2012. The project was launched from 1st June 2012, and all the MPRs from AWW are entered online, verified by their supervisors and submitted to the central portal.

This portal was developed by the department with the resources available within the State. State Data Centre server and other state owned resources were used without any additional expenditure on the infrastructure needed for the hosting. Integrated web-portal is developed and managed with a very small team of 3 developers.

From June 2012 to till date the department is continuously working on improving the system and adding on modules in a way towards achieving an e-governance goal. The integrated web-portal currently has the following modules; Human resource management module, different types of progress and comparative reports of 6 level (AWC, sector, project, district, division, state), Anganwadi Center (AWC) mapping, Supplementary Nutrition Program demand generation, Pull and Push SMS mechanism for all ICDS functionaries, Supervisory visits monitoring, Trainings tracking module, Individual tracking of Community based Management of Malnourished children, Legal litigations tracking module, e-dispatch module and Management Information System of Anganwadi centre level monthly reporting and constructions of Anganwadi buildings.

RESULT INDICATORS

Key Performance
ICT Based Services

The project was planned as a Government to Government Initiative (G2G). The information uploaded into this module are uploaded by the ICDS staff and utilized by the ICDS staff only. This system made communication faster and easier between the state Commissionerate to the Divisional Offices, District Offices and Project Offices. All orders, letters, instructions, guidelines, manuals etc are uploaded on to the portal and communication is sent to all the intended staff through a Pull and Push SMS mechanism. Information is downloaded in no time and action taken accordingly. This System had cut down the delay by many folds in communication due to paper based reporting and dispatch systems. The results are clearly measureable in terms of the programmatic objectives achieved.

Similarly, monthly reporting information from the AWW is posted online and immediately available for officials at various levels. Progress reports about schemes like Sabala (Scheme for adolescent girls), IGMSY (Indira Gandhi Matritv Sahyog Yojana), SuPoSHaN (Supportive Programme on Sustaining Health and Nutrition) are also collected through this module.

Pull and Push SMS mechanism enables Officers from the State till the project level to communicate all their staff just at a click of a button. SMS can be sent to all 92230 AWW, 3219 sector supervisors and all officers in just a click. The portal has a robust database of mobile numbers of the field functionaries. Every registered mobile may send a text by typing "MPICDSSUP<>text" to 51969. This technology had helped in direct communication from end to end.

HR profiling module provides information on all the staff details, which helped in effective utilization of expertise and capacity for programmatic requirements. Functionaries at the project and district level are using this data for planning capacity building activities.

Supervision visits made by various ICDS functionaries like Regional Joint Director, DPOs, CDPOs are recorded and captured by this ICT system. This

ICT system makes every essential detail of the ICDS information available online for easy access.

Current Stakehlder Benefits

Anganwadi Worker / Supervisor: Evidence created on quality of performance, comparative data on performance with other AWC available, Peer pressure leading to improvement in performance, data availability enabled analytical support from supervisor and CDPO, equal opportunity for trainings, faster flow of information and communication.

CDPO – Project related data availability, ability to do a time trend analysis of each sector performance, supervision planning based on data, saving of time spent on compiling reports, ability to access the actual performance of Supervisors and AWW, information available for his performance accountability, Lead to more accountability, Better monitoring a supervision, helped in identifying capacity gaps and planning trainings, identification of focal areas for improvement.

DPO - Availability of project related data at a click, Right data at the right time for decision making, reduced paper procurement and consumption, availability of comprehensive information when and wherever needed, ability to access the actual performance of CDPOs and supervisors, more control over the program implementation, optimal utilization of resources, Better monitoring a supervision, helped in identifying capacity gaps and planning trainings, identification of focal areas for improvement.

Regional Joint Directors - Availability of project related data at a click, Right data at the right time for decision making, reduced paper procurement and consumption, availability of comprehensive information when and wherever needed, ability to access the actual performance of the Districts and Project areas, more control over the program implementation, optimal utilization of resources, ease of communication and faster implementation, Better monitoring a supervision, helped in identifying capacity gaps and planning trainings.

State level officials – Availability of project related data at a click, Right data at the right time for decision making, reduced paper procurement and

consumption, availability of comprehensive information when and wherever needed, ability to access the actual performance of the Districts and Project areas, more control over the program implementation, optimal utilization of resources, reduced expenditure due to better planning convenience, ease of communication and faster implementation etc.

Services planned for Future

In the next phases, the department wants to work on creating a Unique Identity based Beneficiary level Individual Tracking System. The aim of this system is to register each and every beneficiary and track services provided to each of the beneficiary on a day to day basis. This system will have the Monthly Progress Reporting system incorporated in to it and reduce the burden of AWW in preparing monthly reports. Supply Chain Management system of ration distributed to almost 88 lakhs beneficiaries.

Implementation coverage

The project is implemented across the state in all the 10 division, 51 Districts and 453 project offices. This portal is used by all these officials through their logins. Apart from this the portal also serves the specific needs of Supervisors and AWW for reporting purposes. Although they don't directly access this portal, information generated by them is fed in to the portal with help of data entry officers. So, the coverage can be claimed to be 92230 Anganwadi centers.

Stake holders in this project are the State level ICDS officials, Division level Officials, District Level Officials and the Project level officials.

Sl.No	Module	2012 (Approx)	2013 (Approx)	2014 (Approx)
1	AMPR /AASR/Validation	932041	1146615	770293
2	Basic Entry(AWC, Sector, Project, District, Division Master)	82,500	83,400	95,100
3	Supervision Visit	12,311	53,115	29,444
4	SABLA	115	167	62
5	SMS	-	22,00,000	25,17,404

Sl.No	Module	2012 (Approx)	2013 (Approx)	2014 (Approx)
6	HR Profile	-	1,50,000	1,68,295
7	AWC Construction	-	14,889	22,310
8	SNP Demand Module	-	3,635	7,963
9	IGMSY	-	48,045	20,430
10	Court Case	-	79	375
11	Suposhan	-	-	6,30,018
12	Training	-	-	1,37,454
13	VHC Master	-	-	8,400
14	E-Dispatch	-	-	836
15	TNA Entry	-	-	52,555
16	Resource Person Form	-	-	2,864
	Total :-	1026967	3699945	4463803

Transaction Volume

1	AMPR /AASR/Validation	932041	1146615	770293
2	Basic Entry(AWC, Sector, Project, District, Division Master)	82,500	83,400	95,100
3	Supervision Visit	12,311	53,115	29,444
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10	Court Case	-	79	375
11	Suposhan	-	-	6,30,018
12	Training	-	-	1,37,454
13	VHC Master	-	-	8,400
14	E-Dispatch	-	-	1,43,127
15	TNA Entry	-	-	52,555
16	Resource Person Form	-	-	2,864
	Total :-	1026967	3699945	4606094

Web-site Hits volume
Efficiency and Improvement Initiatives

Time and Cost efficiency

This portal was developed by the department with the resources available within the State. State Data Centre server and other state owned resources were used without any additional expenditure on the infrastructure needed for the hosting. Integrated web-portal is developed and managed with a very small team of 3 developers. Time taken for development to launch was less than 12 months. The MPR reporting portal was launched at one time across the state.

ICT enabled services utilization saved a good amount of time for the supervisors and CDPOs. They used to spend a lot of time in compilation of the AWC wise data and sending it to the higher authorities.

Innovative Practices

Introduction of the supervision visit module, facilitated tracking of supervisory visits by DPOs and CDPOs. This led to the improvement of supervision visits to project areas to a large extent. This in-turn led to improved reach and quality of services. Introduction of Court cases tracking system also helped in the senior management focusing on ensuring speedy disposal of long pending case. The training tracking and nomination module records the number of trainings each Anganwadi worker has attended till date. This helped us in identifying the Anganwadi workers that had not been completely trained and prioritizing trainings, to for those who have not been trained. This also helped in allocation of training resources and planning, leading to improvement in services.

ENABLER INDICATORS

Process reengineering

Major ICT and Non-ICT changes

- Manual collection and accumulation system of monthly progress report has been abolished and only online data entry is permitted.

- Communication in paper format abolished, allowed only through e-dispatch and e-receipt – all orders are directly posted online and downloaded by the end users.
- Roles and responsibilities redefined for each level regarding data management
- Provision of Push and Pull SMS have been introduced and communication made through this made valid and accountable
- Instructions for monthly review meetings redefined
- Provision of data validation introduced (for 92230 Anganwadi centers per month)
- Manual demand system of food grain (cost about Rs 1000 crores per year) abolished and auto generated demand based on the online data introduced
- Manual distribution system of raw food to self-help groups abolished, online distribution system based on previous month balance data introduced
- Online handling of HR profile introduced
- Day to day field visit tracking system introduced, old paper system abolished
- Automated nomination system for training introduced for 92230 Anganwadi workers.

Challenges faced in implementing Process changes

The vast geographic area and huge number of stakeholders (among which almost 3000 supervisors and 400 CDPOs had never used online system) of the state were the real challenges. Problems and challenges faced in the form of bugs and system load were addressed immediately by state management. Initially staff was reluctant in using new online system and created many disguises but consistent efforts and training made them friendly with system within 6 months.

The Lessons learnt from the Process re-engineering exercise

- A good and well-designed system which minimizes the efforts of the people always works
- There is always some reluctance into the staff but regular facilitation, training and recognition made the pathway smoother

- Integrated module is always better than single module
- State ownership is the key success criteria
- Grievances and concerns of the stakeholders must be addressed properly

Change Management and Capacity building Strategy

There were 2 major stakeholders viz Supervisors (appx3000) and CDPOs (appx400) who had issues about non literacy of IT and online tools. To make them acquainted with IT, they were provided with a good set of computers, printers and internet connectivity. Moreover, regular interaction sessions were held with them and they were made to visualise a future of reduced workload. This policy worked effectively and people started coming forward to adopt the portal.

The need for capacity building was formally assessed and it was realized that some of the functionaries were already using web for email, Face book, youtube etc. Where a low capacity was noticed, one time intensive training was provided along with peer learning approach – where they were advised to learn from their learned colleagues. It has been made mandatory for all information to be collected only through the online portal. The performance is also being evaluated on the basis of this, so every stakeholder is using the portal without any issue.

Project Management

Project planning, development and implementation were closely monitored by the leadership at ICDS. Support was taken from IT department where ever needed especially for security issues. **Role of the Project management team at ICDS was**;

- Depute an officer assigning the role of Project Manager having authority to take decisions on day to day requirements like collection of data, content, support in designing and development of graphics and templates etc.
- The entire data & input for the MIS was provided by the Directorate
- Provide access and controls to the Hardware, Software and Network equipments and machines.
- Provide and maintain the IT infrastructure for operations and data security purposes.

- Collection of all required documents, information, co-operation from office and field staff etc., for smooth execution of the project.
- Providing details and actual requirements from the solution as and when required within the expected time period to complete the project in targeted time limit.

Role of Consultant team at ICDS was

- Provide the Technical expertise, Architectural design and development of the application.
- Server Monitoring, Coordination with the ISP (Internet Service Provider), Bandwidth Monitoring, Server Health reports monitoring, Server Usage monitoring and management
- Data Management, Data Flow Monitoring, Database Administration and Management.
- Database Backups and archive at local level at a periodic interval, maintain the data security at local level, changes and modifications in the database design as per the requirements.
- Bug fixing in the existing software, installation and configuration of the application and database.
- Provide support in upgrading the hardware, software and networking components as required due to increase in the application usage.

Financial Model

This portal was developed by the department with the resources available within the State. State Data Centre server and other state owned resources were used without any additional expenditure on the infrastructure needed for the hosting. Integrated web-portal is developed and managed with a very small team of 3 developers.

Efforts at Sustainability

As the entire system is developed and owned by the department, there are not issues about sustainability. This is the thought and the policy of the department on e-Governance.

Challenges faced in Change Management and Capacity building

Some employees who were on the verge of the retirement, showed lesser interest in learning new things but regular interaction and motivation for their future inspired them to learn.

The Lessons learnt from Change Management and Capacity building exercise

- Older workers can also be motivated through regular interaction and dialogue.
- Change must be initiated only after the required tools (computers, internet etc) are supplied
- Peer learning is very important tool amongst staff
- Tools must be developed in regional languages

Technology

ICT Solution adopted

This Application was developed using Microsoft technology (Asp.net, vb.net) as frontend and Microsoft (sql server 2012) as backend.

Compliance with Standards

This application is certified by www.indusface.com a web application security certifier suggested by State data centre.

Disaster Recovery and Service Continuity

As the portal is hosted in the M.P. state Data Centre server, data recovery and time to time backup is created by the data centre.

VALUE INDICATORS

Digital Inclusion

As most of the officers and the field functionaries are only comfortable in reading Hindi language, the entire portal is developed in Hindi itself. For English users the portal facilitated an auto translate module.

Green e-Governance

Through a formal circular, it has been made mandatory that no paper information may be send to the head quarter and vice versa. All the circulars are sent through e-dispatch a home page utility and received through e-receipt into the portal www.mpwcdmis.gov.in. Therefore, the Directorate of ICDS and its 514 offices are encouraging paperless transaction These steps have contributed to saving almost 1 million papers a month in the department.

The department is committed to adhere to the policy of state IT department for management of e-waste.

Pushpalata Singh, Commissioner ICDS, Madhya Pradesh, Department of Women and Child Development , Madhya Pradesh. Email: commicds@mp.gov.in

Mahendra Dwivedi, Joint Director, Atal Bal Mission, Integrated Child Development Services, Women and Child Development, Madhya Pradesh. Email: dmahendra73@gmail.com

Aam Aadmi Beema Yojana

Mahaonline, Govt. of Madhya Pradesh

Purva Patil

Description of the Project

- Department of Social Justice and Special Assistance (Government of Maharashtra), introduced "Aam Aadmi Bima Yojana (AABY)" solution in Maharashtra and enabled transformation in providing insurance to landless labourers across the state
- Through the AABY portal the process of application by beneficiaries & approval by district authorities has been partially automated (manual intervention required to transfer data to LIC)
- The beneficiaries/nominees are required to have an account in a nationalized bank where the claim amount & scholarship can be credited
- The scheme became operational in the state of Maharashtra on 15th August 2007
- The portal was inaugurated on 15th August 2012; rollout on 26th Jan 2013
- The system also provides the department with MIS to monitor the progress of data entry and processing of the applications by the district officials
- The scheme provides for insurance of head of the family or an earning member of the family of rural landless household between the age of 18 to 59 years against natural death as well as accidental death and partial/permanent disability. It also provides for scholarship to the beneficiaries' children studying from 9th to 12th standard.

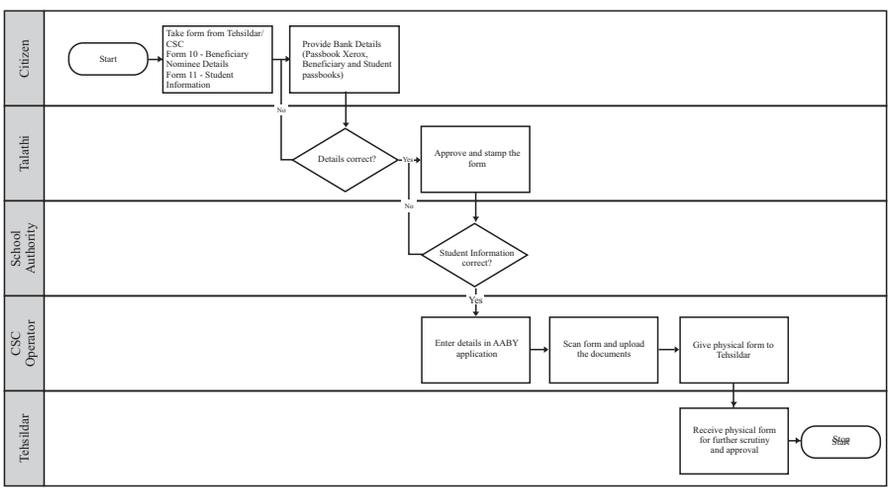
RESULT INDICATORS

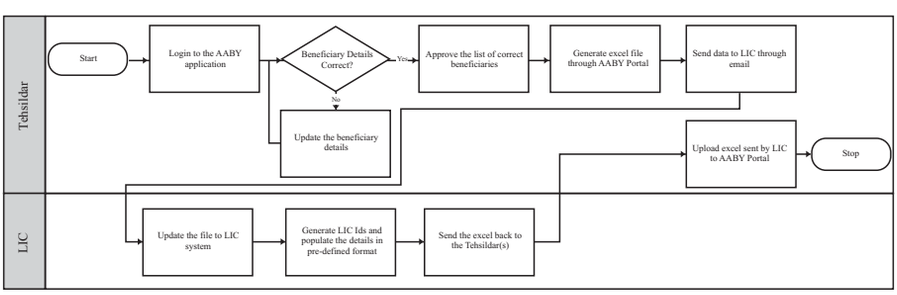
Key Performance

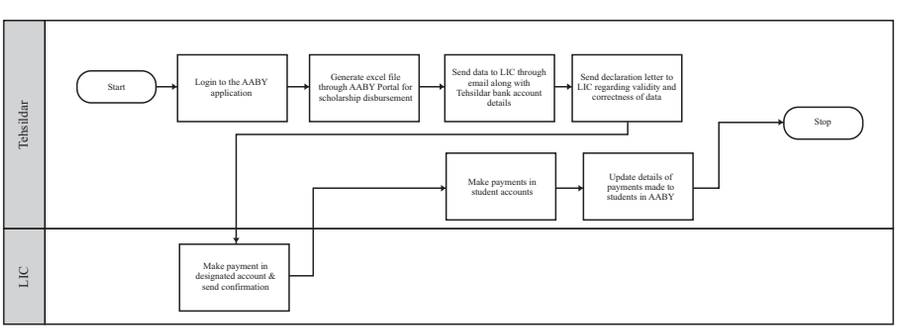
Current Stakeholder Benefits

- **Citizens** - Can avail this service from any nearby CSC centre instead of going to government offices from desk to desk.

- **Department officials** - have online information of the beneficiary instead of manual work there by reducing the crucial time of government official in processing the data to LIC.







- LIC Gets Standardized data across the state from the entire district to smooth processing of LIC ID.

Services planned for Future

- Online Claim settlement

Implementation coverage

- 54 lakh beneficiary data with LIC ID is available on AABY portal.
- Approximately 6.7 lakh new beneficiary members were enrolled through AABY Portal.
- Approximately 3 lakh student scholarship was processed through AABY portal.

Transaction Volume

FY 2013-2014	New Enrolment-97, 169 and Scholarship - 747991
FY 2012-2013	New Enrolment-411890 and Scholarship - 588394
FY 2011-12	Not Applicable
FY 2010-11	Not Applicable

Web-site Hits volume

- The Application is used across 35 districts, 348 taluka of Maharashtra across 25000 CSC centres in Maharashtra on daily basis.
- The head masters and teachers of rural areas help around 4-5 lakh student to find their parents, LIC id and fill scholarship form

Efficiency and Improvement Initiatives

Innovative Practices

- Online data transfer to LIC for LIC ID generation or scholarship
- Search functionality on home page open for citizen to know their LIC ID and for student to avail scholarship.
- Call centre to resolve the queries of citizen or department user
- Transparency in the process to have actuals figures at head office through district and talukawise MIS
-

Levels of Integration

The AABY portal is integrated with CSC application. This integration has help citizen to avail the service through single window system.

ENABLER INDICATORS

Process reengineering

Major ICT and Non-ICT changes

- **Front End:** The manual process of accepting physical form has been discontinued instead online data is processed.
- **Back End:** Integration between AABY and LIC systems to avoid manual intervention in data processing.

Challenges faced in implementing Process changes

The consolidation of such huge data was major challenge which has been handled efficiently by the technical team.

Project Management

Department has full fledged committee under chairmanship of joint secretary of social justice and special assistance and has full time consultant for project management and monitoring.

Financial Model

The application is working on service base model.

The Lessons learnt from Change Management and Capacity building exercise

Better trained staff can help in quick execution of work.

ICT Solution adopted

- Database: MSSQL Server 2012
- Operating System: Windows 2012 R2
- web-server, IIS 8

VALUE INDICATORS

Green e-Governance

Considering the Green e-governance factor, the data is processed electronically without any physical application moving from CSC centres to tehsiladar's office or to LIC for processing enrolment data or scholarship.

Purva Patil, Project Manager, Mahaonline Ltd, Maharashtra. Email: purva.patil@mahaonline.gov.in

eSahakar-Online Cooperative Society Process Management System

Department of Cooperation, Marketing and Textiles

Rajagopal Devara

Description of the Project

eSahakar is implemented in 5 modules providing a total of 25 online services. The detailed description of the modules is as follows:

Online Society Information Management System

A total of 4 online services were provided namely Society Enrolment, Society Validation, Repository of Society Information, and Download of Registration Certificate.

- An online electronic platform is created for capturing Society Information and bringing all the stakeholders online
- Only societies enrolled online can participate in other society processes such as Audit, Election, Mandatory Returns submission, Deemed Conveyance etc.
- Workflows are redesigned to enable DDR validate and approve the society online application.
- Alerts on all changes in application status are informed to all stakeholders through email, SMS alert
- DDR can contact the society for any clarifications on the application via the online platform
- Centralized online data repositories for Society information. Analytics Dashboards and downloadable Excel reports are designed to enable monitoring of society enrolments at Taluka/ District/ State levels

Online Audit Management System

- Manual auditing process is time consuming and inefficient resulting in lack of adherence to timely audit, less monitoring and compliance. On an average only 40% of cooperative societies get audited. To address this, a total of 5 online services were provided namely Auditor

Enrolment, Auditor Scrutiny, Auditor Empanelment, Society – Auditor selection and Audit Order Generation.

- The process of Society enrolment and document submission was crowd-sourced to the societies and GRs were issued for the same thus freeing up the Department to focus on society validation and Governance
- In the process of Auditor Empanelment, the task of Auditor enrolment was crowd sourced to the auditors and GRs were issued for the same thus freeing up the Department to scrutinize the applications and empanel Auditors
- Creation of a business model where in Auditors can improve their business prospects by encouraging societies to enrol online thus ensuring the sustainability of the system
- By creating dynamic Analytics Dashboards, we provided real time visibility to Departmental stakeholders on the activities of the Societies and Auditors. We facilitated creation of an Online Repository for Society Information, Audit Reports, Registration certificates and Mandatory Returns

Online Election Management System

Department of Cooperation, Marketing and Textiles developed an application for managing and tracking Cooperative society elections online through a web based system. This application would enable Societies, Election officer and Chief Election Officer (Designated Registrar as per area of operation of society) to manage and track elections pertaining to society online through a web based system. Application would provide platform to manage different stages of election process and its stakeholders. A total of 5 online services were provided namely Initiating Elections, Generating Voter List, Preparing Election Schedule, Accepting and Verifying Nominations and Publishing Election Results.

- Analytics Dashboards/ Downloadable Reports that inform Department about the societies due for election
- Online workflows to inform societies and initiate elections online/ Generate and finalize voter lists/ Prepare election schedule/ Accept and finalize nominations and Publish results

Online Mandatory Returns Management System

Department has automated the submission of Mandatory returns. Registered Cooperative Society need to submit the mandatory returns online every year. A total of 4 online services were implemented namely Society Mandatory returns upload, Society Mandatory returns validation, Tracking of Mandatory Returns submission status, Information repository for Society Mandatory Returns.

- Process is re – engineered to allow submission of all mandatory returns online. Officials can provide online feedback on returns submitted in real time
- Crowd – Sourcing of Mandatory Return upload to the respective societies thus reducing the burden on Department officials
- Creation of an Online repository that can retrieve the uploaded copies of Mandatory returns for scrutiny and easy reference

Online Deemed Conveyance Management System

A total of 4 online modules were conceptualized and implemented namely Case Application Registration Module, Case Application Assessment Module, Case Hearing Management Module, Case Dashboard and Reports. Using these modules, a total of 7 online services were implemented namely Case Application, Case Scrutiny, Case Scheduling, Case Hearing, Case Status Tracking, Download of Case documentation and Download of Case orders / Notifications issued.

RESULT INDICATORS

Key Performance

Transaction Volume

Online Society Accounts	1.83 Lakh Societies
Online Society Registration Certificate	1.83 Lakhs
Online Auditors	7500+ Auditors
Online Officers	1000+ OPfficers Online
Total Visitors	3,00,000+ (till date)
Average Visitors	1500+

Quality of Service: Deemed Conveyance Application - 75+ cases are processed online

Cooperative Society Information System

- Election Information of 1.83 Lakh cooperative societies
- Audit Details of 1.83 lakh cooperative societies
- Mandatory Returns of 600+ societies
- Member details of 1.83 lakh cooperative societies
- Board of Members details of 1.83 lakh cooperative societies

Internal efficiency: 70% of officers' time saved for data collection, aggregation and validation in turn lead to cost savings

Internal efficiency: 35% reduction in RTI applications

Efficiency and Improvement Initiatives

Increased focus on Governance

By creating an Online platform for society process management, the Department has drastically reduced the time and effort it spends on collecting, aggregating and validating humongous amount of paper based documentation it manually collects on society related activities such as annual audits, mandatory returns. Deemed Conveyance issues etc. This increased the focus of the Department on providing Governance in its truest spirit through an internet – based system rather than a desk – based system. By leveraging the concept of "Crowd Sourcing" and transferring some responsibilities to the stakeholders, the Department has positioned itself as a better governing body.

Real time paperless system

An Online repository for the Cooperative Society information has been developed. This includes the details and online documental evidence for society registration, annual audit reports, mandatory returns filing and the general financial health of the society. This repository provides Real time information over the status of various processes and acts as a quick reference for the stakeholders as well as other departments.

Further, this resulted in an 80% reduction in the overall paper usage thus freeing up space at all offices.

Transparency and Reduction in Stakeholder expenses & effort

The availability of an online system for society process management resulted in:

- Reduction in human touch points in the entire process
- Reduction of expenses and effort involved in multiple stakeholder visits to department offices for document submission year – on – year basis
- Drastic reduction in the time required by the Department for society process handling
- Availability of Online system 365x24x7 for all the stakeholders, thus, freeing up the stakeholder activity from the restrictions of Department working hours
- Transparency in all processes with Time – Stamped work flows resulting in documented evidence in case of undue delays

Comparison between Pre and Post-Implementation scenarios

Society Information Management

Pre Scenario	Post Scenario
Department used to maintain paper repositories of Cooperative society registration certificates	Availability of an Online repository for society information
There is no quick way to fetch and validate details of any Cooperative society	Availability of workflows enabling DDRs fetch and validate society details online with multiple ways to search
No common repository available for Society Information	Centralized online repository for society information
Paper driven processes with little scope for monitoring	System driven process with time-stamped workflows
Involves multiple human touch points and processes	Few human touch points
No analytics / statistics available for report generation	Analytics Dashboards and downloadable Excel reports are designed to enable monitoring of society enrolments at Taluka / District / State levels

Annual Audit Management

Pre-Post Scenario	Post Implementation Scenario
Auditors submits application manually for empanelment	Auditors submit application online and uploads the required information online
• Application is invited & received at District level. • Application scrutiny is done manually at District level. • Months to complete the entire empanelment process.	• Application are assessed and scrutinized online. • Real time processing of Auditors application. • Reduced the efforts involved at various levels.
Difficult to track the status of Society Audit process as information is collected manually which involves manual follow ups from Auditors and Society	No follow-ups are required. Office Administration have access to dynamic report online to track the Audit status (Society wise / Auditor wise / Auditor type wise / District wise / Taluka wise)
Reactive Decision Making	Proactive Decision Making
Manual intervention required for data collection, aggregation and report consolidation	Reports are available online on parameter to all the stakeholders

Election Management - Post-Implementation Scenario

- Flexibility in conducting elections: All elections processes can be conducted online
- Monitoring mechanisms available to generate necessary alerts to all stakeholders
- Decrease in effort involved in election process
- Real time information availability through Analytics dashboard

Annual Mandatory Returns Management

Pre –Post Scenario	Post Implementation Scenario
Societies submit application manually to Department officials. Further, Department Officials need to run after societies for collecting Mandatory returns	All applications happen online accompanied by upload of scanned documentary proof
• Returns are uploaded & received at District level • Return scrutiny is done manually at District level. • Months to complete the entire process	• Returns are assessed and scrutinized online • Reduced the efforts involved at various levels • Feedback on quality of returns can be conveyed online to societies directly • Multiple rounds of scrutiny with little effort

Manual tracking of the status of each of the processes No effective Monitoring and Evaluation systems available	No follow-ups are required as Office Administration and societies have access to dynamic report online to track the return submission status (Society / District wise/ Taluka wise/ Year wise etc.)
Reactive Decision Making	Proactive Decision Making
Manual intervention required for data collection, aggregation and report consolidation	Reports are available online on parameter to all the stakeholders.

Deemed Conveyance Management

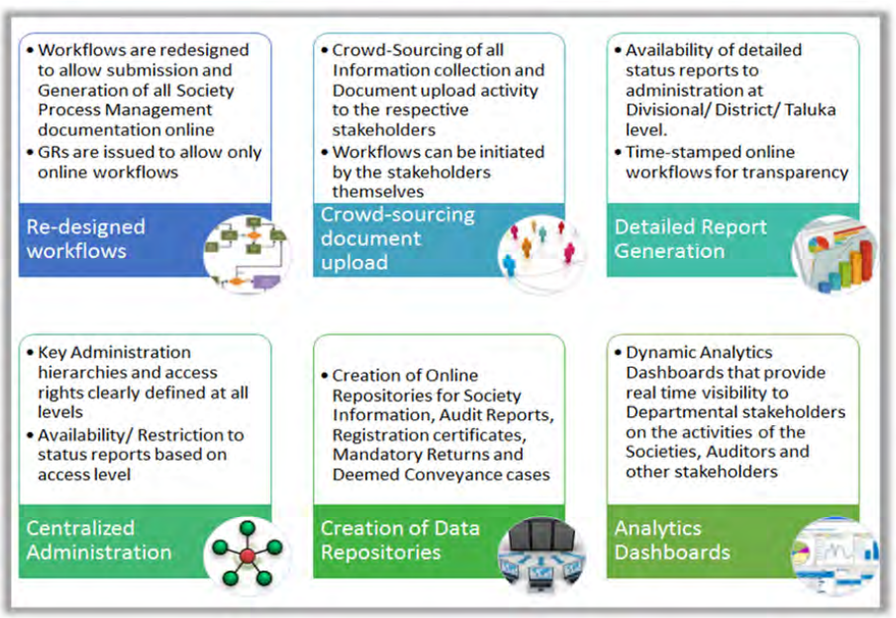
Pre –Post Scenario	Post Implementation Scenario
Stakeholders submit application manually to Department officials	All applications happen online accompanied by upload of scanned documentary proof
• Application is invited & received at District level • Application scrutiny is done manually at District level. • Months to complete the entire process	• Applications are assessed and scrutinized online. • Reduced the efforts involved at various levels • Hearing and Scheduling done online • Online generation of case orders and notifications
• Manual tracking of the status of each of the processes • No effective Monitoring and Evaluation systems	No follow-ups are required as Office Administration and societies have access to dynamic report online to track the case status (society / Deemed Conveyance case wise/ District wise/ Taluka wise)
Reactive Decision Making	Proactive Decision Making
Manual intervention required for data collection, aggregation and report consolidation	Reports are available online on parameter to all the stakeholders.

ENABLER INDICATORS

Process reengineering

Business Process Reengineering

A snapshot of overall BPR carried out is as shown below:



Government Process Reengineering (GPR)

- Tasks such as society enrolment, annual audit management, election management, mandatory returns management etc., are brought to the online platform reducing the human touch points and stakeholder footfalls in Department offices
- Process is re – engineered to allow submission and generation of all society process management documentation online by simplifying the forms and removing the unnecessary forms.
- GRs are issued to allow only online enrolment of societies, online audit management, online mandatory returns filing, online election management and online Deemed conveyance management

Other BPR initiatives

- Introduction of Video Conferencing facilities for Department officials thus reducing the time, effort and expenses incurred on travel
- All workflows are time-stamped thus avoiding undue processing delays by vested interests thus ensuring transparency in the system
- Availability of status reports to all stakeholders reducing the human footfalls in Department offices, thus saving stakeholders, time, effort and expenses
- Creation of Business models and symbiotic relationships between stakeholder interests. For e.g. Auditors can audit only those societies enrolled online. Thus Auditors too will compel societies to enrol online
- Seamless connectivity to application for all stakeholders 365x24x7 even beyond Department working hours

Change Management and Capacity Building

Implementation strategy

- Project Implementation Committee was formulated at Mantralaya and Commissionerate.
- Committee suggested and outlined the structure and communicated to implementation agency.
- Committee revised the processes and re-engineered with simpler online processes
- Committee provided form, and content as per the structure.
- Solution was deployed by IA and deployed at SDC as it was integrated with SDC.
- Test site was prepared after completion UAT was conducted.
- Crowd Sourcing was adopted to reduce the efforts involved in data collection online and saved the redundant efforts
- Online Validation was done by officers to validate the data submitted by societies online through crowd sourcing

Training

- Online/ Offline Web Support for Stakeholders
- 50+ training programs and handovers conducted for stakeholders
- Division wise training was conducted at Kolhapur, Nashik, Thane,

Nagpur, Amrawati, Aurangabad, Mumbai, Pune and Latur.

- Self Help Guide: Bilingual User Manuals and brochures were provided to stakeholders
- Software Changes were communicated to administrative staff over Lync 2013
- Print media and TV is also used from time to time for communication
- Call Centre service (022-40293000) is provided to all the stakeholders for assistance
- Committee trained officers to use the systems online through VC

Project Sustainability and Scalability

- All processes in the system occur on a periodic basis. Thus application is self - sustainable
- GRs are issued mandating that all processes should be conducted online
- Only enrolled societies can choose auditors, file returns online, apply for Deemed Conveyance etc.,
- Thus a self – sustaining symbiotic relationship is established
- **Online Society Information Management System:** Module is self-sustaining as Society enrolment and Society Information management is a continuous activity.
- **Online Audit Management System:** Audit of Cooperative Society is an annual activity. As per the ACT it is mandatory for society to furnish the information to the registrar every year. Thus, the application is self-sustainable. We have created a business model where in the Auditors can derive business by enrolling societies online. Only enrolled societies can choose auditors and it is made mandatory that societies select auditors online only. Thus a self – sustaining symbiotic relationship is established
- **Online Election Management System:** Annually, nearly 30% of the Cooperative societies go for election. Thus project is self-sustainable.
- Online Mandatory Returns Management System: Mandatory Returns submission is an annual activity. All processes in the system occur on a continuous basis. Thus application is sustainable. GRs are issued mandating that all Mandatory Returns should be submitted and validated online
- **Online Deemed Conveyance Management System:** There are 89000+ Co-operative Housing societies in Maharashtra of which a major portion

have no Conveyance. We expect these societies to apply for Deemed Conveyance in due course. Thus the application is sustainable. GRs are issued mandating that all Deemed Conveyance cases should be processed online.

- **Resources:** All stakeholders are now online to provide information online as specified by MCS act.
- **Capacity Building:** Committees were formed and trained at various locations to use the System. Training was conducted by using VC regularly at various levels.
- **Processes:** GR is issued by Department to stop receiving applications and forms (as per ACT) on paper.
- **Project Scalability:** Web Application is highly scalable and could also be extended to other states as IPR rests with Department.

Technology

Technology used

- Development Framework: Microsoft .Net, C#
- Database: Microsoft SQL Server
- Hosting: IIS
- Browser: Compatible with Open Source Browsers
- Mobile Compatibility: Yes

Adherence to eGov Policy

- Application is integrated with our portal which is designed and developed as per State eGov policy to ensure Bilingual support, WCAG/GIGW/W3C compliance.
- A 3-tier web committee had been nominated for the content management of the Departmental Portal and applications. The first tier has Desk Officers with the Head of Department (HoD) at the third Tier. Web committee reviews all applications periodically to ensure accuracy as well as for updating content.
- The application is hosted at State Data Centre (SDC), Maharashtra with multiple layers of security measures and measures for Disaster Management and Business Continuity Management
- The site is nearly 90% bilingual. IP Rights rests with Department.

Department is the Administrator for the Content Management System (CMS) for the website.

- Any discrepancies to the above condition are reviewed periodically by the Web Committee taking the remedial action

Integration with other ICT systems

- Project is fully integrated with Government Receipt Accounting System (GRAS) of 'MahaKosh' – the integrated financial management system of the Government of Maharashtra. This electronic payment gateway is a fully dynamic system used for making online payment anywhere anytime for any service or any e-governance project/system. This system is integrated with many banks, including public and private banks, where the online payment by users can be made using credit cards, net banking and bill desk. This feature enables citizen online payments for Deemed Conveyance case applications.
- Project is fully integrated with the SMS gateway of Directorate of Information Technology (DIT), Maharashtra. Two types of services offered: PULL & PUSH (GUI & Web-service utility). Through this application, Customized report which can be exported to Excel, PDF or can be printed online.
- The application captures the UIDs of stakeholders during online account creation. Currently the scope for integration with UID Aadhar project is under review.
- Roadmaps are underway to study scope for integration with other e-Governance projects in the state. However, the final integration will take more time to achieving the required maturity level.

VALUE INDICATORS

Digital Inclusion

The application in totally compliant with GoI specified Guidelines for Indian Government Websites (GIGW).
Thus website is Bilingual (Marathi, English), with user customizable colours (for the colour blind), customizable font sizes and downloadable online user manuals.

Green e-Governance

- Crowd-Sourcing of the workflows to the stakeholders resulted in real time availability of information & reports, reduced human touch points and footfalls in Department offices, reduced Department man months involved in collection, validation and aggregation of data.
- 80% paper usage would be reduced thereby directly reduce the cost of operations involved.
- Bankers/ Financial Institutions/ Regulatory Agencies/ Academicians/ Researchers/ Political parties and federations and others have access to required information thereby eliminating the foot falls

Rajagopal Devara, IAS, Secretary-Cooperation, Department of Cooperation, Marketing and Textiles, Maharashtra. Email: sec.coop@maharashtra.gov.in

Appendix 1 - Savings in Paper

For Society Audit	Paper Consumed
Average no. Of Paper	500
Total no. Of Societies	223543
Total Paper Consumed/Year	111771500
Total Paper Consumed/Decade	1117715000
Paper Saved/Year	111771500
Paper Saved/Decade	1117715000

For Society Mandatory Returns	Paper Consumed
Average no. Of Paper	100
Total no. Of Paper	223543
Total Paper Consumed/Year	22354300
Total Paper Consumed/Decade	223543000
Paper Saved/Year	22354300
Paper Saved/Decade	223543000

For Administrative Office Purpose	Paper Consumed
Average Notices/Circulars to Societies	5000
Average no. Notices/Circulars to Auditors	1000
No. of Offices	700
Total Paper Consumption by Department/per year	4200000
Total Paper Consumption by Department/per year	42000000
Paper Saved/Year	4200000
Paper Saved/Decade	42000000

Total Paper Saved/years	13,83,25,800	13 crore pages
Total Paper Saved/Decade	1,38,32,58,000	138 crore pages

No of pages/One tree	8335	
No trees/year	16595.77684	16 thousand
No. Of trees/decade	165957.7684	1 lakh 65 thousand

Online Software for Annual Statistical Information Report (ANR) of Agricultural Produce Market Committees (APMCs)

Maharashtra State Agriculture Marketing Department

Milind Akre and Mahendra Lokhande

Description of the Project

In Maharashtra, 305 main and 600 sub markets (APMCs) are in existence. To coordinate & control functions of all APMCs and for decision support at top management, Annual Statistical Information of all APMCs is being compiled by Maharashtra State Agricultural Marketing Board [MSAMB]. This information consists of data about main & sub yard, regulated commodities, infrastructure facilities, income-expenditure, arrival & value of Agri. commodities, developmental activities, court cases, weekly markets, details of License holders, staff, Investments, market charges, market & supervision fee, moveable properties, APMC godown, administrative information and audit information in the prescribed formats.

Earlier, booklets were printed with the blank formats of 18 tables and distributed to all APMCs. Booklet printing and postage charges were bared by MSAMB. Manually prepared booklets (Hard Copy) of 18 tables were submitted by APMCs to MSAMB, by post. The information submitted by each APMC was entered through standalone software at IT Department by Data Entry Operators. The entire process of ANR submission by APMCs by post was time consuming and postage charges were involved. Data entry of ANRs of all APMCs at MSAMB was time consuming and overheads were involved.
MSAMB had decided to automate this process by implementing web based online software, so that APMCs can submit ANR online and information could be obtained on the click of mouse. Web based online software with Unicode (Marathi interface) has been developed in-house by the IT Dept. of MSAMB to speed up data compilation of ANR and make the process cost effective. This web based application is hosted in the Data Centre of MSAMB in April 2012. Separate login and password has been provided to each APMC for accessing the application.

Objectives:

- To provide APMC related data to farmers through MSAMB website.
- To reduce time involved in compilation of Annual Statistical Information of all 300 APMCs.
- To reduce the expenditure related to manpower, stationary & postal charges of MSAMB and APMCs.
- To bring effectiveness in data compilation and reporting system.
- To provide easy access to the statistical and administrative information (comparative reports) of APMCs for decision making at MSAMB, State and Central Govt. level.
- Worldwide availability of important information of APMCs.

Stakeholders of the project:

- Farmers and agriculture market functionaries.
- All 300 Agricultural Produce Marketing Committees (APMCs) in the State.
- Ministry of Agriculture, GoI.
- Agriculture, Marketing and Cooperation Department, GoM.
- Anti-Corruption Bureau.
- Directorate of Economics and Statistics, GoM.
- Food, Civil Supplies and Consumer Protection Department, GOM.
- Non-Government and Private Organisations (NGOs).
- Students – educational research, projects purpose.

Benefits to Stakeholders:

- Information about important aspects of ANR of all APMCs is available online round the clock.
- Reduced time and cost for information gathering and report generation for decision support.
- Accurate information is available in time for decision making.
- Reduced stationary & postage expenses of APMCs and MSAMB.
- Comparative analysis of APMCs income, expenditure & commodity wise arrivals and prices is available.
- Reduced manpower cost for offline data entry at MSAMB.

Achievements:

- Farmers can easily access the data of APMCs.
- Elimination of the time required to get the ANR by post and data entry at MSAMB.

- Annual Statistical Information of APMCs is available online.
- Instant compilation of Annual Statistical Information of APMCs in State.
- Reduce the expenditure related to manpower, stationary & postal charges.
- Easy monitoring and follow-up of compilation of ANR of all APMCs.
- Easy access to comparative reports of APMCs in the State for decision making at MSAMB, State and Central Govt.

Project Duration:

- Planned duration of the project: July 2011 – December 2011
- Project's actual completion date: February 2012
- Reason for variations in expected & actual completion date: Due to additional requirement of software development for the information of human resource (4 main & 4 sub tables) of all APMCs.

RESULT INDICATORS

Key Performance

ICT Based Services

- G to C - Annual Statistical Information of APMCs viz. arrival & price trend of agricultural commodities, information about main & sub yards, infrastructure facilities available at APMCs, regulated commodities of various APMCs.
- G to B - Comparative reports of arrival & price trend of agricultural commodities of APMCs.
- G to G - Annual Statistical Information of APMCs viz. arrival & price trend of agricultural commodities, income & expenditure of APMCs, information about main & sub yards, infrastructure facilities available at APMCs, regulated commodities of various APMCs.
- G to E – Annual Statistical Information of all APMCs.
- G to S – Annual Statistical Information of APMCs viz. arrival & price trend of agricultural commodities, information about main & sub yards, regulated commodities of various APMCs.

Current Stakeholder Benefits
Farmers and agriculture market functionaries

- Round the clock, easy availability of APMC information.
- Valuable comparative information is available on of mouse.

APMC

- Reduction of cost & time for submission of ANR to MSAMB.
- Local Language (Marathi) facility for submission of online ANR.
- In time submission of ANR.
- Easy availability of current as well as past data of all tables.

MSAMB

- Reduction in expenses related to manpower, stationary & postage.
- In time compilation of ANR of all APMCs.
- Easy availability of more than 15 years of data of APMCs.
- Comparative analytical reports are available at the tip of figures for decision making.
- Effective monitoring of compilation of ANR of all APMCs.

State/Central Govt

- Easy and timely availability of comparative reports of ANR information of all APMCs for decision making.

Students-

- Availability of ANR data for educational and research purpose as and when required.

Services planned for Future

- Graphical comparative data reports to MSAMB, APMCs and all other stakeholders.
- Availability of ANR reports to district & division level.

Implementation coverage

Till date all 300 APMCs in the State are covered under this project. Stakeholders covered under this initiative are Farmers, State & Central Govt., APMCs, MSAMB, NGOs, Private Organizations and students.

Transaction Volume

No	Year	Transactions
1	2011-12	Total Records - 23640
2	2012-13	Total Records - 23296
3	2013-14	Total Records - 17957

Efficiency and Improvement Initiatives

Time and Cost Efficiency.

Reduction in manpower, postage & stationary cost at MSAMB & APMC level.
Reduction in time & office overheads at MSAMB as standalone data entry software is replaced with web based application.
Timely availability of comparative data to management, State & Central Govt.

Innovative Practices

In built SMS alert facility – SMS alert facility is available in the software for reminder to APMCs for not submitting ANR in time.

Levels of Integration

Integration with MSAMB Website:

APMCs information in integrated with MSAMB website for the use of general public. General public can view information related to arrivals & prices of agri. commodities, important commodities in the APMC, main & sub markets, infrastructure facilities, etc. This information of APMCs is available under APMC tag as APMC profile on MSAMB website.

Integration with BDP application:

MSAMB has web based application for Business Development Plan details of APMCs. BDP application displays arrivals & prices, godown, main & submarket information of APMCs of last five years. This information is integrated from ANR application data.

Integration with Section 12(1) application:

If APMC does not submit ANR in time, access to another application for sanctioned investment proposals (section 12(1)) is prohibited.

ENABLER INDICATORS

Process reengineering

Major ICT and Non-ICT changes

- MSAMB printed ANR booklet of 18 tables and used to distribute all APMCs by post.
- APMCs sent ANR in booklet form (hard copy) by post to MSAMB.
- ANR data received through booklets was entered through Foxpro based offline software at IT Dept. of MSAMB.
- Stopped providing booklet to APMCS for submitting ANR data.
- Developed online web based software using Dot Net and Sql 2008 and hosted in MSAMB Data Centre.
- Issued circular to all APMCs for compulsory submission of ANR through online application.
- Provided training to APMC computer operator.
- Migrated data from Foxpro to SQL Server 2008 R2 database.
- ANR data made available online in the form of comparative statistical and administrative reports.

Challenges faced in implementing Process changes

- Lack of willingness by APMCs to use online application for submission of ANR.
- Motivated APMC staff for online submission of ANR.
- To train the staff of APMCs to use online ANR application.
- Provided training to the staff of APMCs.
- Internet connectivity to access online application.
- Guided APMCs and got the broad band/ 3G data card Internet connectivity to access the online application.
- In time online submission of ANR by APMCs.
- Regular follow-up by District, Division and Head office staff with APMCs, SMS alerts and prohibition of access to other application for in time submission.

- To develop online web based interactive user friendly Marathi interfaced application for ANR booklet of more than 30 pages (18 tables).
- Trained IT experts with latest technology (front end and back end) for development of web application.

The Lessons learnt from the Process re-engineering exercise

- APMCs have accepted the change in process of submission ANR through online application.
- APMCs are adaptive to new process using latest technology as MSAMB has motivated and trained them for the same.

Change Management and Capacity Building

Leadership Support

- MSAMB Management gave 50% subsidy on the training charges for staff of APMCs at YASHADA.
- MSAMB Management pro-actively supported IT Team for training related to Dot Net, SQL & Crystal Report.
- APMC Management allowed staff to attend computer training at YASHADA and paid 50% fee for the same.

Change Management and Capacity building Strategy

- Issued circulars to all APMCs and made compulsory to submit ANR data through online application.
- Provided 4 days computer training at YASHADA, Pune to the staff of APMCs and trained 1300 staff members for effective utilization of computer and internet at APMCs.
- Regular follow-up with APMCs for Data Entry by District, Division and Head office of MSAMB
- SMS alerts and prohibition of access to other application for in time ANR Submission.
- Provided regular telephonic support to APMCs regarding issues related to online software.

Project Management

MSAMB has independent IT department with IT experts. Software has been developed in-house by a team of one programmer, one senior programmer and one manager. Software development project for ANR was assigned to one full time programmer. Programmers were used to report Manager (IT) for the review of application development. The software is hosted in Data Centre of MSAMB.

Financial Model

- Adequate hardware, net connectivity and trained manpower are permanently available at APMCs.
- Independent IT department with adequate IT Infrastructure and dedicated IT experts are available at MSAMB.
- Online ANR application is developed, hosted and maintained in-house by IT Experts of MSAMB.
- Separate funds are not required to upkeep this project.
- IPR of the project is with Maharashtra State Agricultural Marketing Board, Pune.

Efforts at Sustainability

As application is hosted and maintained in-house by IT Experts of MSAMB, separate funds are not required for sustainability of the project. MSAMB has started the process of third-party assessment through State Govt. empanelled service provider.

Challenges faced in Change Management and Capacity building

- Lack of willingness of APMC staff for online submission of ANR.
- Issued circular and made compulsory to all APMCs for online submission of ANR.
- Problem faced by APMCs at the time of data entry and ANR submission
- Provided telephonic support as and when required.

The Lessons learnt from Change Management and Capacity building exercise

- Exclusive computer training to the staff of APMCs is essential and useful.
- SMS alerts available in application reduced the follow-up process.

Technology

ICT Solution adopted

Front End	Microsoft Visual Studio 2010 ASP.net, framework 4.0
Back End	SQL Server 2008 R2
Reports Tool	Crystal Report 13

Compliance with Standards

- GIGW Compliance- 60% compliance and remaining work completion is in process.
- WCAG 2.0 Compliance- Level A Compliance.
- Marathi Localization: Application user interface is in Marathi language

Security and confidentiality standards:

MSAMB has started the process of selecting the Service Provider for Security Audit.

Disaster Recovery and Service Continuity

Daily Backup of database and monthly backup of web application.

Technology related challenges faced

Crystal report display- After hosting application, reports prepared through crystal had problem in displaying the contents of reports. Installed required DLL of Crystal reports on server and problem was solved.

The Lessons learnt from Technology choices and implementation strategy adopted

- Web based application hosted at Data Center of MSAMB has become effective mechanism for collection, compilation & reporting of Annual Statistical Information of all APMCs in the State.

- Web based online application developed using Dot Net with SQL database has eliminated the hurdles of accessing comparative information for decision making.
- User Interface developed using Dot Net with UNICODE for Marathi interface has made the application more user friendly.

VALUE INDICATORS

Digital Inclusion

Application is developed for all APMCs in Maharashtra, where official language is Marathi. User interface of the application is Marathi for user friendliness of web application for the staff of APMCs. As language constraint is taken into account in advance presently all stakeholders are fully benefitted with the use of this e-Governance initiative.

Green e-Governance

- Online application has eliminated booklets (hard copy formats) to be printed and distributed to APMCs for submission of ANR. Hence, 100% elimination of paper consumption for ANR data compilation process at MSAMB, supporting Green e-Governance.
- Online reports are available on Laptops / Tabs / Smartphones for Top Management, hence, reduced the paper consumption for reporting, which supports Green e-Governance.
- Stopped the printing of blank formats & postage of ANR, as APMCs can enter data directly in application.
- Started the practice of viewing reports on Laptops/ Tabs rather than taking prints of various reports.

Milind Akre, Managing Director, Maharashtra State Agriculture Marketing Department, Maharashtra. Email: genman@msamb.com, md@msamb.com

Mahendra Lokhande, Asst. General Manager (IT), Maharashtra State Agriculture Marketing Department, Maharashtra. Email: msamb@vsnl.com

RTE Online Portal

Directorate of Elementary Education, Govt. of Rajasthan

Naresh Pal Gangwar and Vinod Kumar Jain

Description of the Project

The Portal has been designed, developed and hosted by NIC Rajasthan for the automation & streamlining of admissions process of 'disadvantaged groups' and 'weaker sections' under RTE Act-2009 in entry class along with their payment settlement from Govt. Side. User logins for 34,081 private schools, 265 Block (BEEO) offices, 66 Districts (33 DEO (Secondary) & 33 DEO(Elementary)), 33 APCRTE and state level officers like Finance offices, State Project Director, Additional Directors etc. have been created.

The portal aims to register private schools of Rajasthan for capturing of details of students admitted under RTE Act-2009 through their logins. Following activities are done by schools:

- Login using DISE Code and One Time School Profile registration.
- Uploading of Time frame, Class wise fee, Strength of class, 25% cut-off for RTE seats, Bank details etc.
- Uploading details of admitted students under RTE in session 12-13 & 13-14
- Uploading of Physical Inspection Report Data to be verified later by office.
- Updating of entered Physical Inspection data, as per comments made by office.
- Instalment wise preparation of Claim Bill of fee reimbursement.
- Viewing of as on day status & reports

System is designed on Work flow basis; information entered by the schools has to be verified by the concerning office user. Like Claim bills can only be generated by the schools, if block office verify departmental approval (through uploaded approval documents), bank details (through uploaded cancelled cheque), Physical Inspection Report etc. details. Data verification of Private School at field is done by DEO Elementary, DEO Secondary and BEEO's.

Separate user login and passwords have been provided to office staff for following activities.

- Data verification of Private School at field is done by DEO Elementary, DEO Secondary and BEEO's. Separate user login and passwords have been provided to office staff for various activities
- Provide Password to schools, Reset in case of Forgot, Update Mobile no. of Schools
- Entry of year 2012-13, bill instalment details for each student.
- Verification of Dept. Recognition, RTE Recognition, and Bank details of Private Schools.
- Approval of Physical Inspection Report entry made by the schools
- Preparation and Submission of Budget Demand and acceptance of Claim Bill
- Approval of Claim Bill and disbursement of amount in School's Bank Account

Various monitoring & administrative drilled down reports are also provided on the website. Most of the information are is provided in public domain. A link is provided on home page to see the information being entered by the schools, without login.

The services offered by the RTE application are G2C, G2G primarily for the benefit of students, schools and departments enabling them to get uploaded the data and the requisite reports as and when required. The system will provide absolute transparency about students admitted under RTE through proper process and their follow up as per guidelines of RTE. Under G2G services, the school & department would get online school wise info and follow up process and update the actual info on regular basis.

RESULT INDICATORS

Hon'ble Education Minister and Principal Secretary Education appreciated the efforts of NIC Rajasthan and RCEE for making informative & transparent online application. Department can now see actual admissions made in different category with a single click. Similarly, budget is released on actual basis. Department see the payment made by different office through varieties of reports.

Key Performance

The services offered by the application are G2C, G2G primarily for the benefit of schools & departments, enabling them to get uploaded data and requisite reports as and when required.

Other than this, RTE online portal also benefits students for admission under RTE seats by making the channel very transparent and less time consuming. It provides strong public interface to have the effective monitoring tools at various levels. Stop Manipulations in admitted student's data, as reimbursement will be made up to VIII class, who admitted in entry class only.

The schools and public are also able to view the remarks made by the inspecting authority and the reasons of rejection and objection, if any. Such strong data is being used by other department also for other planning purposes. It has been proposed by parents to make RTE application online so as to stop the monopoly by various schools which do not accept forms provided by parents for lottery process. Introduction of DSC at some stage in office is also proposed to increase security in the system.

This portal is heavily accessed by parents/ schools and offices; it is observed that the website is accessed more than 1250000 times in this first year of the portal.

More than 31199 Private School have registered in this portal, this includes both elementary as well as secondary Schools. Data of 81055 admitted students of session 2012-13 and 154407 admitted students of session 2013-14 and 167324 admitted students of session 2014-15 is captured by portal. Along with reimbursement of more than Rs 63 Cores is made to schools.

Efficiency and Improvement Initiatives

RTE online system has led to many cost and time efficient improvements, some of them are like:

- Parents don't have to visit each school to know their fee structure or time frame, as the same can we viewed on the portal.
- Parents need not to go back and forth to the school for RTE admission

form; the same can be downloaded and filled online at one place and time.

- Online lottery has saved lacks of Rupees of Govt., in terms of travelling allowance that were to be provided to Teachers/ Officers for lottery monitoring.
- Parents can check lottery result online from any place of convenience.
- The strong MIS / Reporting engine of the software has saved hours of time in preparation of real-time reports which were needed by offices.
- Accurate physical inspection report verification/ rejection system has made it possible to streamline genuine RTE students in the system, saving large amount from the Govt.
- Online billing system, and proper transparency have resulted in capture of ambiguity in offline system previously adopted by the dept., and has led to recovery of amount from the schools.

A few of the motivating / innovative ideas that were adopted include.

- The system was introduced in mid of 2013, when students of 2012 were already admitted through offline medium. The system was designed as such to enter each 2012-13's admitted student's entry through office logins (block officers/ District officers). This approach helped to identity genuine 2012 students and to later promote them to next higher class.
- Online application for RTE admission by parents was an innovative idea as many a time, it was observed that schools were not accepting RTE forms.
- School inspection report were made to be entered by schools and later verified by offices making it fake entry of students very difficult.
- Every School has its own time frame and students were not aware about admission date in specific school. This initiative promoted introduction of common time frame for all schools witht separate April and May sessions.
- NIC SMS services and e-mail services have been integrated in RTE online system, thus making it possible to send Bulk SMS and emails to Parents/Schools/offices whenever required.
- The data from RTE online system has been used in fee monitoring systems. The system already uses services of NIC SMS services and e-

mail services. The system forces schools to upload RTE recognitions and Dept. affiliations and Bank details making it a very safe online system. The data at each stage is verified by office personnel.

ENABLER INDICATORS

Process Reengineering

Major ICT and Non-ICT changes

School Logins were created on basis of DISE Code, and schools were asked to collect passwords from respective BEEO or DEO offices. Later Password or Forgot Password facilities were provided through SMS only.
Provision of Common Time Frame and Schools wise Age Policy concept included in the system.
Online Application by parents for admissions under RTE in entry class: Online form was provided for admission to RTE seats, to handle cases where schools denied accepting RTE forms.
Centralized Lottery Process for creation of School wise Priority List: Centralised lottery was generated by NIC so that outside interference in RTE lottery process could not betaken.
Online Claim Bill generation for fee reimbursement: Schools where students are verified by offices after School Inspection by officials are eligible to prepare claim bill, printed hard copy of claim bill received in offices are eligible for reimbursement from offices, voucher register for payment to schools are also generated online.

Challenges faced in implementing Process changes

- Creating awareness regarding online systems for schools/Offices was done by conducting various workshops/meetings/ VC etc.
- Up to 2012, the students were admitted through offline medium. Therefore, to create a database of students, offices were given the task of entry of 2012-13 students admitted under RTE.
- State Govt. changed the policy of admissions under RTE. The changed policies included school wise age policy, two medium of instruction, separate fee structures etc. This necessitated major changes to the data base structures. This challenge was however handled successfully.

- Even after confirming information and "locking" the records, schools often communicated a need for corrections/update. As per the request of state govt., many provisions had to be made to correct such data from higher level authority.

The Lessons learnt from the Process re-engineering exercise

- Centralized Lottery process has helped considerably to stop manipulation during the receipt of application forms for admissions under RTE.
- Large number of schools belong to rural remote areas and SMS acts as a very fine medium to convey information like deadline for date of entry etc.

Change Management and Capacity Building

The State Govt. was very keen to implement this system. Initially to create awareness, extensive training programs were arranged up to the block level. Press releases / advertisement were issued from time to time.

Centralized cells were constituted for smooth monitoring of the project. State Level Coordination committee (SLCC) chaired by the Secretary meets on a monthly basis to resolve any unresolved issues or policy matters. For the smooth functioning /execution and monitoring from district level, district level cells were also constituted under the direct control of DEO (Elementary).

Technology

Application is developed using .Net 4.0 & SQL Server 2008 technology with three tier architecture. This bilingual website uses responsive design enabling it to be easily accessible through PC/laptops//tables/mobile devices. NIC SMS services and e-mail services have been integrated in RTE online system, thus making it possible to send Bulk SMS and emails to Parents/Schools/offices whenever required.

RTE Online portal has received web security audit clearance from Cyber Security Division, NIC and CyberQ Consulting Pvt.. Ltd. This system is hosted in Rajasthan State Data centre, and RTE technical team is continuously taking

database backups on SAN along with backups at cloud based DR site in New Delhi.

The major challenge faced was to enable website to be responsive over various devices available with students and schools PC/Laptops/Tablets/Mobile devices. The website was made responsive through the use of CSS which allowed it to be accessible on devices of various resolutions and screen dimensions.

VALUE INDICATORS

Digital Inclusion

RTE online Portal is an integrated bilingual web based system, Hindi and English are adopted as primary languages. As Rajasthan is a backward state, the portal is designed in Hindi as the default language and English as the secondary language. Timely messages and help are provided in Hindi. SMS too - when needed - are sent in Unicode Hindi.

Green e-Governance

- Verification of documents like Cancelled cheque, School affiliation, Dept. recognition are stored in digital format and not as hard copy for RTE purposes in RTE offices thus saving ample of Paper work.
- Attachments are not asked for the claim bill while verification and sanctioning, as all desired documents are available online.
- Emails through NIC Email relay services are now being sent to private schools from RTE portal instead of the hard copy letters that were originally sent.

Naresh Pal Gangwar, IAS, Secretary, School Education Gor Email: pseducation2013@yahoo.com

Vinod Kumar Jain, Principal Systems Analyst, National Informatics Centre, Rajasthan. Email: vinod.jain@nic.in

Information Management for Promotion of Administration in Commercial Taxes (Impact)

Finance (Revenue) Department, Govt. of West Bengal

H. K. Diwedi, Binod Kumar, Randhir Kumar and Atanu Majumdar

Description of the Project

The project is a part of Mission Mode Project under MMPCT Project under the Department of Revenue, Govt. of India and Finance (Revenue) Department, Govt. of West Bengal. Under this project, a state of the Art Web, Application and Database Servers have been installed for providing e-Services to the external stakeholders, who are primarily the taxpayers on the one hand, and on the other, for providing internal services to the officials of the Directorate. The entire software for external and internal processing is developed and maintained by National Informatics Centre which covers the major business processes relating to functional areas of the tax administration. The project primarily deals with capturing all the processes under the WBVAT Act,'03 and Central Sales Tax Act, 1956 besides synchronizing the external process with the internal processes so that there is a seamless integration between the internal and external stakeholders. We have undertaken extensive Business Process Re-engineering (BPR) while moving from manual to electronic mode.

The overall objective of this project is to standardize the business process thorough e-services. This removes the physical interface between the Directorate and the dealer. It has reduced the cost of compliance to the dealer in money, as well as, time terms. This has also strengthened the revenue administration of the directorate in terms of availability of extensive data analytical tools. Besides, it helps to enhance transparency and efficiency as well as collective and individual responsibility through continuous generation of various Supervisory and Monitoring MIS Reports. By making compliance cheap, easy and hassle free along with making evasion extremely difficult, the incentive for self-compliance is very high.

The following are the main services provided through the system:

- **Registration:** Every dealer, crossing the threshold limit of certain turnover as specified in the law, has to get himself registered under the relevant act.

The entire system is automated, from online application to online generation of de-mat registration certificate. It is noteworthy that the relevant spot enquiry is only done after the allotment of the registration number to the dealer and no manual intervention is needed for obtaining registration.

- **Waybill:** Every importing dealer applies for Waybill through online system. The entire process is automated from generation of key to generation of waybill by the consignee. In this process there is no need for manual intervention with scanning and authentication of Bar Code embossed Waybills through Bar Code Scanners. Furthermore, this authentication is used in verifying the correctness of the returns submitted.
- **Returns:** All the returns have to be submitted online. Returns are arithmetically checked through the system. The system provides for Provisional assessment for non-filers and thus ensuring check to return filers towards filing returns in time. With introduction of Digital Signature Certificate (DSC), the entire process of return filing is online where there is no need of submitting hard copies to the relevant offices.
- **Payment:** Online system of payment is there in place where the entire process from payment to crediting Govt. account is done electronically. Govt. has developed a receipt portal "GRIPS" linking the directorate and the bank. It accepts payment through online account and debit cards as well. About 80% of tax payments are through this system. With effect from 01.10.2014 hundred per cent payment shall have to be made through GRIPS.
- **Assessment:** Online assessment is done from the initiation notice to the generation of demand notice. Final demand notice is available in database and is communicated electronically.
- **Refund:** The introduction of e-refund made sure that the refund amount is directly transferred to the dealer's account through NEFT by reducing significant time loss and cost. Online application makes it easier to monitor progress through MIS.
- **Profession Tax Registration, enrolment and return:** Massive BPR resulting in full automation of process through instantaneous delivery of services. Entire directorate is proposed to be closed and merged with CTD as manpower becomes surplus in Profession Tax.

- **All services are linked with SMS notification:** E-mail and mobile nos. are verified using One Time PIN (OTP). PAN details are verified real time through an API connected to NSDL.

RESULT INDICATORS

Key Performance

Current Stakeholder Benefits

- Service delivery at the click of a button
- Reduced cost of compliance

Services Planned for Future

Inclusion of all the services of the Directorate & also inclusion of stakeholders hitherto left out for service delivery.

Implementation coverage

All over the State of West Bengal

Transaction Volume

YEARLY TRANSACTIONS OF eSERVICES FOR THE PROJECT MMPCT-WB

eServices	Yearly Transaction (2011-2012)	Yearly Transaction (2011-2012)	Yearly Transaction (2011-2012)
eFiling of Returns	1289699	1428509	1521714
e-Waybill	2119485	2511373	2962619
eRegistraion	23083	45455	48570
Dematerialised Transit Declaration	1188339	1227725	689790
ePayment Through GRIPS	144313	446556	833148
Dematerialised CST Forms	519855	599718	1036143
	5284774	6259336	7091984
In crores	52.85	62.59	70.92
Total in 3 years	186.36		

Web-site Hits volume

Month	Unique visitors	Number of Visits	Pages	Hits	Bandwidth
Total	1,883,988	4,101,845	96,649,471	195,787,727	364422 GB

Efficiency and Improvement Initiatives

Time and Cost efficiency

Name of the service	Turn-around time (previously)	Turn-around time (current)
E-REGISTRATION	• Turnaround time was very high as applicant needed to make 3-4 no. of visits on the avg. to the Directorate to get Registration. • Average time for this service was 60 days.	• Applicant does not need to visit to the office for registration. • Turnaround time is 2-15 days after complete application filing.
Payment of Tax	• Dealer had to pay taxes through challan at the designated banks on each month within banking hours • Turnaround time was at least 1 day.	• Anytime from anywhere payment can be made by using the net banking facility of the designated banks without extra cost • The entire process takes only a few minutes.
Returns	• Dealer had to submit the return at the counters/ respective Charge offices of the Directorate quarterly • Turnaround time was 1-2 days.	• Anytime from anywhere returns can be filed using internet without extra cost. • Dealers having no such in-house facility may opt to get the facility from authorized service providers. (Facilitation Centres) • The entire process takes only a few minutes.
Waybill	• On demand dealer was given blank waybill forms within a day. Dealer had to visit office every time forms were required. • Turnaround time was 1-2 days.	• Anytime from anywhere e-waybill can be generated using internet without any extra cost for limited Dealers. • Automatic Grant of waybill. • The entire process takes only a few minutes.

Innovative Practices :

- Online PAN Verification through API with NSDL Server
- Delivery of notices through e-mail (DSC) and D.P. using professional bulk email service
- Provisional Assessment: Calculation is done automatically based on CTD database.
- Profession Tax: Extensive BPR to simplify and provide instantaneous service.
- Central Declaration Forms. Innovative linking of CTD and TINXSYS data.
- Transit Declaration (other states): Harnessing e-data capabilities of neighbouring states.

The stakeholders receive the above services at the click of a button from the comfort of office/residence on the one hand and on the other, the Directorate gains by having up-to-date information in the IT system. This not only improved the quality of service provided but also improved the revenue augmentation measures of the State.

Levels of Integration
Integration has been achieved with the following external ICT systems:

- TINXSYS
- STATE EXCISE
- DIRECTORATE OF COMMERCIAL TAXES OF OTHER STATES
- NSDL
- GRIPS portal of Finance Dept., GoWB

ENABLER INDICATORS

Process reengineering

Major ICT and Non-ICT changes

Earlier half of the day of all offices used to go in receiving and manually issuing various waybills and forms. Now with e-services and Business Process Re-engineering (BPR), we may devote this time to analyze returns, detect evasion and augment revenue. The comparative table towards process re-engineering initiative is as follows:

NAME OF THE SERVICE	PROCESS AS WAS	PROCESS AS IS NOW
1. E-FORMS (CST)	• Printing of Blank forms • Sending to Central Stores. • Maintaining stocks. • Sending to Different offices. • Dealer applies to office. • Verification by Assessing Officer. • Reference to Forms Section for issue. • Issued to dealers from Forms Section. • Dealers submitting utilization after filling up of the forms. • Manual verification of filled up forms.	• Dealers can generate De-Mat CST Forms through details furnished in the CST Returns and no authorization is required from CTD. • Automatically verified, consistency check and utilisation done by the system.
2. E-WAYBILL	• Printing of Blank Waybills • Sending to Central Stores. • Maintaining of Stocks. • Sending to Different offices • Application by dealers for issue. • Verification of application. • Order to Forms Section for issue. • Issued to dealers from Forms Section. • Dealers submitting utilization after filling up of the waybills.	No pre- issue verification. The process is reduced to 2 steps: • Dealer generates key number • Generates waybill by that key. • Besides, Utilisation can be given electronically. Waybill has barcode embossed which can be read through any BAR CODE READER for verification.
3. E-TD	• Transporter filling Declaration and submitting at entry CP. • Endorsement at entry CP. • Production of the Declaration at exit CP. • Endorsement at exit CP • Matching was done by taking data from Entry& Exit CP	• Real-time generation of Entry Form and Exit Forms • Real-time Synchronisation of data from Entry Form& Exit Form.

4. E-STDS	• Submitting of Manual Form 18 • Issuing of Manual From 19	Both Form-18 and Form-19 are generated Online. Automatic matching of STDS and return data leading to plugging of revenue leakages.
5. E-REGISTRATION	• Application to be filled up and submitted before Registering Authority. • Examination by Registering Authority. • Spot enquiry done before allotment of Registration Numbers. • Approval of Registering Authority.	Spot enquiry done after allotment of Registration Number and De-Mat Certificates given where no authorization is needed. Accelerated and hassle-free registration.
6. E-AMENDMENT	• Dealer applies before assessing officer. • Receiving at office. • Putting up before Assessing officer by D.A. • Spot enquiry ordered. • Spot enquiry report submitted by ACTO. • Verified by assessing officer. • Amendment made in RC with authorization. • Database updated.	• Dealer applies online. • Visits office with acknowledgment for verification of original declaration forms • Assessing Officer's authentication in the system. • RC amendment done. • Dealer downloads amended RC electronically.
7. CANCELLATION	• Upon application of the dealer/ Suo moto by assessing officer • Spot enquiry order by assessing officer. • Spot enquiry report submitted by ACTO. • Verified by assessing officer. • RC cancellation manually. • Database updation.	The entire process is done electronically
8. E-RETURN	• Dealer bought return forms from vendors, • Filled up return forms • Submitted to offices. • Received at receiving section • Acknowledgement given to dealers.	All dealers have come under E-RETURNS. Facilitation Centres have been set up.

9. E-PAYMENT	• Submission of challan to bank. • Sent to Nodal office • Sent to RBI • Govt. A/C Credited	The entire process of payment and Credit to Govt. A/C is done thorough electronic mode
10. E-REFUND	• Application to be submitted before assessing authority. • Examination by Assessing Authority. • Verification of payments by Assessing Authority • Issue of RPO by Assessing Authority.	Refund amount is transferred to dealer's a/c through NEFT

Challenges faced in implementing Process changes:

- **External:**
  - Dealer facilitation
  - Dealer awareness/ training (Arrangement of workshops)
- **Internal:**
  - Setting up of HRD Cell for various training programmes and awareness of latest changes
  - Setting up of dedicated Information Systems Division to look into all aspects of computerization& e- service delivery
  - Training and orientation of mindset of departmental officers

The Lessons learnt from the Process re-engineering exercise:

- Adaption of State of the Art Technology
- Setting up of a dedicated help-desk to solve dealers' problem.
- Need for setting up of e-grievance cell to address grievances of the dealers
- Use of electronic data and process of other organizations to simplify our process

Change Management and Capacity Building
Leadership Support

As the Head of the Department, Commissioner of Commercial Taxes has taken the initiative of planning the capacity building and change management through various training programs organized by Human Resource

Sl No.	Topic	No. of trainings conducted	No of Participants
1.	NEW IMPACT	11	278
2.	Recent Development of NIC	1	15
3.	MS Word / Excel / Access	1	8
4.	RTI Act 2005	1	40
5.	Interactive Session on Document Management System	2	55
6.	Basic Computer Training	3	38
7.	TALLY	8	120
	Total	27	554

Development Cell. Some of the training programmes as conducted by HRD Cell in the financial year 2013-14 are as follows:

Change Management and Capacity building Strategy

Training programs are organized on hierarchical basis so that seniors can share their knowledge with juniors towards inclusive knowledge build up. Besides, there has been a conscious effort to develop Master Trainers so that all the future training can be imparted in-house.

Project Management

There is a Project e- Management Team (PeMT) headed by Commissioner Commercial Taxes along with team members like officials of Commercial Tax Directorate, NIC, WTL, and other vendors which manages and monitors the project. Regular meetings are held to discuss the progress and address the issues relating to the project.

Financial Model

The project is totally owned by the Government. No PPP model is in place. It is part of Mission Mode Project.

Efforts at Sustainability

Project is sustained over 10 years through changes in statute, deeply entrenched re-engineered processes preventing slippage back to manual process. Accepted by all the stakeholders and due to the quality of services provided any reversal to old process not possible. Due to resultant augmentation of revenue the govt. policy mandates a confirmed budgetary allocation for continuance of the project. Political pressure for trade reforms.

Challenges Faced in Change Management and Capacity Building:

- Resistance to paper-based work culture to paper-less work culture.
- Lack of computer literacy amongst internal and external stake-holders.
- Requisite legal amendments to be done towards process re-engineering.

The Lessons Learnt from Change Management and Capacity Building

The major lesson that was learnt was that e-governance does not simply comprise introduction of IT into the business processes. It comprises re-engineering of the Government Process through rationalization of the legal processes besides, of course, re-engineering of the existing business process mechanisms. Proper motivation and sense of ownership by entire team is crucial.

Technology

ICT Solution Adopted

- Adoption of State of the Art Technology with Data Centre facilities adhering to Govt. guidelines.
- Availability of services on desktop/pda/kiosk/mobile devices.
- Bar code scanning for quick digitization
- Public Grievance Redressal System
- Digital preservation through Document Management System Project
- SWAN.

Compliance with Standards

Conformity Assessment Requirement Standard has been adhered to.

Security and Confidentiality Standards

Security audit of the e-services on OWASP (Open Web Application Security Project) guideline has been followed. Passwords are encrypted using MD5 and SHA2 algorithm. Digital Signature Certificates are additionally used for signing of documents and logging in.

Disaster Recovery and Service Continuity

Disaster recovery site is ready for go live at National Data Centre where application and database replication will be done on daily basis.

Technology Related Challenges Faced

- Providing DSC free of cost to dealers having no DSC.
- Upgrading of old server to new servers.

The Lessons Learnt From Technology Choices and Implementation Strategy Adopted

There should be a periodic review of the implemented technology as the degree of obsolescence in this area is highest. Proactive measures are taken to review the same at a regular interval.

VALUE INDICATORS

Digital Inclusion

- Reducing the usage of paper and enhancement of storage capacity through Document Management System (DMS) Project
- Introduction of Mobile services
- Introduction of Handheld devices.

Green e-Governance

To reduce the usage of paper in the day-to-day activities of the Directorate, the

Directorate has embarked on a project where all the documents are to be kept in the digitized format. This project is known as "Document Management System" and is expected to go live by the end of 2014. At present, the installation and configuration of the Servers are in final stages. Besides above, the Directorate has introduced an internal website where all the required information / communications, documents are shared in a soft format minimizing the usage of paper.

H. K. Diwedi, IAS, Principal Secretary (Finance), Department of Finance (Revenue), Government of West Bengal. Email: fs-wb@nic.in

Binod Kumar, IAS, Commissioner, Commercial Taxes, Department of Finance (Revenue), Government of West Bengal. Email: cct.ctax@nic.in

Randhir Kumar, IAS, Additional Commissioner, Commercial Taxes, West Bengal. Emial: randhir.ias@gov.in

Atanu Majumdar, Sr. Joint Commissioner, Commercial Taxes. West Bengal Email: majumder.ctax@nic.in

Workflow-based File and Letter Tracking System (WFTS)

Finance Department, Govt. of West Bengal

H. K. Dwivedi and Anurag Srivastava

Description of the Project

The manual process of file/ letter movement entailed a lot of time and required a continuous monitoring at different levels before the final decision was made by the senior officials. Consequently, many crucial decisions often got delayed due to the slow movement of files and/or unavailability of file.

In order to provide better, efficient, transparent and responsive services to the citizens and hence to improve work related efficiency and bring in transparency in disposal of files & letters in government offices, West Bengal Government decided to replace the existing manual system with web-enabled Workflow based File & Letter Tracking System (WFTS) in November 2012.

The objective was to create a central repository of relevant information pertaining to all government Files & Letters to speed up the disposal of files & letters through web enabled /mobile tracking of each file and letter at different locations of decision making. This would also ensure a periodic review of departmental operations, bring transparency in processes and also help inculcate a sense of accountability in the functioning of the Government officials. The citizen and departments outside the system would also be able to track the location of the file or letter and bring more transparency and efficiency in decision making.

WFTS software package is designed & developed by National Informatics Centre (NIC). It is hosted in National Data Centre (New Delhi) with Disaster Recovery facility. It is accessible from http://www.wbfin.gov.in. It was felt that the system should begin in such departments which define leadership to implement the change in the Government set up. Thus, it was decided that

WFTS would begin with the Chief Minister's office and Finance Department. After its successful pilot run for 5 months from November 2012, WFTS is rolled out in all other Government offices in West Bengal.
At present the WFTS is being implemented across the entire state involving different offices under Government of West Bengal. Unlike other office automation application involving file/letter tracking, WFTS is developed as very Lightweight Application to ensure operability by users from remote locations with low bandwidth internet. Inspired by its successful run, Telengana state has expressed their interest recently to implement WFTS in Telengana.

WFTS has been able to transform the conventional administrative set up to a more efficient and transparent organization eliminating delays and huge amount of paper work. It has features right from diarizing of receipts/files, updating its status, opening of new files, tracking the movement of the files, dispatch of letters/files and records management. Thus, the application has helped create a central repository of relevant information pertaining to all government files and letters across the state and thus eliminate the difficulty of locating files and letters. Unlike in the previous manual system, the status of any file or letter can be known anytime and from anywhere. Further, it has been integrated with NIC SMS Gateway to send an alert through PUSH SMS or PULL information as SMS from the Central Server thus helping to speed up disposal of files and letters to appropriate location.

The system has benefited the stakeholders in a number of ways including improvement of efficiency, consistency and effectiveness of government responses, reduction of turnaround time, meeting the demands of the citizen's charter, ensuring effective resource management to improve the quality of administration and reduction in processing delays. Further, higher departmental officials can track the activities of all those under them, thus increasing the accountability of government staff and establishing credibility and transparency in government functions.

Further, through improved digital linkages between the Finance Department and other administrative departments, the fund allotment process has got expedited which is reflected through a considerable increase in the quantity of

funds released as well as an even distribution of release during a given financial year. As a result, the overall expenditure management has improved. WFTS has been linked to the Public Grievance Monitoring System wherein citizens can lodge complaint on the portal and track their complaint using the Public Grievance ID generated by the system.

Successful implementation of WFTS has made West Bengal the pioneer state in the country to implement such centralized file & letter monitoring system for the entire state.

Result Indicators

Key Performance

ICT Based Services

WFTS is primarily a G2G initiative which provides interface amongst officials of West Bengal Government. However, it also provides some G2E & G2C services.

WFTS provides the following transactional services:

- Enforces a uniform working procedure in all Government Offices across the State
- Incorporated ideal workflow for each process and relevant government orders as outcome of each process
- File related information Data entry needed to be done once only
- Extensive built in data validation checks
- Online receiving of incoming Files/Letters
- Immediate generation of receipts of Files/Letters
- Incorporated generation of Government Orders releasing budgetary allocations through integration with
  - Management of Release of Budgetary Allocations
  - Management of Re-Appropriation / Augmentation of Budget Allocations
  - Management of Release of Funds received from Government of India as Loan
  - Management of Letter of Credit (LOC)
  - Management of Rural Infrastructure Development Fund (RIDF)
- Uploading Scanned Documents as Attachments with Files/Letters

- Marking Files/Letters in case of Vigilance Case related
- Online despatch of Files/Letters
- Electronic movement of Files/Letters through workflow process
- Automated generation of Incoming & Outgoing Registers and Peon Book
- Retrieval of File/Letter related information through powerful search facility
- Extensive Reporting facility e.g. e-Registers, e-Reports etc.
- Viewing of Files/Letters based on Roles
- Alerts on urgent Files/Letters where action is required
- Bar-coding of Files
- Easy tracking of time taken for disposal of Files/Letters & despatch at each level
- Integrated with NIC SMS Gateway – for both PUSH SMS alerting Recipients & PULL SMS to fetch information from central database
- Integrated with Public Grievance Monitoring System

Current Stakeholder Benefits

In the wake of WFTS, three categories of stakeholders, namely the government offices, employees and citizens accrue benefits which are enumerated below:

- Government departments and offices at the organizational level
  - Time reduction: Further, through the Electronic Record Management enabled by the system, all associated logistics have got reduced, in terms of cost, time and other resources. Thus, government response time has reduced.
  - Optimal Resource Utilization: The system is role-based with definite roles and responsibilities for each & every authorized user. It has implicitly enhanced efficiency, transparency, consistency and effectiveness of government response and has brought about efficient resource management.
  - Linkage between fund allocation authority and administrative departments: The system has expedited the fund allocation process through monitoring of pending / disposal of files by the competent authorities ensuring smooth supply of resources to the developmental schemes being executed across the state. All administrative departments can use WFTS, to track the movement of

files sent to the Finance Department and take necessary follow up action.

- Uniform working procedures: WFTS has enforced a uniform working procedure wherein all files and letters are initiated, transferred and received through the same web-enabled application following a common procedure.
- Reduced paper usage: Under the new system, registers (both incoming and outgoing) are being maintained electronically, thereby reducing the usage of paper.
- Data backup: Under WFTS, there is no need to take back-up, as it is maintained under National Data Centre with Disaster Recovery facility.

Government Employees

- Uniform working procedures: The WFTS has enforced a uniform working procedure wherein all files and letters are initiated, transferred and received through the same web-enabled application following a common procedure.
- Compliance to state governance framework: The filing system has been designed based on the prescribed West Bengal State Secretariat Manual of Office Procedure and an ideal workflow is incorporated for each of the process like e-Registers, Incoming/Outgoing File & Letter Registers, Peon Book etc.
- Conducive working environment: Redundant manual transfer of files/ letters has been removed, which has eventually increased effective working hours and productivity of government employees.
- Instant SMS alert: The application is integrated with NIC SMS Gateway, whereby through PUSH SMS and PULL SMS, recipients can be alerted and information can also be fetched from the central database. This enables a real-time tracking of all files and letters from anywhere, thus cutting down on valuable time spent on locating them within and across offices.
- Manpower planning: Manpower planning can be done more effectively based on an assessment of average number of files handled by each officer which can help to identify surplus staff
- 24*7 access from anywhere: With file tracking, there is an option to

upload the documents like Note Sheet which becomes easier for officers to oversee the content without looking at the file physically.

Citizens

- Public Grievance Monitoring System: This system enables citizens to lodge any grievance (relating to delay in public service delivery or other matters) by putting in their personal information. Thereafter, a Public Grievance ID is generated by the system, using which the complainant can track actions taken on his grievance in the later stages through web or SMS.
- Reduced government response time: On account of reduced processing time on the part of government officials, the turnaround time for citizens' demands has got reduced.
- Accountability: Under the new system, every movement of a file or letter can be tracked by a higher official and at the same time, officials responsible for internal transactions can be held accountable in case there is any query from general public. Thus, the entire system has become more transparent and has helped to improve accountability
- Transparency: The web-based application has induced efficiency, consistency, accountability and transparency in government functions and has brought about a systemic change across the government machinery.

Services planned for Future

- Increase extent of coverage: More offices at the sub-division and block levels are slated to be covered. WFTS would be implemented at more corporations and government undertakings in the subsequent years.
- Increase extent of services: The extent of barcode-based tracking would be increased by increasing the number of files with barcodes scanned on them. Further, the note sheets and buff sheets of files which are being generated through WFTS would bear digital signature certificates (DSCs).

- Extent of integration of other IT systems with WFTS: The WFTS will also be integrated with the Integrated Financial Management System (IFMS) that is currently being rolled out in the state
- Public interface for WFTS: A logical extension of the WFTS is to provide the system with a public interface which will make it possible for beneficiaries to keep track of the file/letter movement. This will create new benchmark in public service delivery and will increase transparency, accountability and responsiveness to new heights and will usher in much needed change in reforming public sector governance in the state. This can also serve as an example for other states and also the central government to emulate.

Implementation coverage

Departments spread

WFTS has been rolled out across government offices throughout West Bengal. All the officers across offices have been given the login-ID and password for accessing the web based file tracking system and it has been mandated by the Chief Secretary (vide Circular No. 994-P&AR(Vig.) dated 6th December 2012) for all government offices to use WFTS for movement of files/letters. The Table below highlights the implementation and stakeholder coverage under WFTS:

Sl No.	**Implementation Coverage**	**Count of units using WFTS**	
		Offices	Sub-offices
1.	Departmental Level	85	658
2.	Office of the District Collectors	19	280
	Total	**104**	**938**

Sl No.	**Implementation Coverage**	**Count of units using WFTS**
1.	Departmental Level	2866
2.	Office of the District Collectors	431
	Total	**3297**

Transaction Volume

The volume for selected categories of transactions is given in the Table below:

Sl No.	Transaction Type	Total volume of each service since 01.04.2013
1.	Creation of File	321710
2.	Receiving of File	315571
3.	Updation of Recy. info	120302
4.	Generation of Receipt	301514
5.	Generation of Unofficial Office Number (UO No.)	9124
6.	Attachment of document with file	33313

Web-site Hits volume

Total number of hits since inception has been around 44.5 lakhs. The year-wise breakup of the same is given in the table below:

Sl No.	Year	Year wise transaction count for Hits
1.	FY 2013-14	3289927
2.	FY 2014-15 (till July 2014)	1157522
	Total	**44,47,464**

Efficiency and Improvement Initiatives

Time and Cost efficiency

With the implementation of WFTS, time and cost efficiencies have taken place due to the following enabling indicators:

- Central repository of data on status of files and letters has become accessible to all authorized government officials anytime and anywhere.
- Strong multi-parametric search facility has improved the speed of locating and tracking files and letters and speed up their disposal to appropriate location. Thus valuable official time is not wasted and can be diverted to more productive work.
- Instant messaging service via PULL and PUSH SMS have allowed possibility for customized alerts on pending actions to be taken and for

fetching information from the central database. Thus the service delivery time has got reduced.

- Computerised Central Clearance System has led to reduction in travel time and cost and elapsed time for service delivery by allowing an organized one-time collection of processed files from the Finance Department to the concerned administrative departments.
- Improved linkage between the Finance Department and other administrative departments has led to expedition in fund allotment process and an even distribution of fund release throughout the year, thus leading to efficient fund and expenditure management.

The impact can be quantified as follows for some of the services listed below:

Indicator	**Description**	**Manual Process**	**WFTS**
Transit time	Average time takes for inter-departmental file movement	15 days	2 days
Fund Allotment	Average time taken for allotment and release of funds from the Finance Department	20 days	3 days

State Plan Expenditure		
Fin. Year	**Plan Expenditure**	**Growth %**
2011-2012	Rs. 14074.52 Crores	
2012-2013	Rs. 18994.11 Crores	34.95 %
2013-2014	Rs. 26336.03 Crores	38.65 %
State Plan Expenditure		
Fin. Year	**Capital Expenditure**	**Growth %**
2011-2012	Rs. 2763.75 Crores	
2012-2013	Rs. 4547.30 Crores	64.53 %
2013-2014	Rs. 7554.64 Crores	66.13 %

The efficiency has increased manifold, thus resulting in increased focus of officials towards overall growth of the departments and meeting of citizens' demands through speedier decision-making process.

Innovative Practices

The following innovative ideas have been implemented in WFTS:

- Public Grievance Monitoring System allows citizens to lodge complaints and obtain their individual Grievance IDs to track the status of action taken upon their complaints. After a complaint has been lodged under a specific department, the nodal officer is intimated to look into the matter and initiate a file if required. After 30 days if still no action is taken, the system alerts the higher official and the process keeps escalating, thus bringing in accountability in the system.
- Strong search facility with provision of including multiple search parameters like File No./ Part File/ Subject/ File Department/ Receipt Date/ Received By/ 'Sent To' to help locate files and letters instantaneously and in a structured way.
- Barcoding of files are done in the system. Once the details are entered into the WFTS system, the system automatically creates an exclusive barcode with respect to that particular file.
- Less use of paper in office: With the uploading facility of letters and important pages of files, movement of files can be tracked online. Scanned copies of letters are being sent to the concerned officials and there is less movement of letters in physical form.
- 24 * 7 access: As it is a web based system, administrative officers can track the file status sitting anywhere
- SMS service: Through this service, anybody can get status information as SMS by just feeding the File Number through mobile phones.
- Pictorial dashboard which provides a holistic status of all the functionalities with Drill Down facilities

Levels of Integration

WFTS is integrated with following ICT systems:

- Management of Release of Budgetary Allocations
- Management of Re-Appropriation / Augmentation of Budget Allocations
- Management of Release of Funds received from Government of India as Loans

- Management of Letter of Credit (LOC)
- Management of Rural Infrastructure Development Fund (RIDF)
- Public Grievance Monitoring System

The aforesaid integration has established indirect impact of faster decision making, including release of plan funds for various social and infrastructure development works under the State plan has resulted in a remarkable increase in the State Plan and Capital expenditure of the State Government in the last two financial years.

Enabler Indicators

Process Re-engineering

Major ICT and Non-ICT changes

The business process re-engineering (BPR) in WFTS has revolutionized working by making it more effective and error free. Such has been impact of the BPR that it has virtually eliminated too much travel of the file/letter as the employees have a clarity of procedures and the work flow along with the requisite references needed available at a click. As an ICT process improvement, government officials have been given the facility of access to WFTS. This has enforced a uniform working procedure wherein all files and letters are initiated, transferred and received through the same web-enabled application following a common procedure. Another critical process change that has taken place is that once files are ready for disposal, SMS alerts are sent to recipient as well as nodal officer of recipient office to arrange physical collection of files by authorized peons or messengers in an organized manner which reduces chances of misplacement/loss of file.

Challenges faced in implementing process changes

- Resistance faced from government officials with limited computer literacy and tech-savviness: With the advent of WFTS, the work-flow process has got entirely digitized, though the physical system of file and letter transfer has been retained for the time being. Government officials who were relatively less tech-savvy and were used to transfer files and

letters physically within and amongst departments were apprehensive of the process changes that took place.

- Data migration and subsequent integration of record of files and letters dated prior to 1st April 2013 with WFTS: In order to ensure continuity in the U.O.No.s of files and letters, the note sheet and buff sheet of files and letters dated prior to 1st April 2013 were uploaded by respective government officers and maintained in the soft form. The files and letters generated after the said date were assigned subsequent U.O.No.s in order to maintain continuity with files and letters initiated before.
- Lack of a robust information management system: There was no procedure to track the level of progress and implementation or any standardized mechanism for reporting.
- Requirement gathering: Requirement gathering was found to be a major challenge as the divergence between the manual and digitized systems of operation was huge. The volatility of the requirements was augmented due to the inadequate computer literacy among the stakeholders

The Lessons learnt from the Process re-engineering exercise

- Considering the functionalities of the state government and their transformation over the years, it was observed that simply digitizing the existing government process would merely add to the complexity, delay and confusion. Hence, it was essential that the processes be first redesigned with the end objective of faster turnaround of public services and improved servicing of citizens' demands. In line with the above, the following factors were given prime importance
- Identification of the Critical Enabling Factors: The critical enabling factors that were identified for the successful implementation of WFTS were:
  - Vision: Developing, articulating and communicating a shared vision of the desired change
  - Need: Developing and sharing a compelling need for change amongst stakeholders
  - Means: Planning, developing and implementing practical means to achieve the desired vision
- Transformative leadership: Leadership was critical to enhance

motivation, morale and performance of reluctant stakeholders and induce them to accept the changes. It was ensured that leadership exhibited purposeful, progressive and visionary governance and moved on to become a critical driver for implementing changes.

- Evaluating the progress of implementation through constant monitoring and surveying: Periodic reviews of departmental operations were undertaken by higher officials to estimate the volume of each category of service availed by departmental officials. This helped to identify government offices that required a modification of service delivery as well as training needs of officials to enhance their usage of the application.
- Learning to hear and be heard through feedbacks: Feedbacks were taken from stakeholders to understand their requirement and take suggestions for improving performance efficiency. Effective communication and sharing of thoughts both at peer and across levels ensured collective sharing of problems and chalking out of solutions.

Change Management and Capacity Building

A structured approach was followed to ensure smooth transition to a digitized workflow environment. At the same time, due care was taken to address perception issues, lack of ownership and resistance to change. This necessitated attitudinal change, technological skill enhancement, adaptability to respond to stakeholder requirements in ever demanding scenario and a re-iteration of the commitment to provide quality services.

The major challenges in change management were as follows:

- Filing processes were not streamlined – different processes in different offices
- Limited IT awareness
- Perceived threat of IT system replacing manpower
- Perceived risk of information loss

These challenges were addressed through the following initiatives:

Leadership Support

Leadership is of prime importance for altering mind-set of stakeholders,

harnessing motivation and shaping their behaviour under a changed workflow. Timely communications in the form of periodic circulars/ office orders were issued urging all stakeholders to switch over to WFTS. In addition, under the able guidance of focused and empowering leadership, stakeholder aims were measured and assumptions, risks, dependencies and benefits were measured. Through effective communication and stakeholder discussions, training and workshop modules were developed. Counter-resistance from officials was aligned towards achievement of broader goals through a consultative engagement process. Implementation of WFTS was monitored on periodic basis and status update taken at regular intervals. Feedback on project implementation was actively encouraged and necessary realignment for mid-course corrections done to improve efficiencies.

Change Management and Capacity building Strategy

The pilot surveys for WFTS began with the Chief Minister's Office and Finance Department for duration of 5 months.

As a part of capacity building measures, 2 workshops were organized in November 2012 and February 2013 for officials of 69 departments and their subordinate offices in addition to agencies, corporations and board members in Kolkata and across all districts. They would in turn train other officials. Training calendar was prepared and communicated to government offices for attendance as per the schedule. Around 110 formal training programs were conducted since inception.

Project Management

There are four types of teams working under close supervision of the Chief Secretary to the Government of West Bengal for smooth implementation of WFTS across the state, one each at the state level, administrative/departmental level, corporation/government undertaking level and district level. Their respective heads and nodal officers are presented in the below table:

Level of Function of Project Monitoring Team	Head	Nodal Officer
State Level	Principal Secretary, Finance Department	Special Secretary, Finance Department
Administrative/Departmental Level	Additional Chief Secretary/Principal Secretary/Secretary of concerned department	Officer at the level of Special Secretary/Joint Secretary of Concerned Department
Corporation/Government Undertaking Level	Commissioner/Head of concerned Corporations/Government Undertakings	Competent officer of concerned Corporations/ Government undertakings
District Level	District Magistrate/Collector	Deputy magistrate of concerned Collectorate

Financial Model

It was a government initiative under non-Mission Mode Project. The software and database were developed and implemented by the National Informatics Centre (NIC). NIC also set up the ICT infrastructure and provided hand-holding support for capacity development.

Efforts at Sustainability

The following efforts are being taken to ensure sustainability of this initiative:

- Capacity Building: Trainings and workshops are being conducted periodically to ensure that the new joiners as well as existing officials are user-friendly with the system.
- Infrastructure: The requirements for this system include computer and related hardware, browsers and internet connectivity. Timely procurement including allocation of the necessary budget for operations and annual maintenance will be essential for the long term sustainability of the project.

Challenges faced in Change Management and capacity building

Imparting training and capacity building was a major challenge for the department owing to logistic issues. Further, staff members were used to the

manual way of working and there was an initial resistance to accept process changes. Skill sets required to handle IT systems were also rather limited. This in turn necessitated repetitive trainings, leading to delay in implementation. Implementing software functionality within a very small time period across locations with high number of users also proved to be a challenge.

Lessons learnt from change management and capacity building exercise

Training needs had to be assessed to ensure they are effective in bringing changes. During the course of the project implementation, the domain experts played a vital role in making the exercise a complete success. Hence the criteria of involving domain experts was identified and applied to enhance the effectiveness of the capacity building initiatives.

Technology

The system provides an interactive interface to retrieve information in a flexible way. It helps to create, enter, dispatch, receive and track files and letters and eliminates repeated entry of information. It generates MIS reports in pre-defined formats on File / Letter Transaction Information at the office levels as well as the individual officer level and is integrated with NIC SMS Gateway for PUSH and PULL SMS for alerting and fetching information from the central database respectively. It allows automated generation of incoming and outgoing registers and peon books and comes with a strong multi-parameter search option to help locate files and letters instantaneously.

ICT Solution adopted

The maintenance and update of software and the database are taken care by the NIC.

- Database: MS SQL Server 2008
- Operating System: Windows 2008 Server
- web-server:: IIS 7.0
- Implementation agency: NIC with Disaster Recovery facility
- Network facility: SWAN used as also Government Offices across the State connect WFTS using State-owned MPLS and Leased Line/Broad Bands/Data Cards
- Data centre used: National Data Centre

- Security: Antivirus software downloaded on each computer with mandatory scheduled updating for internet security. All HTML and URL Output encoded.
- Cyber Security Certificates: received from STQC, CSD and NIC Headquarters.

Compliance with Standards

WFTS was developed and deployed as per guidelines for Open Web Application Security Project (OWASP). It has been made live only after getting Cyber Security Clearance Certificate from STQC followed by CSD, NIC (Headquarters). The application complies with Interoperability Framework for e-Governance in India (IFEG). Further, it is also in line with the West Bengal State Secretariat Manual of Office Procedure.

Disaster Recovery and Service Continuity

WFTS is hosted at National Data Centre (NDC), Shastri Park, New Delhi. A two-stage backup procedure is in place at NIC Hyderabad and Pune.

Technology related challenges faced

- Providing multiple real-time transaction status reports at various levels: Real-time MIS reports had to be generated for tracking progress of WFTS.
- Managing huge transaction volumes: Huge transactions were carried on a multiple bandwidth.
- Limited bandwidth and intermittent internet connectivity: Major challenges were lower bandwidth and intermittent internet connectivity for government offices located at remote corners of state. It in turn requires the design of WFTS as lightweight application.

The Lessons learnt from Technology choices and implementation strategy adopted

- Post-transaction updation of data: It was ensured that data on any every transaction was recorded amidst high traffic on server, to make the application effective and data up-to-date.

- Pdf uploads: Uploads have been restricted to only pdf files to avoid virus infections to the system.

Value Indicators

Digital Inclusion

Introduction of WFTS has resulted in the following positive externalities:

- Provision of username and password: All employees have been provided username/password on their mobile/email to enable them to view file/letter. However, the authorization to initiate and transact files and letters has been restricted to officials of the rank of sub-divisional clerks or the Group C staff. Nonetheless, this has ushered in digital inclusion process and all employees have been co-opted as a part of this grand transition to a modern digital environment.
- Capacity building: Trainings and workshops have been organized by the NIC to bring all employees on the same page regarding usage of the new application. Thus deficiencies in term of skill sets on the use of ICT are being ironed out. This will pave the way for a fully modern workforce that is geared to meet newer challenges of governance involving greater use of ICT in the coming days.
- Enabling environment and policies: A conducive environment has been created through planning as well as written directives to make usage of WFTS mandatory across all concerned departments.

Green e-Governance

- Currently, the note sheet and letters are getting scanned and are then sent as a soft copy to the concerned officials. Thus consumption of paper in government offices have gone down, which will have a cascading effect on the environment.
- MIS available at the click of mouse so there is no need to print and preserve reports and outputs or maintain registers.

Reduction of e-waste

- Centralized database management has ensured that individual departments are not required to procure servers or other costly equipment for this e-governance initiative.
- Existing network and computer, printers are used for the system, no extra infrastructure is needed.

H. K. Dwivedi, IAS, Principal Secretary, Finance Department, Govt. of West Bengal. Email: fs-wb@nic.in, hkdwivedi2@hotmail.com

Anurag Srivastava, IAS, Joint Secretary (Budget), Finance Department, Govt. of West Bengal. Email:js.fin-wb@nic.in, jsfinancewb@gmail.com

Open Government Data (OGD) Platform India – data.gov.in

National Informatics Centre, Govt. of India

Neeta Verma, Alka Misra, Durga Prasad Misra and Sunil Babbar

Description of the Project

Open Data initiative is intended from the government to the entire community to exploit the capability of Open Government Data. The Open Government Data (OGD) Platform India – data.gov.in – has been set-up by the National Informatics Centre (NIC) in compliance with the National Data Sharing and Accessibility Policy (NDSAP) of India, Gazette notified in March 2012. The objective of the policy is to provide proactive access to Government owned shareable data along with its usage information in open/machine readable format, through a wide area of network across the country, in a periodically updated manner, within the framework of various related policies, rules, and acts of the Government.

The OGD Platform India envisages proactive dissemination of Government resources i.e. datasets and apps in open format in order to foster transparency, accountability and citizen engagement in governance along with data-driven

innovation. It has been set up to provide single point access to all the datasets published by Ministries, Departments, Organizations and States in open format. The conceptual diagram of the OGD Platform is depicted below:

Main Objectives of the Project are:

- Wide Accessibility and better discoverability of resources (datasets and apps)
- Citizen Engagement governance and Community Collaboration for data-driven innovation

Potential Benefits:

- **Transparency:** The data collected by the Government gives the statistical picture of the country. It paves way for strengthening transparency in the governance as it is important that citizens know what the Government is doing.
- **Avoiding duplication and cost saving:** Sharing and accessibility help avoiding duplication in collection and generation of data and helps in cost saving.
- **Better decision-making:** Ready access to valuable data may enable more informed and better decision-making.
- **Social inclusion in governance:** Citizen Engagement/Public Participation in governance and Community Collaboration for data-driven innovation is one of the key objectives of the Open Government Data Initiative of India.
- It envisages collaboration and cooperation between government entities and public for more accountability and efficiency in governance.

Strategy Adopted:

Publish the NDSAP Implementation Guidelines– It was finalized after multi-stage consultation with Data Controllers& Inter-Ministerial Task Force set up for the purpose. In order to implement NDSAP, following activities have been undertaken by most of the Ministries/Departments of the Government of India in consultation with the NDSAP PMU:

- Nominate Data Controller for Ministry/Department/Organization
- (As per the directive from the Cabinet Secretary, a senior officer at the

level of Joint Secretary or above is to be nominated as Data Controller for the Ministry/Department/Organization to implement NDSAP.)

- Data Controllers in turn Nominate Data Contributors for Ministry/Department/ Organization
- Setup NDSAP Cell, which helps in compilation, collation, conversion and publishing datasets
- Prepare Negative List
- Identify Positive Datasets which can be contributed
- Publish Catalogues and Resources (Datasets/Apps) on OGD Platform India
- Create Action Plan for regular release of datasets on the OGD Platform India
- Monitor and Manage the Open Data Programme of the Department

Setup a NDSAP Project Management Unit (PMU)– The main activities of NDSAP, PMU is to manage the OGD Platform, provide Technical Advice to the departments, handhold for dataset contribution as well as capacity building of Data Contributors and Data Controllers.

The first version, called as "Data Portal India" was opened to public use in October 2012. Subsequently rechristened as Open Government Data (OGD) Platform India, with enhanced features and functionalities was launched on February 18, 2014 to provide better user experience to both data providers & data consumers.

RESULT INDICATORS

Key Performance

ICT Based Services

- Ministries/Departments/States can contribute catalogues/resources in open format.
- Platform enables better discovery and usage of Government datasets through visualizations and development of apps, mash-ups, etc.
- People can create visualizations of their own data using the visualization engine service of the OGD Platform.
- Direct and dynamic query to data items of selected datasets are also provided through the APIs.

- Seven Sensitization and Capacity building workshops were conducted for government
- Citizen Engagement/Public Participation:
  - Suggestions and requirement of data can be submitted to help prioritize data sharing by participating ministries/ departments. Anyone can also endorse already submitted suggestions. More than 500 suggestions have been submitted and each is endorsed by on an average of 50 users.
  - Users can rate the published data sets on three aspects i.e. Quality, Accessibility and Usability, which help Government entities serve people better.
  - The users can also directly connect with the Data Controllers (provider) seeking any further clarification/ information or clarification on the released resources.
  - Six(6) Hackathon/Contests/Apps Challenges were organized

- Community Collaboration: The OGD Platform also provides a platform for interaction and knowledge sharing.
  - Providing knowledge-sharing platform through discussions and blog in sector specific communities. To start with, four communities have been created.
  - People are also encouraged to blog their stories, experiences and knowledge on anything related to Open Data.
- OGD Platform - Software as a Service: The software as service could also be offered to set up the OGD Platform, customized to the exclusive requirements with personalized look & feel. Other countries i.e. Ghana and Rwanda have availed the services of OGD Platform as Software as a Service.

Current Stakeholder Benefits

- Government entities
  - Are publishing data sets in open format and enhancing their visibility
  - Complying with the NDSAP while datasets get utilized for deriving various perspectives
  - Getting feedbacks and suggestions from civil society
- Researchers, Academia and civil society organizations , Journalists, Social Scientists, Transparency advocacy organizations, Open Data

Enthusiasts/Activists

- Various analytics are being derived out of datasets & information using any analytical tool or through the built-in Open Source Visualization Engine of the OGD Platform, which provides device independent Info graphics along with facility to use shape data to create maps as well as different charting options like radar, bar, line, area, pie, column, etc.
- Can send datasets requirements to data controllers
- This also provides a platform to drive data-driven innovations and creative collaboration with government, academia, community, social scientist etc. through various Hackathon, App Challenge, Collaborative Events, Workshops, etc.

Developers/Programmers

- Besides the above mentioned benefits, they have been able to submit request for APIs and getting access to APIs. Getting involved in development of APPs based using government datasets
- Can request for APIs, Analytics as well as scheduling alerts for forthcoming new/updated dataset releases

- Above all, citizen at large have been able to get various government datasets in open format and the apps developed on these datasets for various service deliveries. The perspective of citizen service delivery is going to change from government to provide service to citizens (community) provides service delivery mechanisms to fellow citizens.

Services planned for Future

- Multilingual OGD Platform
- Effort are being made to involve more and more state governments in this open government initiative
- Efforts are on to dynamically publish data generated by Mission Mode Projects (MMPs) of the NeGP through the use of Web Services/APIs
- Feature enhancements of Platform w.r.t Visualizations, API's, Community Engagement, APPs Development
- Steps required for more civic engagement for making useful and efficient use of published datasets

Implementation coverage

- About 92 data controllers from central government Ministry/Departments and 7 from states have been nominated to drive this initiative in their respective departments.
- 71 departments have been contributing government datasets on OGD Platform
- Maharashtra and other countries like Rwanda and Ghana are using separate instance of OGD Platform
- Stake Holders:
  - Government: Ministries/Departments/Organizations of the Government of India and states publish datasets/resources on the OGD Platform.
  - Public at large: Anyone can access datasets and apps available on the platform.
  - Developers and start-ups: They are encouraged to develop various components of OGD Platform, mash-ups, apps and info-graphics using the datasets available on the platform.
  - Data Journalists, Activists, NGOs, etc.: Datasets can be used to present facts and figures in a perspective previously never thought of.

Transaction Volume

From October 2012-March 2014 **The platform was made live in October 2012**	
Data Controllers Nominated	82
Resources Contributing Departments	64
Resources Contributed	6335 resources
Resources Viewed	1.12 M
Downloads	380.904
Visualizations Developed	148
Registered Users	39.153
Data Controller Workshops	2
State Workshops	5
Apps Developed	24
Community Engagements :	
Events / Challenges	6
Blogs & Discussion Forums	4

Web-site Hits volume

From its starting date in October 2012 to March 2014 –OGD Platform India has accrued 75,90,953 Page Views through 14,53,591 Visits by 1,423 Average Visitors per day.

Efficiency and Improvement Initiatives

Time and Cost efficiency

- Public is getting government datasets in open format through platform at zero cost anytime from anywhere. Single point multipurpose platform on Open Government Data.
- Time and efforts taken for uploading and publishing of datasets:
  - Positive potential datasets are identified by government body (PMU team helps)
  - Gathering of datasets in open formats (use of web services, link feed, published reports, local files)
  - Cleaning and preparation of datasets with the support of Data Analystsfrom PMU
  - Contribution by Data Contributors (Data Management Work Flow) (PMU supports in preparation of bulk contribution metadata CSV files)
  - Approval by Data Controllers (Data Management Work Flow)
  - Approval of PMU for Publishing (In 48 hours)

Innovative Practices

OGD Platform is completely developed using Open Source Stack, which is cost saving in terms of OS, system software and licenses. It also facilitates community participation for further enhancement of the product on:

- Data Visualization Engine, APIs to access datasets, Modules for community participation, Integration of social media, public service delivery Apps, etc.
- Sharing of published catalogues/resources can be done through Share Widgets in HTML, JSON or XML.
- Dynamic data conversion API from one published format to six different formats

Levels of Integration

This platform provides following modules through Software as a Service (SaaS) mode:

- Cataloguing of Resources (Datasets/Apps)
- Visualization Engine as Service. It provides device independent Info-graphics along with facility to create maps as well as different charting options like radar, bar, line, area, pie, column, etc . People can even create visualizations of their own data using the visualization engine service of the OGD Platform
- Service on multiple web/mobile platforms (Responsive web layout)
- Widget to Consume/Link Sector Specific filtered set of catalogues
- Platform to showcase Apps developed using Open Data
- Controlled Vocabulary Services
- Discussion Forums and Blogs
- APIs are offered on request
- Service to Embed Catalogues

ENABLER INDICATORS

Process reengineering

Major ICT and Non-ICT changes

- A customized metadata based on Dublin-core has been engineered and implemented for capturing relevant meta-information while contributing catalogue and resources
- A dynamically configurable workflow has been established for contribution, approval and publishing of catalogues and resources
- A set of controlled vocabularies were identified and implemented to help contributors provide most of the meta-information while submitting catalogues and resources
- These controlled vocabularies are standardised and published for further consumption in any e-Gov applications through SOAP and REST based web service calls
- A Data conversion API has been devised to provide published data in six different open data formats
- A visualization engine has been built to generate various visualization

formats for data interpretation and presentation
- Data access APIs are provided
- Guidelines covering all relevant aspects to implement NDSAP were published to help user departments
- Citizen/Community Engagement and Collaboration established using social media, events and workshops for optimum utilization of published datasets.

Challenges faced in implementing Process changes

- Understanding on Open Government Data within government is low. Awareness sessions were critical.
- There was a little challenge towards identifying suitable resources for application development and deployment as it is solely being handled by NIC.
- "Is it really required for the government", "if we open up, foreign agencies might play with data harming our country", "opening up datasets in open format would expose the data quality", "how would it benefit the data providers", "who would lead the initiative from the ministry/department", "what are all open formats", "everything available on website what else you want", etc. were the typical queries., which slowly got resolved with personal interaction.
- Dataset identification and sanitization has been a concern due to lack of domain knowledge with user.
- Engaging with various communities for App development. Reaching out personally through different mediums was the only way out.
- Selecting suitable data analysts/scientists from market for the project and govt. entities was very difficult.

The Lessons learnt from the Process re-engineering exercise

- Identification and preparation of datasets from the huge volume of information available on websites and web applications of Ministries/ Departments/Organizations.
- Conversion of information/data from analogue to digital and open format i.e. machine readable format and contribution of datasets along with Metadata through a pre-defined workflow on the OGD Platform.
- Data sanitization, refinement and enhancing data quality apart from

single point storage.

- Many datasets with several errors were detected during the cleaning process. Concerned contributor went back to the root to find the problem and corrected those in the source before making those available in Open Domain for public usage.

Change Management and Capacity Building

Leadership Support

- National Data Sharing and Accessibility Policy (NDSAP) was gazette notified to spearhead this initiative and formulated to provide an enabling provision and platform.
- Cabinet Secretary to Govt. of India has sent out two communications to all Secretaries of the Govt. of India to nominate Data Controllers, Budgetary support, commitment of Apex level monitoring etc.
- Government funded the project to conduct sensitization and awareness workshops and to setup NDSAP PMU at the central level and NDSAP cell for Ministry/Departments. One central PMU and many NDSAP cells have been constituted. Seven workshops have been conducted in a span of one and half year.
- Platform has been built and managed by the NIC the key e-Governance implementer for the Government.
- Senior officers at the level of Joint Secretary from government were entrusted with the responsibility to head the NDSAP Cells to implement open government initiative in their Ministry/Department.
- Change Management and Capacity Building Strategy
- Six months were taken for implementation [from commencement of the project to the date of going live]
- Periodically, platform is enhanced with new features and functionalities. Regular training programs conducted to familiarize the stakeholders to make use of the platform. Such programs also cover any new or replaced Data Controllers/Data Contributors becomes part of the team.

Project Management

The prime agency involved in the implementation at Central Level:

1. NIC	NIC created a separate division take this initiative forward i.e. Open Government Data Division of NIC
2. Own Staff	Development and Application maintenance team as well as Programme Management Unit. The NDSAP-PMU with skeletal staff of praticipating govt. entities on process and procedure of data identification, preparation and contribution to the OGD Platform. Data Controllers : Senior officers at the level of Joint Secretary are nominated as the Data Controllers to head and drive the open data initiative of their respective ministry Department / Organization. Data Contributors. Data Controllers nominate Data Contributors for dataset identification, preparation, sanitization & contribution to the OGD Platform.
3. Third Party private sectorvendor(s)	Few hired outsourced resources and data analysts from NIC empanelled agencies.

Financial Model

- Self-financed initiative (out of NIC's internal budget)

Efforts at Sustainability

The following initiatives have been taken to explore avenues to connect with the community ranging from data journalist, researchers to developers in order to encourage active engagement with the Open Government datasets and sustain this initiative. The encouraging result of these efforts clearly indicates this is going to be a sustainable initiative:

- **12th Plan Hackathon:** Planning Commission and National Innovation Council organized a two-day Hackathon for exploring the 12th Five Year Plan Document during 6th-7th April, 2013 on the Open Government Data Platform, India (data.gov.in). Students and

professionals from all walks of life were invited to come up with short films, web/mobile applications and data visualizations in order to articulate insightful content of the 12th Plan Document.

- **In Pursuit of an Idea:** National Informatics Centre (NIC) in association with the Institute of Informatics and Communication (IIC), University of Delhi initiated a unique programme – In Pursuit of an Idea – Creative Collaboration on Open Government Data for Innovation on 24th May, 2013. The objective of the programme was to encourage creative collaboration among the students of Delhi University and professionals from the varied fields ranging from academia, developers, data scientists, etc. for innovation around Open Government Data.

- **#OpenDataApps Challenge:** The National Informatics Centre (NIC) in association with NASSCOM launched the #OpenDataApps Challenge on August 8, 2013 to boost innovation through Open Government Data and engage start-up & developer community to build an open data ecosystem. A series of engagement sessions were organised at Adobe India, Microsoft India, International Institute of Information Technology - Bengaluru & Wipro to encourage active participation of start-ups and developers in the Challenge. More details can be accessed at http://storify.com/DataPortalIndia.

- **CMA Hackathon:** The Commissionerate of Municipal Administration (CMA), Tamil Nadu organised the first CMA Hackathon - "Code for Urban Governance" to encourage innovation in Urban Governance through development of mobile and web applications at Anna University, Chennai from 14th-15th December, 2013. The CMA published up-to-date datasets from the municipalities of Tamil Nadu on Data Portal India - http://data.gov.in/ in open formats for the Hackathon.

- **Code for Honour 2014:** Code for Honour is Microsoft's award for solution excellence. In collaboration with NIC, Microsoft included the "Best Solution for Social Good using Open Government Data" award as an exclusive category within the contest to encourage creation of apps for Social Good using datasets available on the OGD Platform.

Challenges Faced in Change Management and Capacity Building

- Convincing stakeholders on the effect of data initiative on department and how change will benefit the workforce, collectively and individually
- Difficult to convince senior level officers to operate the system as Data Controllers
- Ensuring successful transfer of leadership at the Data Controller level
- Availability of domain specific technical resources to understand the datasets and their usage

The Lessons Learnt from Change Management and Capacity Building Exercise

- Visible outcome for departments and involved individuals need to be addressed
- Regular sensitization and hands-on workshops are to be held which are key to success of this initiative
- Middle level management at Data Controller level to manage and monitor the initiative
- Top level push is must for continuous data flow and subsequent updates

Technology

ICT Solution Adopted

- The name of the database on which the e-Gov initiative is based - MariaDB
- The name of the Operating System on which the database mounted - CentOS
- Linux (CentOS)
- web-server – Ngnix
- Platform has been developed using Drupal 7.x Framework

Security and Confidentiality Standards

Fully security audited by the Cyber Security Division of NIC

Disaster Recovery and Service Continuity

DR site is active at Pune data centre. Application and Data backups are taken daily as per the plan at the Data Centre

Technology Related Challenges Faced

Availability of suitable technical manpower on open source tools/technologies

The Lessons Learnt from Technology Choices and Implementation Strategy Adopted

If you could mitigate the resource crunch, Open Source technology is the best as you are not locked with any vendor and need not to pay for licenses as you scale out etc.

VALUE INDICATORS

Digital Inclusion

- Being an open source product the source code base is in the GitHub for anyone to make use of the product
- All Central Government departments, States and even other countries can use this platform
- Its layout is responsive and is available on almost all the platform and devices
- It is being planned to make this platform multilingual
- Platform is in open domain with open access to all.

Green e-Governance

Platform has been hosted at the Government of India's National Data Centre, Shastri Park, New Delhi, which is a green data centre. Single instance is providing services and support to all central Ministry/Departments and some States minimizing the use of power and disposal of e-Waste.
Workflow has been designed so that usage of paper is not required to contribute or approve or publish any dataset. Almost all the movements/processing are digital.

Valuable Datasets are provided in open and machine readable format widely accessible through Internet. So no need to use any medium viz. pen drive, disk, CD etc. (no e-Waste) to make use of datasets, develop and release APPs, consumers can use the APPs through their mobile and avail the service without generating any e-Waste or paper.

Neeta Verma, Deputy Director General, Head, Data Centre & Web Services, New Delhi. Ministry of Communication and IT. Email: neeta@nic.in

Alka Misra, Sr. Technical Director, Open Government Data Division, New Delhi. Email: amishra@nic.in

Durga Prasad Misra, Prinicipal System Analyst. Email: dpmisra@nic.in

Sunil Babbar, Sr. System Analyst. Email: sbabbar@nic.in

Mobility Platform Services

National Informatics Centre, Govt. of India

Raghunathan. VS and James Arulraj

Description of the Project

Mobility Platform Services (MPS) is an open, comprehensive and advanced mobile application platform for smart phones and tablets, helping Government organizations of all sizes to efficiently customize the requirements, emulate and deploy on multiple platforms. MPS allows the Application Service Provider (ASP) to carry out the tasks such as Registration of a mobile app, Customization of the Requirements, Registering the Web Services to fetch data from multiple domains and deliver the mobile app on multiple platforms. The mobile apps that are offered from MPS are of two categories namely, "Public Information Client" providing information to citizen and "Anywhere Client" for Govt. official to carry out their field work monitoring, etc.

Salient Features

- Loosely Coupled Architecture with 3 layers such as Application Layer, Web Services Layer and Data Layer
- Personalization is fully supported. Multiple themes, logo, BG designs are available for various requirements under MPS
- Statistical Analysis on the usage, pattern, location and device are available under MPS
- Immediate emulator review after Customization with preview over email and SMS
- Secure client can be used by the field officers in Government for field level data collection, verifications, validations, inputs, etc., with location details
- Bar-code feature supports QR 2D
- Geo coordinates supported. Hence location verification can be used very effectively.

- Different type of views (Tab, List, Select or Combo) enables the user to get various types of views of the application as per the requirement. .
- Mobile client allows the user to capture photo along with time stamp and geo-coordinates.

RESULT INDICATORS

Key Performance

ICT Based Services

The following apps were rolled-out using MPS. The first preview was given over email and SMS within 30 minutes. As soon as the web services were given by ASP, the mobile client was delivered through the platform

Sl. No.	Mobile apps.	Design Preview over SMS and email from MPS	Web Service from Domain	Live Mobile app
Government to Citizen				
1.	Grievance Petitions, Revenue Department Tamil Nadu	30 Minutes	1 Week	1 Week
2.	Track Child	30 Minutes	1 Week	1 Week
Government to Government				
3.	Transport Department, Tamilnadu	30 Minutes	2 Days	2 Days
4.	Way bill, Taxation department Meghalaya	30 Minutes	1 Day	1 Day
5.	Derver Monitoring NIC	30 Minutes	1 Day	1 Day
6.	Identity Card Management, NIC	30 Minutes	1 Day	1 Day
Government to Student				
3.	Transport Department, Tamilnadu	30 Minutes	2 Days	2 Days
4.	Way bill, Taxation department Meghalaya	30 Minutes	1 Day	1 Day

Current Stakeholder Benefits

Applications	Hit count
Anna University Student corner, Tamil Nadu	4116064
Grievance Petitions, Revenue Department, Tamil Nadu	85
Identity Card Management, NIC	529
Mark sheet Verification Services, Directorate of Government Exams, Tamil Nadu	53
Way bill, Taxation department, Meghalaya	128
Server Monitoring, NIC	65
Transport Department, Tamil Nadu	902
Dial.gov.in, New Delhi.	374

Services planned for Future

- NREGA app for Rural development
- Action Soft mobile app for work progress in Rural development
- Oral cancer app State Health Society, Tamil Nadu
- ICDS, Tamil Nadu
- Gujarat High court Status
- Any ROR@Anywhere, Gujarat
- Geo-fencing, Horticulture department.

Implementation coverage

- Dial.gov.in for all India
- Identity Card Management System Mobile apps for Tamil Nadu, Karnataka, Goa, Uttarakhand and Pondicherry
- Transport eServices, Grievance Petitions, Server Monitoring and Anna university Student Corner Mobile apps for Tamil Nadu
- Way bill for Meghalaya.

Transaction & Web Hits Volume

FY 2013-14 (April to March)	1607292
FY 2012-13 (April to March)	331513
FY 2011-12 (April to March)	-------

Efficiency and Improvement Initiatives

Time and Cost efficiency

- SDLC time is totally eliminated
- Quick development of mobile apps.

Innovative Practices

- Quick portability and SMS/email alert to view the design preview
- Development of Mobile applications not necessary
- Customize once and deploy in multiple platforms
- Online and offline mode operations are supported
- Mobile App Services can be reconfigured on the fly after the deployment and the fresh download of the App is not required.
- Information Client App and Secured Generic Department Mobile user
- Client App are available under MPS
- Location based highlighting /Warning/Capture
- Paper-less and efficient way to carry out tasks from anywhere
- Data exchanged is secure and encrypted
- Unicode features are also supported.
- Easily configured and reusable and hence can be used by any department across the country
- Geo Coordinates supported over SSL and hence field level jobs can be performed and tracked from anywhere

MPS offers two types of Mobile clients

- **Information Client:** Information Client can be used by the Public or internally by the Department. Disseminates information and collects data from the field or from the public as required.
- **Work from anywhere Client:** Work from anywhere Client in a secured client for any government official to carry out their field work or

monitoring. This requires authentication and authorization. The mobile IMEI number is verified for every operation that is carried out using this client. This client can be used by Department Officials to carry out their job from anywhere.

An overview of Information Client:

Information Client is a MPS hosted service, in which the Department user can obtain the information as required. User can collect information from various departments.

Data collected through Information Client are:

- Textual Data
- Photos
- Geo Tag (Latitude & Longitude)
- Selection from the given list

Plus default Mobile App transaction details such as Mobile IME Number, SIM Card Number, Date & Time, User Name and Password.

Information Client also registers the transaction details from the MPS services as transaction logs for statistical & analysis use.

ENABLER INDICATORS

Process reengineering

Major ICT and Non-ICT changes

- SDLC is eliminated.
- Requirement analysis prototype phase is live after every design change as SMS, email
- Iterative design, feedback / review and the requirement freezing are very quick.
- Alerts can be sent to all stakeholders for concurrence.
- The mobile app is launched as soon as the required domain web services are provided by ASP.

Applications	LIVE / In Progress	Hit count
Anna University, Tamil Nadu	LIVE	2252410
Grievance Petitions, Revenue Department.	LIVE	85
Identity Card Management, NIC	LIVE	529
Mark sheet Verification Services, Directorate of Government Exams.	LIVE	53
Way bill, Taxation department, Meghalaya	LIVE	128
Server Monitoring, NIC	LIVE	65
Transport Department, Tamil Nadu	LIVE	707
Dial.gov.in, New Delhi.	LIVE	374
Oral Cancer, Health Department, Tamil Nadu	In progress	—
ICDS, Tamil Nadu	In progress	–
Gujarat High court Status	In progress	–
Any ROR@Anywhere, Gujarat	In progress	–
Scholarship Status, Tamil Nadu	In progress	–
mAction Soft, Rural development, New Delhi	In progress	–
Area Profiler, Rural development, New Delhi	In progress	–
Geo-fencing, Horticulture department.	In progress	–
results.nic.in, New Delhi.	In progress	–

Challenges faced in implementing Process changes

- Capacity building for domain ASP on web service has taken more time.
- HTML5/RWD skills to be acquired for supporting all devices.

The Lessons learnt from the Process re-engineering exercise

- Stakeholders at every level were reply to review the design preview and provide inputs for the iterative process to freeze the requirements.

Leadership Support

- NIC management has given support for production
- Nodal officers' role is key role for coordination at all levels.

Project Management

Role mapping

		MPS Team	ASP	Ministry/ Department/ Senior Management
1.	Register ASP details MPS	X		
2.	Registration of APP		X	
3.	Product Design (Customization)		X	
4.	Design Preview		X	Approval
5.	Web service development		X	
6.	Web Service Integration		X	
7.	App release	X		
8.	App roll-out			

Financial Model

- Fully funded by NIC
- Rollout may be funded by domain through PPP models via Application service Provider

Efforts at Sustainability

- Registered under e-govt apps for horizontal replication
- Apps reload not necessary for introduction of new services or change in mobile services.
- Scalable Architecture and any new features added to the platform are automatically available for all the future apps through platform.
- Any number of apps may be configured and used.

Challenges faced in Change Management and Capacity building

- Capacity building for domain ASP on web service has taken more time.
- Management of attrition related to skilled employee in the team

The Lessons learnt from Change Management and Capacity building exercise

Provision for R&D, innovation, production for sustain and offer better solution for the changing dynamics of the industry.

Technology

ICT Solution adopted

- O.S - Ubuntu Linux
- Database - PostgreSQL 9.2
- Scripts use - PHP 5.3
- Web server - Apache and Tomcat
- Framework - PhoneGap Mobile development Framework

Compliance with Standards

- The architecture is loosely coupled.
- Pay load between layers is encrypted XML data.
- Restful Web services are Secured Socket Layer for External application integration.

Security and confidentiality standards

- Encrypted XML, SSL, Security audit

Disaster Recovery and Service Continuity

- Mobility Platform services uses DR for platform Services.

Technology related challenges faced

- Open Source Phonegap expertise not available

The Lessons learnt from Technology choices and implementation strategy adopted

- Native apps for multiple platforms. Web apps with HTML5/CSS3 using browser as platform
- Other Technology solutions are costlier, HTML5 supported platform is preferable

VALUE INDICATORS

Digital Inclusion

- Supports Unicode, so the Mobile/Web can be deployed any Unicode supported Language.
- Supports multiple platforms.

Green e-Governance

The anywhere any time Department client ensure active from multiple field unit and saves paper.

Raghunathan. VS, Senior Technical Director, National Informatics Centre, Govt. of Tamil Nadu. Email: raghunathan.vs@nic.in

James Arulraj. Technical Director. Email: james.arulraj@nic.in

Interactive Information Dissemination System (IIDS)

Media Lab Asia, Govt. of India

V K Bhatia and Dr T S Anurag

Description of the Project

'Interactive Information Dissemination System (IIDS)' has been designed after rigorous field study of various ICT initiatives on agriculture in India and information needs assessment of farmers across 12 states of India covering 26 technologies like Internet, Mobile phone, Radio and others. Effectiveness and challenges in each of these initiatives were gauged in this study. To carry out the study different steps were followed including selection of existing ICT initiatives in the field of agriculture and allied, conducting five regional workshops in North, South, East, West and North Eastern parts of India. Based on the information collected from the literature available on existing ICT initiatives in India and five regional workshops, a taxonomical model was developed on the basis of ICT technology, process, content, business model, sustainability and a generic classification on existing ICT initiatives in agriculture in India i.e. Push-Pull both. This study was undertaken in a project awarded by Indian Council of Agricultural Research under National Agricultural Innovation Project (NAIP) to Media Lab Asia, a 'Section 25'Company of the Department of Electronics and Information Technology, MCIT Government of India as a Consortium Leader with Acharya NG Ranga Agricultural University (ANGRAU), Hyderabad, National Institute of Rural Development (NIRD), Hyderabad and Mudra Institute of Communication, Ahmedabad (MICA) as the partners.

IIDS is a pull and push based system where agriculture related information can be pulled by the farmers using the mobile phones. IIDS is a combination of Smart Phone Application, Interactive Portal and IVRS. There is a mobile

interface at front end and web interface at the back end. Data would be transmitted through voice, text, images and videos from both ends (farmers to expert and back). This system provides options to farmer to subscribe for the various services. Farmer will then receive individual needs based information for only those services for which he has subscribed to and has an option at a later date to either select some more services or unsubscribe to some of the existing services. The system is connected to a centralized database, which would have all information of the farm, farmer and previous transactions. The experts at back end (web application) would have access to the database of the farmers while responding to the farmer's queries.

IIDS has been launched by the *Secretary Government of India, Department of Electronics and Information Technology, MCIT* in two Agricultural Universities namely Acharya N G Ranga Agricultural University, Hyderabad as Annapurna Krishi Prasaar Seva (AKPS) and Central Agricultural University, Imphal as m4agriNEI. The brief on the deployment are as follows:

Annapurna Krishi Prasaar Seva (AKPS) - IIDS has been field tested as Annapurna Krishi Prasaar Seva (AKPS) with 1200 farmers in 12 villages of Andhra Pradesh in the year 2013-14 under a project awarded by National Agricultural Innovation Project of ICAR. Initially two KVKs -Nellore and Kampasagar were connected through Virtual Private Network (VPN) lines and Toll Free IVRS (1800-425-3141) from March 2013 onwards. Later on it covered two more KVKs namely Wyra and Amadalavalasa from September 2013 onwards.

m4agriNEI – Media Lab Asia has taken up a project namely Development and Deployment of Mobile Based Agro Advisory System (m4agriNEI) along with Central Agricultural University (CAU), Imphal with an objective to empower the farmer by providing right information in right time through a mobile based agro advisory system. The College of Post Graduate Studies (CPGS), Barapani of CAU is the prime agency for the implementation of the pilot in Meghalaya and is providing advisory services to the farmers. Around 3000 farmers have been registered along with their farming database from the selected villages.

RESULT INDICATORS

Key Performance

ICT Based Services

Others – Agro Advisory Services to the farmers through 'Interactive Information Dissemination System (IIDS)'

Current Stakeholder Benefits

Agricultural University / Agriculture Extension Departments: The extension division of ANGRAU, Hyderabad has been equipped with necessary ICT infrastructure (Servers, MPLS, Leased Line, PRI Line & Toll Free Number) required for implementation of IIDS based Multimedia Agro Advisory System. ANGRAU has registered its four KVKs to monitor all the query & advisory being received and given by these KVKs through IIDS application (thru Toll Free IVRS & Mobile App). An option has been given to the University to see the farm profile of all the farmers registered under their KVKs, create crop calendars for its KVKs, create special messages on the basis of category (Agriculture, Animal Husbandry & Fisheries), type of crop, district selection, with additional feature of date and time at which these messages need to be disseminated in text and voice in local language (Telugu). Similarly a Multimedia Agro Advisory Lab has been established with six high-end workstations, servers, PRI, Toll Free Number and 2MBPS leased line at School of Social Sciences, College of Post Graduate Studies, CAU, and Barapani to cater the farmers from 3 districts of Meghalaya in local dialect (Khasi).

Krishi Vigyan Kendras (KVK) & Agriculture Scientists: Decentralized multimedia agro advisory labs have been established at 4 KVKs of ANGRAU and connected to the central server at ANGRAU through VPNoBB to cater location specific problems of the farmers by using the IIDS system. The KVKs are trained to operate the IIDS application. Subject Matter Specialists of KVKs are delivering personalized 'Agro Advisory' based on 'Farm and Farmer Profile' and also sending information based on their crop & time preference as per the farmers desired mode. IIDS is helping the farmer's to provide location specific information and solutions of their queries in real time as well as on

offline mode. IIDS has given facility to the agri experts to get the images and small videos from the farmers for better understanding of the problem.

Farmer: Farmers are the end users of IIDS, the system is developed keeping this factor in mind, which caters the basic and value added multimedia agro advisory services to all types of mobile user farmers, independent of their network providers. The system can be accessed through basic mobile phones (text & voice), smart phones (text, image, voice & video), land line phones/PCO (voice) and web/kiosk (text, image, voice & video). Farmers can directly interact with their nearest Agri Experts in their local language and have 'Anywhere Anytime Access' on Past Advisories on Toll Free IVRS. Currently 4000 farmers have been registered for getting agro advisory services in Andhra Pradesh and Meghalaya.

Field Coordinator/Common Service Centres (CSCs): Field Coordinators have been appointed as an information messenger for the farmers who do not have a smart phone or are unable to send/receive the information on multimedia mode. They register the farmers, listen to their specific queries, take their crop picture/video and send it to the experts and again provide expert solutions. These coordinators were also used to gather location specific information regarding local weather, local mandi rates, and database of local service providers, providing training/demo on farming practices or technical issues to the farmers. Similarly 09 CSCc were selected for registering the farmers in Meghalaya.

Impact cum Feedback Study on IIDS:

An impact analysis cum feedback study was conducted with 360 farmers in 3 villages (each village with 60 respondents) of Nalgonda district named Somaram, Mupparam and Balemla and 3 villages of Nellore district named Pedaputhedu, Vavveru and Mypadu, by using project evaluation questionnaire. The significant points from the evaluation are given below:

- Hundred per cent of the selected respondents knew about the AKPS service and most of the farmers are familiar with the toll free number and the services provided in the AKPS.

- Majority of the respondents (57%) got the service by operating the mobile phone themselves and 38% of them are depending on the field coordinator to access the AKPS service and 5% of respondents are seeking help from others i.e. friends and family members to access the service.
- While interviewing the respondents regarding the perception of AKPS, 98.0% of the respondents agreed that AKPS service is giving clear information on the subjects they require, 91.7% of the respondents agreed that AKPS service is providing the farmers with timely information and 98.3% of the respondents agreed that information provided by AKPS service is easily understandable.
- The effect of Scientist-Farmer interaction programme was appreciated by 66.2% of the respondents.
- 46.4% of the respondents agreed that the Field diagnostic visits were useful.
- The interaction between the innovative farmers and other farmers has been accepted as a useful system by 69.3% of the respondents.
- With respect to yield of the crops, 65% of respondents said that yield has increased.
- Majority of the respondents informed that their usage of chemical fertilizers and pesticides has reduced by 88.8% and 91% respectively due to the fertilizer and pesticide management information provided by the AKPS model.

Services Planned for Future

- Linkages with Supply Chain Management (Agri Inputs, Seed, Fertilizer etc.)
- Linkages with Financial services for farmers
- Integrated with sensor networks to get the data from farmers field on soil, weather, water and other parameters including sensor to monitor animals health
- Integration of Community Radio Station & Mobile based video Library on relevant areas (Agriculture, Animal Husbandry and Fisheries)
- Development & Integration of Voice Forum for peer to peer communication among farming community and experts.
- Integrated Advisory System for Each Rural Family on various aspects

which include information & awareness services on Women & Child Care, Livelihoods Enhancements, Skill Trainings, etc.

Implementation Coverage

IIDS has been implemented in following two agricultural universities in two states of India:

Annapurna Krishi Prasaar Seva: 12 villages of 4 districts (Nellore, Nalgonda, Khammam and Srikakulam) of Andhra Pradesh

m4argiNEI:50 villages of 3 districts (Ri-Bhoi, East Khasi Hills and West Garo Hills) of Meghalaya.

Transaction Volume

- **Annapurna Krishi Prasaar Seva** (Launched by the Secretary, Department of Electronics & Information Technology, Government of India on 23rd March 2013)

Service	Service Type	Number
Farmer Registration	Registration	1200
Query Received	Advice	6643
Query Answered	Advice	6235
Voice Message	Voice Call	392 messages to 1200

- **m4argiNEI** (Launched by the Secretary, Department of Electronics & Information Technology, Government of India on 8th June 2013)

Service	Service Type	Number
Farmer Registration	Registration	2974
Query Received	Advice Online	1870
Query Received	Advice Online	723

Efficiency and Improvement Initiatives

Time and Cost efficiency

IIDS has become a useful tool in enhancing the extension outreach of ANGRAU (State Agricultural University) in Andhra Pradesh through its four KVKs and in 3 districts of Meghalaya. IIDS elevated the presence of the University among the farmers enabling them to interact directly with their local KVK scientists in their native language over a toll free number, disseminating the location specific information on their mobiles (text and voice messages in Telugu) and providing an option to the farmers to send their farm images & small videos using a smart phone application in IIDS. KVK Scientists are using IIDS and providing farm & farmer specific information and solutions to the farmers' queries in real time as well as in offline mode. The experts using IIDS has an access to knowledge database and also the farmer database which enables them to understand the farmer and appreciate his field problems in a better way - KYF – Know Your Farmer.

Innovative Practices

Scientists are using IIDS and providing farm & farmer specific information and solutions to the farmer's queries in real time or offline mode. The expert has access to knowledge database of information available/linked with the system. In turn, the experts are now able to understand the farmer/field problem in a better way (KYF – Know Your Farmer). The scientists had an experience of using ICT tools in wider dissemination of information services to the farmers. The following are the innovative ideas implemented in the area of eAgri Extension:

USP of IIDS System

- Personalized 'Agro Advisory' Based on 'Farm and Farmer Profile'.
- 'Personal Assistance' to raise 'Multimedia Query' through Smart Phone
- 'Live Interaction' with Scientists
- Facility to 'Refer Critical Problems' to relevant 'Crop Specialist' available virtually
- 'Round the Clock Query Registration Facility' through IVRS & Smart Phones

- 'Anywhere Anytime Access' on Past Advisories
- Facility to 'Push Emergency Message' to Farmers based on Location and Crops
- 'Network Independent' – Accessible from All Networks

Levels of Integration

Various knowledge agencies/institutions were contacted to link their knowledge base/ portals to access/provide authentic information to the farmers, following agencies have agreed to provide their content/knowledge database for implementation of AKPS:

- Department of Agriculture, Andhra Pradesh
- Directorate of Rice Research, Hyderabad
- Agro Climatic Research Centre, ANGRAU, Hyderabad
- Directorate of Marketing & Inspection, Ministry of Agriculture
- Indian Agricultural Research Institute
- Central Research Institute for Dryland Agriculture
- Sri Venkateswara Veterinary University, Tirupati

ENABLER INDICATORS

Process reengineering

Major ICT and Non-ICT changes

Interactive Information Dissemination System (IIDS) has two major components:

1. Personalised Agro Advisory System – Mobile and web interface for interaction between farmer and experts through multimedia IVRS solutions including text, voice, picture and video. Farmers can seek advices during pre-cultivation, mid-cultivation and post cultivation period.

2. Information Services – Mobile interface to receive location specific information e.g.Input dealers; Local Weather Information; Market Price; Finance / Insurance providers; Government Schemes; Latest News etc.

The detailed components of 'Interactive Information Dissemination System' are as follows:

Personalised Agro Advisory:.

All experts (i.e. experts in Query Processing Lab (QPL) and virtual expert) are provided with web based Expert Support System (ESS) application. The ESS displays the background information of the farm & farmer on the expert's computer. It also helps the expert in informing him about solutions given on similar relevant queries and also provides an expert to access the relevant knowledge repository. This helps the expert to suitably answer to the queries which are not in the area of his expertise and thus providing farmer a one stop shop for solution to his varied agro-related queries. In this way ESS will help an expert in better understanding of the farmer's query and thus in turn providing quality advice. The voice call between the farmer and expert is recorded in the system, in asynchronous mode the same is listened heard by a set of quasi-expert, in Tagging & Transcribing (T&T) Team (a sub part of QPL), who transcribes and tags the query and its solution in textual form making it an intelligent information which can be referred by anyone at a later stage. The voice based advisory services can be accessed both by landline phone and mobile. Smart phones will be required to seek advice in multimedia format.

Specific Information:

To cater the specific information needs of farmer, an Information Dissemination & Aggregation System (IDAS) has been developed. The IDAS aggregates data (online and offline) from various reliable information sources and disseminates it to the registered users depending on the user's specified (as mentioned during their registration to the service) time and mode. IDAS will also ensure delivery of right information at right time. Linking the IDAS with the ESS, it will also provide proactive advices to the farmers, on the topics which are frequently queried by the farmers.

Challenges Faced in Implementing Process Change

- Mind-set of farmers in not disclosing their complete information to maintain the farm database
- Non availability of the complete soil data for each farm as well as other parameters to maintain the farm history for each farmer.
- To make the agri scientist habitual in attending the farmers queries

through phone calls on their computer system and to refer the farmer database while responding the queries.
- Accustom in using a multiple option based IVRS by the farmers esp. in NE region.

The Lessons learnt from the Process re-engineering exercise

- Requirement of continuous training and feedback sessions for field force to understand their issues
- More sensitization meetings and linkages with various service providers for need based services.
- Minimize the options for farmers to accustom with the IVRS as this was a new concept in the NE region
- Sensitization of farmers to use a multiple option based IVRS to get the solution from experts on their daily agricultural practices

Change Management and Capacity Building
Leadership Support

- IIDS has been implemented in the extension division of the Agriculture University in Andhra Pradesh and the head of the extension division himself has been a part of the project and is monitoring the implementation.
- Capacity building programs for KVKs and other staff were organized by the head of the division of the implementing agencies on regular basis.

Management and Capacity Building Strategy

- The necessary inputs and active involvement of the end users (Head of Extension division of the university and KVKs, agri experts from university / KVKs, farmers and other stakeholders) was ensured during the development phase of the IIDS.
- Workshops and training programs were organized with stakeholders for testing and feedback on various modules of IIDS and has been implemented phase wise.
- Sensitization meetings and capacity building programs on IIDS for field force (Field Coordinator, Data Entry Operator, Agri Experts) and farmers were organized. 35 sensitization meetings and training program

under Annapurna Krishi Prasaar Seva and 55 under m4agriNEI project have been undertaken.

Project Management

- **In Andhra Pradesh**, IIDS has been implemented as Annapurna Krishi Prasaar Seva through the Extension Division of ANGRAU in its existing 4 KVKs. The Subject Matter Specialist (SMS) from the KVKs were assigned the jobs to deliver the solution to the farmers query. The supporting staff i.e. Field Technical Assistant (FTA) and Data Entry Operator (DEO) was recruited under the project on daily wages (part time).

- **In Meghalaya**, IIDS has been implemented as m4agriNEI and a Agro Advisory Lab has been established at College of Post Graduate Studies, Barapani. A team of agri experts is recruited under the project to deliver the advisory services as well as for assisting the farmers. The faculties from different departments of the college were assigned tasks for helping the project team in development of the content and advise delivery.

- Facility has been given in the IIDS system to monitor the Quality and to ensure proper functioning of the whole system. Quality control user can randomly pick data from the application database and will check whether the quality of advice was appropriate. QCT will also collect the feedback from the beneficiaries regarding the satisfaction level of the advices delivered to them and the effects on their produce.

Financial Model

- Annapurna Krishi Prasaar Seva: Annapurna Krishi Prasaar Seva was initiated for field testing of IIDS application under the project awarded by National Agricultural Innovation Project, ICAR to the consortium led by Media Lab Asia and the funds were received from ICAR.

- m4argiNEI: m4agriNEI is an initiative of Media Lab Asia in the North Eastern Region for development and deployment of mobile based

agro advisory services. The project is funded by Media Lab Asia from the funds allocated under NE budget by Department of Electronics and Information Technology.

Efforts at Sustainability

- The concept of IIDS is very relevant to the agri extension functionaries, esp. to all the KVKs. The information dissemination through Multimedia (Text, Voice, Image and Video) & Multi Mode (Mobile, Smart Phone, Web Kiosk, Field Coordinator) is very appreciable; if one mode of dissemination is failed other can reach the farmers. IIDS can be a better alternative than ICT model to the farmers because from Field itself he farmer can interact directly with the scientists.
- Media Lab Asia has taken necessary steps for continuation of the field deployment of IIDS in existing 4 KVKs in Andhra Pradesh and upscale in 2 new KVKs along with ANGRAU.
- Media Lab Asia has taken initiatives to test and upscale the IIDS framework developed under the project in various other parts of the NE region.

Challenges Faced in Change Management and Capacity Building

- To change the mind-set of villagers and create enthusiasm among farming community to utilize the power of 'Information' is more important than availing subsidies through government programs
- Non availability of the field data to maintain the farm history for each farmer.

The Lessons Learnt from Change Management and Capacity Building Exercise

- Requirement for location specific data on crop/weather/soil/ market etc. from various authentic knowledge institutions
- Linkages required with the service providers (Input/Finance/Insurance/procurement etc.) to meet the farmers requirement apart from the agro advisories

Technology

ICT Solution Adopted

The IIDS application has been developed using open source Technology like PHP and MySQL for web portal, Asterisk, an open source communication software for IVRS, Android Platform for Mobile Application. The major features of the system are as follows:

- Web, Mobile and IVRS based solution
- Centralized Database
- Role based access permissions to various operations
- Multimodal: Audio, Text, Image & Video
- Multi-platform: Backend-Web Based & Frontend-Mobile Interface & IVRS
- Domain: Agriculture, Horticulture, Fisheries & Animal Husbandry.
- SMS alert/notification
- Search and MIS Reports

Compliance with Standards

The technologies adopted for development and implementation of IIDS complies with e-Government standards notified / recommended by the GOI in most of the cases e.g. IIDS is developed on an open source platform and it is Inter operable i.e., the data created by the users in an electronic format is accessible in all future versions of the same application. IIDS is developed in local languages (currently available in Hindi, Telugu, Khasi & Garo)

Security and Confidentiality Standards

The IIDS application is hosted on Secured Linux Platform and hosted in our own data centres with reliable antivirus protection. The data of Farmer, expert and other stakeholder is secured using the login ID and password; password is encrypted with MD5 hash technology. The information provided by farmer is accessible only to authorized users of the system, i.e. Expert, Field-Coordinator, KVK/Lab Manager and Admin.

Disaster Recovery and Service Continuity

As currently the deployment is in controlled environment thus the data back-up has been taken regularly to tape drive which may be useful in replacement of

the data whenever required. There is a back-up server at each data centre for any unforeseen circumstances.

Technology Related Challenges Faced

- Irregular service of internet, PRI lines and electricity due to weather and other local conditions e.g. road construction etc.esp. in NE region for m4agriNEI services
- Network fluctuation rates are high in rural areas
- 2G/3G connectivity in rural and hilly areas is poor to upload the images and videos of crops from mobile phones.
- High operational cost due to the necessity for VPN to connect the central server to each node to receive the voice calls on desktop and simultaneously view the farmer data.

The Lessons Learnt from Technology Choices and Implementation Strategy Adopted

- Minimize the dependency on the wired communication lines to make it uninterrupted services
- Requirements for development of sync based offline applications for capturing the farm data and queries in multimedia mode.
- Development of mobile based applications to reduce the size of high definition images and videos to enable it to upload in poor connectivity also.

VALUE INDICATORS

Digital Inclusion

- Users of IIDS are mainly farmers. They can interact with the system by using their normal mobile phones. Simple IVRS navigation guides the farmer in their local dialect. Alternatively farmers can also approach project staff for the agro-advisory facilitation (Farmer Coordinator). The Farmer Coordinator is stationed at village itself and having has smart phone to transmit photographs of the farmers' field condition to IIDS laboratory.
- The approach of establishment of decentralized agro advisory labs has

been adopted keeping the aspects of language, demographic and cultural differences.

- Focus has been given to develop location specific content based on the baseline and need assessment of the farmers from the project locations. Thus, the IIDS labs are catering the location specific needs of the farmers in their native language.
- Sensitization meetings were organized at regular intervals and the farmers were given training on use of their mobile phones to get the advisory for their day to day farming practices.
- Need based training programs & awareness programs were organized on crop cultivation & livestock management
- Short video films on agriculture, animal husbandry and fisheries were developed and uploaded in the mobile phones of the farmers.
- Information Corner was established in the project villages of Andhra Pradesh and need based messages were written frequently on the information board.

Green e-Governance

The appropriate steps would be taken for addressing the environment friendly practices with respect to creation, use, and disposal of ICT facilities.

V K Bhatia, Senior Director (Research), Research & Development, Delhi. Email: vkbhatia@medialabasia.in

Dr T S Anurag, Principal Investigator & Senior Research Scientist, Livelihood Enhancement, Delhi. Email: anurag@medialabasia.in

Co-operative Core Banking Solution – CCBS

National Informatics Centre, Govt. of India

Dr.Shefali S. Dash and Inder Pal Singh Sethi

Description of the Project

Rural credit cooperatives in India were originally envisaged as a mechanism for pooling the resources of people with small means and providing them with access to different financial services. These Credit Co-operatives are the oldest Rural Financial Institutions in our country and the largest in the world. Despite the wide network of co-operative structure and close proximity to its members, credit co-operatives suffer from many problems which not only hinder their growth but also pose a threat to their existence.

Considering the need of computerization in this sector, National Informatics Centre (NIC) has developed a core banking application with name Co-operative Core Banking Solution (CCBS), especially considering requirement of Indian co-operative banking sector. Along with CCBS application development, NIC provides end to end implementation support with hosting service under Software as a Service (SaaS) model. Under e-Governance umbrella, NIC is providing hosting services along with Data Centre / Disaster Recovery site hardware & software without any additional cost. NIC- CCBS application uses latest Information Technology to serve at rural level by strengthening Indian co-operative banking system.

Service Oriented Architecture (SOA) is an evolution of distributed computing and CCBS has been designed based on SOA to cater the requirement of integration with other delivery channels (ATM) / NEFT / RTGS operations and other central / state level e-Governance application and can generate meaningful MIS for decision / policy making for management level. NIC-

CCBS is able to incorporate all three pillars of e-governance i.e. people, process & technology to serve rural population. It facilitates to complete banking transactions and accounting operations by single click and less technical exposure. This may also act as a good platform for implementation of other e-government services of India by establishing network connectivity, computer awareness and capacity building.

CCBS web application is already implemented at more than 100 co-operative bank locations distributed across two states of India i.e. Chhattisgarh & Meghalaya and serving more than 20000 banking transactions on daily basis which goes over 80000 transactions in peak agricultural finance season. NIC – CCBS implementation has been completed in step wise process which includes Business understanding, Process engineering, Data digitization, Data check for correctness ,completeness & consistency, Data Migration, Data Testing, Staging level live and Production level live.

RESULT INDICATORS

Key Performance

ICT Based Services

- Government to Business (G2B)
- Government to Citizen (G2C)

Current Stakeholder Benefits

- The benefits of Co-operative Core Banking Solution to Co-operative banking sectors are as under:
- Ease of operation
- Centralized monitoring & control
- Centralized & real time MIS/Report
- Browser based application, no need for extra client side installation
- Transparent operation
- Unicode compliance for support of other local language
- Standardized book keeping system
- Inter location / branch transactions
- Minimum use of Information Technology skills at local / branch level
- Enhancement of operational efficiency of bank staffs

- Ability of timely completion of regulatory compliances
- Integration with other Government application, as required.
- Reduced investment
- Improvement in processes
- Increased Computer knowledge staff efficiency

Services planned for Future

The services of CCBS include:

- Cash receipt/ Disbursement
- Detailed MIS reports
- Accounting of Transactions
- Integration of different co-operative structure
- Integrated transactions at multiple locations
- SMS alert facility on each transaction
- Integration of state/central Government plans e.g. Dhan Kharidi system at Chhatisgarh
- Integration of advances feature like ATM, NEFT/RTGS

Implementation coverage

- State Co-operative Bank: - Meghalaya Co-operative Agriculture Bank (MCAB), Shillong which spreads across Meghalaya (North East) State. In Meghalaya CCBS is in operation at 47 (All branches of MCAB) different locations.
- District Central Co-operative Bank – Jila Sahkari Kendriya Bank (JSKB), Raipur which spreads across 5 districts and 60 (all Branches of JSKB) different locations of Chhattisgarh state.
- Primary Agriculture Co-operative Society (PACS): At present CCBS web application is operating successfully at Hathoj PACS (Jaipur) of Rajasthan State as pilot project. Implementation at multiple locations of Rajasthan is in process.
- Under Progress:
  - 6000 PACS distributed across Rajasthan State
  - 89 Primary Agriculture Land Development Bank of Punjab State and its controlling office at State Agriculture Co-operative Development Bank Chandigarh
  - 3 Branches of Delhi Financial Corporation, a state level financial corporation body situated at New Delhi.

- Kerala Treasury Bank distributed across Kerala state at approx. 315 locations

Transaction Volume

Year	State	Co-operative Bank	Type	No. of Transactions	No. of Location
2012-13	Chhattisgarh	JSKB-Raipur	DCCB	4330345	60
2012-13	Meghalaya	MCAB-Shilong	SCB	1021596	47
2012-13	Rajasthan	PACS-HathojJ	PACS	25727	1
2013-14	Chhattisgarh	SKB-Raipur	DCCB	9133751	60
2013-14	Meghalaya	MCAB-Shilong	SCB	2842201	47
2013-14	Rajasthan	PACS-Hathoj	PACS	31725	1

Efficiency and Improvement Initiatives

Time and Cost efficiency

This project is an initiative of NIC and funded by NICSI. The users (Co-operative banks) are being charged as per requirement during implementation phase for local customization and roll out support. For operations of Core Banking project the major part of the cost are associated with Application/Software, Data Centre, DR Site/Information Security, Data Capture, Operational changes & support and Infrastructure (Hardware at user end, UPS and Network connectivity). Out of these costs, NIC is not charging cost related to Application/Software, Data Centre, DR Site/Information Security and Operational changes & support. Infrastructure cost, Data capture and hands on support manpower cost born by User (Co-operative banks). NIC also provides suggestions to Bank regarding establishment of infrastructure.

Innovative Practices

Innovative features of CCBS web application:

- Service Oriented architecture: Ability to integrate with other online e-Govt. applications. e.g. Dhgan-kharidi at Chhattisgarh
- Integration among all three layers of co-operative banking i.e. State,

District & PACS (Village/Taluka) levels: Integrated MIS generation for decision / policy making by State/Central Govt.

- SMS alert facility for each transaction: Enhancement of satisfaction level in rural population regarding their bank balances & government supports.
- IPs based access control: Ability to restrict /allow location specific users considering vulnerability / attack
- Parameterized web based application and flexibility to change as per requirement: Easy & single point of control of application running at multiple locations.
- Use of cloud computing infrastructure – hosted at National Data Centre, Shastri Park: High availability at consistent service
- Inter-Branch (between two different locations) transactions and simple & single click interest calculation and bank closing activity: Ease of operations and enhancement of efficiency
- Inter-Bank transactions through NEFT / RTGS (National Electronic Fund Transfer / Real Time Gross Settlement) and ATM (Automated Teller machine) operations
- Flexible reporting with multiple format (pdf, excel, text): Real time monitoring of financial health of co-operative bank and opportunity of self-analysis of data/information for further use/business enhancement

Levels of Integration

With reference to integration with other e-Governance project, NIC-CCBS application is developed based on Service Oriented Architecture. This Architecture provides flexibility for inter-operability among other e-governance applications. During financial year 2013-14, a module was introduced to CCBS for non-cash & non-cheque based direct Dhan-Kharidi payment to farmer's Co-operative Bank accounts. Many other such type of direct payments to accounts facilities can be integrated by CCBS application under the umbrella of e-Governance. CCBs also helps to integrate 3 layers of Co-operative Banking structure i.e. State Co-operative Bank, District Central Co-operative Bank & Primary Agriculture Co-operative Society for MIS generations related to policy making & monitoring like fund flow, fund availability, number of beneficiaries, etc.

ENABLER INDICATORS

Process reengineering

Major ICT and Non-ICT changes

Process re-engineering includes:

- Use of existing Infrastructure resources for Co-operative banking sector to provide Software as a Service (SaaS).
- Uniformity of schemes/General Ledger across all branches of Bank
- Standardized approach to adopt common accounting system up to Primary Agriculture Co-operative Society (PACS) level.
- Application of Data Governance concept for data handling
- Exclusion of ambiguous day to day process
- Holistic approach to integrate State, District & PACS level co-operative banking in terms of monitoring & management.
- Provision for Business Continuity Plan

Challenges faced in implementing Process changes

During conceptualization, development & implementation of CCBS project NIC has faced the following challenges:

- Integration of different level of Co-operative structure through software by adopting uniform method
- Estimation of scalability and branch expansion in terms of volume and operations
- Completeness & consistency of data digitization
- Uniformity across all locations for each co-operative structure in terms of business heads/sub-units
- Availability of external resources like power/electricity, Network connectivity
- Capacity building among co-operative users to adopt new technologies & process
- Maintain Business Continuity Plan
- Integration of advanced services with external vendors/other government departments
- Cope up with rapidly changing business scenarios of Co-operative sector

- Information security aspect implementation and awareness of same among end users
- Search, develop and maintain knowledge pool and related expert manpower.

The Lessons learnt from the Process re-engineering exercise

During development and implementation of CCBS for Indian co-operative sector following learning came out:

- For any such type of financial co-operative project, major emphasis should be given on data correctness & completeness.
- It is very important to keep the end user updated about the right method of utilization of software at field level through capacity building program by involvement of Co-operative level authorities.
- In depth requirement understanding of all level of Indian co-operative banking structure with information flow.
- Co-operative bank level users are able to minimize the operational time with high level of accuracy and enhanced efficiency by concentrating toward other needful actions.
- Need for active involvement of both technical as well as functional level man-powers at Co-operative structure and implementation agency.
- Need for appropriate capacity building programs by involvement of users of all levels and frequent training / awareness program.
- Need of mind-set to accept change process as well as capability to incorporate new suggested operational process if applicable.

Change Management and Capacity Building

Leadership support

- Leadership support from following levels:
- NIC – HQ / Data Centre
- NIC – State (Chhattisgarh)
- JSKB-Bank Management
- Hired Consultants

Change Management and Capacity building Strategy

Change Management / Capacity building in terms of trainings

- Training to trainers about application manuals
- Training by trainers to end level application users / data entry operators
- Regular periodic meetings to get the feedback and improvements
- Sessions/guidelines to data workers
- Video conference session between Bank – NIC officials

Project Management

Project Management consists of following hierarchies:

- NIC- Data Centre (NIC officials + Domain consultant + Hired technical)
  - NIC – Raipur (NIC official + Hired Technical)
  - JSKB-Raipur (Bank Management – for Domain decisions & operational issues)
    - JSKB-Branches (Bank officials – at end SW operators)
  - Infield for data collections / digitization / hands on support – hired manpower with following levels:

- Operation Manager
  - Operation Assistant
    - Data Entry Operator

Financial Model

This project is an initiative of NIC and funded by NICSI. The users (Co-operative banks) are being charged as per requirement during implementation phase for local customization and roll out support. For operations of Core Banking project the major part of the cost are associated with Application/Software, Data Centre, DR Site/Information Security, Data Capture, Operational changes & support and Infrastructure (Hardware at user end, UPS and Network connectivity). Out of these costs, NIC is not charging cost related to Application/Software, Data Centre, DR Site/Information Security and Operational changes & support. Infrastructure cost, Data capture and hands on support manpower cost is borne by User (Co-operative banks). NIC also provides suggestions to Bank regarding establishment of infrastructure.

Challenges faced in Change Management and Capacity building

- Person dependencies
- Language (Hindi/English)
- Impact of local staff/persons
- Priority as per local requirements
- Knowledge of basic computer operational knowledge
- Documentation process

The Lessons learnt from Change Management and Capacity building exercise

- Prioritize local issues
- Use of local language results better result
- Hand-on ready printed materials impact positively
- Need of selection of right candidate for training for trainers
- Need of consistent upgrading & refreshment of operational guidelines by trainings/sessions
- Awareness about importance of key factors results better
- Need of business process uniformity before adoption of such projects
- Local trainers results better
- Integration of implementer and end users creates good impact

Technology

ICT Solution adopted

NIC-CCBS project is hosted on Microsoft-Technology. The Technical Details are as under:

i.	Operating System	: MS- Server 2008
ii.	Data Base	: SQL Server 2012
iii.	Development Platform	: MS .Net Framework
iv.	Web Server	: IIS
v.	Application Hosting	: at NIC Data Centre

Security and confidentiality standards

NIC CCBS application is web based application hosted at NIC-Data Centre. With respect to Information security measures concerns, at multiple layers

information security has been handled. For example, the URL for operational CCBS application is available through SSL Certificate (https://www.ccbs.nic.in) only. The application is deployed in n-tier architecture and the whole application of programmed by use of stored procedures with internal authentication process. The credentials of the applications are stored in encrypted form. NIC - Data Centre is taking care of all required information security measures. The CCBS application has provision for IP-based (IP- Internet Protocol) login system. There is provision for audit trails of all user activities across application and at last this application is in compliance with security audited by NIC Security Audit team as per CERT-IN guidelines.

Disaster Recovery and Service Continuity

For this application there is provision of Disaster Recovery site. The Data centre is at NIC-DC and the DR site is at NIC-Hyderabad. As per change requirement, both DC & DR ends CCBS applications are getting updated to maintain uniformity. At database level, at both end database servers are on mirror mode which results in approx. Real time replication of data at DC as well as DR site. All MIS reports are getting generated from DR database. For business continuity, in case of failure of network connectivity, DC,DR a separate planning proposed by entry of branch level transaction in off-line solution which will sync with production system after some time.

Technology related challenges faced

- Availability of consistent network connectivity
- Complete & correct data digitization
- Integration of multiple level of co-operative Bank structure
- Business Continuity Plan
- Parameterized application to cope up with rapid changing requirement
- Estimation and handling of data / transaction volume
- Setup up of disaster (off-location) recovery site
- Facility for Integration of other e-Governance projects
- Information Security and credential encryption
- Integration with SMS gateways
- Handle concurrent large number of transaction during Bank closing activities

The Lessons learnt from Technology choices and implementation strategy adopted

During development and implementation of CCBS for Indian co-operative sector following learning came out:

- For any such type of financial co-operative project, major emphasis should be given on data correctness & completeness.
- It is very important to keep the end user updated about the right method of utilization of software at field level through capacity building program by involvement of Co-operative level authorities.
- In depth requirement understanding of all level of Indian co-operative banking structure with information flow.
- Co-operative bank level users are able to minimize the operational time with high level of accuracy and enhanced efficiency by concentrating toward other needful actions.
- Need for active involvement of both technical as well as functional level man-powers at Co-operative structure and implementation agency.
- Need for appropriate capacity building programs by involvement of users of all levels and frequent training / awareness program.
- Need of mind-set to accept change process as well as capability to incorporate new suggested operational process if applicable.
- Phase wise implementation strategy will be the better option.

VALUE INDICATORS

Digital Inclusion

Manual data from co-operative bank branches get digitized and migrated to CCBS application for uniform and standardized operations. The digitized data is classified into three types i.e. Master Data, Balances data and Image data (Photo + Signature). In CCBS there is provision for support of Hindi language by use of Unicode. All reports and operational guidelines are available in Hindi language along with English. Availability of Hindi language is more required with respect to CCBS customization for Primary Agriculture Co-operative societies. Due to the use of Unicode feature, other local languages can be incorporated in future as per requirement. CCBS application is developed considering NABARD guidelines and is in operation at diversified

geographical location i.e. Meghalaya (North – East) and Chhattisgarh (North).

Green e-Governance

Since this application is web based, it involves centralized control without much hardware requirement at end locations, CCBS supports green e-Governance by minimizing usage of electricity, cooling etc. requirements. The application can be operated on UPS system.

Dr. Shefali S. Dash, Scientist – G (Deputy Director General), National Informatics Centre, New Delhi. Email: dash@nic.in

Inder Pal Singh Sethi, Scientist – F (Senior Technical Director), National Informatics Centre, New Delhi. Email: sethi@nic.in

Birac 3i Portal

Department of Bio Technology-BIRAC, Govt. of India

Dr. Renu Swarup and Amarnath Shukla

Description of the Project

BIRAC 3i Portal is a dynamic, robust and scalable portal aimed at effective management of various investment schemes operated by Biotechnology Industry Research Assistance Council (BIRAC). BIRAC is a Section 25 Not-for-Profit Company set up by Department of Biotechnology, Government of India as an interface agency to serve as a single window for various needs of emerging biotech industries and is currently running more than half a dozen funding schemes. Some of these schemes were earlier being operated by the Department itself. Any funding scheme involves several and complex steps ranging from proposal submission, review, short listing, processing of shortlisted applications to sanction and release of funds, monitoring etc. Managing such a multi-step process manually and effectively calls for high level coordination amongst several stakeholders and is undoubtedly a challenging and a daunting task. Keeping in view the complexity and sensitivity involved in management of a funding scheme and also with a vision to expand the spectrum of services to be offered by BIRAC (then operated in programme mode called as BIRAP), the decision for development of an online system for management of all funding schemes was taken right at the launch of its very first funding scheme, namely BIPP. BIPP scheme was launched in December 2008 and the task of developing a robust online system was initiated soon after the launch. The online system became operational almost within a year, i.e. in February, 2010. First five calls had to follow manual mode of processing, which posed several challenges, including confidentiality, transparency, efficiency and efficacy. All these issues were easily addressed with the launch of online system. Thereafter, the application has been continuously upgraded and expanded. The portal which used to host the

management of just one scheme, now offers end to end solution for effective management of more than half a dozen schemes, being run by BIRAC.
These schemes are listed below:

I. Biotechnology Industry Partnership Programme (BIPP)
II. Contract Research and Services (CRS) Scheme
III. Biotechnology Ignition Grant (BIG)
IV. Small Business Innovative Research Initiative (SBIRI)
V. SPARSH
VI. Grand Challenge Initiative (GCI) - Achieving Health Growth through agriculture and Nutrition
VII. Grand Challenge Initiative (GCI) - Reinventing The Toilet Challenge

Salient features offered by the web portal include online proposal submission, review, meeting management, sanction and release record maintenance; milestone based monitoring and intelligent reporting system. Owing to these features, the portal was expected to benefit all stakeholders of above funding schemes, including applicants from across the country (industry, academia), reviewers (subject experts from and outside the nation), programme/scheme managers, technical managers etc.

In short, development of BIRAC 3i Portal has helped in enhancing transparency, efficiency and efficacy in fund management. At the same time, the portal has also considerably reduced the amount of time, money and effort that used to be spent by various stakeholders for any step.

RESULT INDICATORS

Key Performance

ICT Based Services

Services offered by the BIRAC 3i Portal fall under the category: Government to citizen (G2C). The extent of services provided by the BIRAC 3i Portal is from one end to the other end, i.e. right from proposal submission to monitoring of sanctioned proposals. The portal caters to each and every step required in processing of proposals and release of funds. The various steps for scheme management are mentioned below and also mentioned is whether the step is

online or offline:

- Proposal submission: Online
- Proposal review: Online. Experts view the proposals online and submit their scores and comments as per fixed format.
- Technical Expert Committee Meeting: Scheduling of meeting, intimation regarding meeting, agenda preparation, submission of minutes and status update of proposals subsequent to the meeting is done online. Meeting is held at Delhi office.
- Site visit: Scheduling of site visit, intimation regarding visit, viewing proposal, submission of report is done online. Visit is held at the company site.
- Apex Committee Meeting: Same as Technical Expert Committee Meeting
- Sanction of recommended proposals: Online generation of order
- Release of funds: Online release order generation
- Monitoring of sanctioned proposals: Online constitution of Project Monitoring Committee, online submission of Progress Report by companies and review of same by experts.

Current Stakeholder Benefits

Major stakeholders of the portal include:

- **Applicants** seeking funding under any of the schemes. Different schemes target different types of users including companies, academia, and individuals.
- **Reviewers** for the proposals received under various schemes. These reviewers are subject experts from academic sector and could be based in or out of the country.
- Internal **managers** (scheme managers and technical managers) involved in processing of proposals

Benefits offered by the web portal to different categories of stakeholders are mentioned below:

- **Benefit to Applicants:** Online proposal submission module allows users to submit proposals sitting in any corner of the world and at their

ease and comfort. Manual submission of proposals, followed prior to the launch of this portal posed several issues, including the hassle of sending five to ten sets of bulky hard copies, postal delays leading to non-acceptance of proposals, issues with safekeeping of confidential information. All these issues got resolved by implementation of 3i Portal and the users can now safely and comfortably submit proposals, even at the last moment.

- **Benefit to Reviewers:** Prior to the launch of this application, subject experts from across the country had to travel miles and attend group meetings to review the proposals. Many reviewers used to decline the offer to attend such meetings, if they were pre-occupied. Now, with the launch of 3i portal, reviewers can submit their comments sitting in any part of the world. This has enhanced the number as well as quality of reviews received per proposal, which, in turn, leads to smooth processing of proposals by the program manager. Online review has also saved the cost and time involved in travelling miles to attend review meetings.
- **Benefit to Managers:** The portal has also considerably helped the program managers of various schemes. There has been a substantial reduction in work load due to online processing of applications. Various reports and alerts are now available and human errors due to copy/paste and memory based information have been reduced to a large extent. MIS has also been developed, which now regularly provides Intelligent Project Management Data Reports.

Services Planned for Future

- Interlinking of release order issuance and e-transfer of funds to the beneficiary
- Incorporation of sms alerts
- Incorporation of business intelligence tools for smart report generation

Implementation Coverage

The schemes, which are managed through the portal target Indian companies, universities, institutes and individuals. Accordingly, the geographical coverage of the application is pan India. While the portal is frequently accessed

by its stakeholders on move from different parts of the world, the services per se are not intended for other than Indian nationals/companies.

Transaction Volume

Apr to March 2013-2014	Apr to March 2012-2013	Apr to March 2011-2012	Apr to March 2010-2011
2706 users registered	1047 proposals received	145 meetings organized	1746 users registered
482 proposals received	108 meetings organized	782 users registered	200 proposals received
182 meetings organized	1096 users registered	260 proposals received	123 meetings organized

Web-site Hits Volume

Apr to Mar 2013-2014	45407
Apr to Mar 2012-2013	31006
Apr to Mar 2011-2012	21460
Apr to Mar 2010-2011	19767

Efficiency and Improvement Initiatives

Time and Cost Efficiency

The implementation of ICT enabled services has considerably reduced the time spent and cost incurred by the stakeholders. Some important examples with regard to this are as follows:

- Manual proposal submission required printing of five sets of bulky proposals (more than 300 pages per copy and coloured printing for images) and timely delivery of these sets through courier/by hand by the applicants. Online proposal submission has done away with all the cost and time involved in this process. The submission process now does not

require any spending.

- Review of proposals by subject experts across the country earlier required them to travel from their sites to Delhi office. This involved money, time and effort. Compilation of papers for review was also a major task for the Programme Manager and required lot of time for photocopying and had monetary implication as well. The process is now online and the reviewers need not travel to provide their comments.

Innovative Practices

Following innovative ideas have been implemented:

- Dynamic user based dashboard, which provides daily alerts and reminders to the User
- Dynamic run time based report generation and export of data to excel/ppt in graphical forms (bar chart/ pie chart etc.)
- Exporting the proposal and review reports to PDF/word/excel.
- Scalable Database- The application was launched with one scheme and now caters to more than half a dozen schemes
- Flexible Open Architecture
- Robust Data Model
- Three-tier solution

The first three features are of immense help to the Programme Managers, as it helps them in managing their day to day tasks effectively without the need of remembering facts and figures. The system provides ready reports to the managers for agenda preparation.

Scalable database has helped in expanding the scope of services offered by the portal from one scheme to 8 schemes. Flexible open architecture helps in keeping the operational costs low.

Three-tier solution is more scalable than the other solutions because in this Portal we can add as many middle tiers to ensure good performance (N-tier or multiple-tier). This architecture also provides high level of security as the middle layer protects the database tier.

Levels of Integration

The BIRAC 3i Portal, as of now, is a stand-alone application and is presently not integrated with any internal/external ICT system. This is currently under progress. Integration with the Internal Management Information System of BIRAC is about to be completed. Integration with external ICT system such as with e-banking services will be taken up in near future.

ENABLER INDICATORS

Process Reengineering

Major ICT and Non-ICT Changes

- Transition from manual submission of proposals to online mode for all BIRAC schemes: It was planned to do away with manual submission of proposals for all BIRAC schemes. The same has been implemented fully. Proposals submitted online only are accepted now.
- Shift from manual review of proposals to online review: Earlier the reviewers of proposals used to gather at office premises to submit their scores and feedback on proposals. It was planned to develop the system in a manner that the reviewers are saved from the trouble of travelling long distances for a two hour review meeting. Now, the proposals are made available to reviewers online and they submit their reports at their convenience. Implementation of this step is also to the full extent.
- Online tracking of status by applicants: Before the launch of online system, the applicants used to follow up a lot with the programme officers to ascertain the exact status of their proposal(s). It was accordingly planned to develop the system in a manner that would enhance transparency in processing of proposals and would also reduce the dependency on programme officers. The online system now provides exact status to the applicants.

Back end process changes:

- Database Maintenance: Manual maintenance of database has been totally done away with. The online application now provides easy and safe maintenance of a large volume of database, which was earlier a tedious and time consuming job.

- Safe custody of Hard copy proposals and allotment of reference numbers: Proposals used to be submitted as 5 sets. Since these proposals contain highly confidential information, keeping all the copies under safe custody was a major challenge. Each proposal had to be manually numbered and movement of any copy for review etc. had to be carefully tracked. With the launch of online system, hard copy submission has been completely stopped and the back end task of handling of these proposal copies is no longer required. The system now automatically allots reference number to all eligible applications and manual errors such as double allotment of same number, skipping of a number etc. are completely ruled out.
- Manual verification of proposals for eligibility: The hard copy proposals had to be manually checked for eligibility compliance. There were no mechanism to stop ineligible proposals from being submitted. Accordingly, the count of ineligible proposals used to be high and handling of these proposals was no more of a wasteful exercise. The online application was designed in a manner that it has in-built filters to check compliance with eligibility norms. Online submission has reduced the count of ineligible proposals tenfold, i.e. from as high as 30 (1st batch, manual submission) to 3 (online submission).
- Maintaining status of proposals by programme manager: The programme managers earlier had difficult times maintaining word and excel documents for tracking status of proposals at different stages. Despite all possible efforts, there used to be slippages on account of manual handling. The online system has now simplified the tedious task of status tracking for internal managers. The system provides ready reports for proposals at different stages and has considerably reduced the dependency on human memory and efficiency.

Challenges Faced in Implementing Process Changes

- Training of the internal staff and making them use the application for all day to day activities
- Guiding the external users for effectively using the system
- Certain steps being performed manually could not be effectively

translated to online mode. Such steps required decisions on process change to be brought in to make the complete system online and were challenging.

- Some of the features could not be developed exactly as anticipated. These features had to be reworked upon on receiving feedback from various end users.

The Lessons Learnt from the Process Re-engineering Exercise

- Process re-engineering should be initiated with a well thought out strategy plan.
- Process re-engineering is a team effort and requires contribution from technical as well as functional managers.
- Process re-engineering, at times, complicates certain steps that are rather done easily with a manual approach. Care should be taken to keep the process simple and user friendly for all steps.
- User friendliness is the most important requirement and should be given utmost importance.

Change Management and Capacity Building
Leadership Support

The IT team guided by Managing Director (MD), BIRAC took the leadership charge for change management and capacity building. The IT team has ensured that all requirements from programme managers or outside user are fulfilled on time and bugs are fixed immediately. The overall leadership charge for affecting these changes remains in the hands of MD, who takes strong interest in getting the online module implemented.

The actions are quite very much visible since all major steps of scheme management are done online, such as proposal submission, review, agenda preparation, sanction order issuance, monitoring report submission, etc. The implementation of online system is very much evident and appreciated by internal as well as external users.

Change Management and Capacity Building Strategy

BIRAC has followed a well-defined change management strategy. The

strategy was to bring entire process online (from one end to the other, i.e. from submission to monitoring) for all funding schemes of BIRAC. However, it was decided to do so in a step wise fashion. The application was developed in a phased manner wherein modules were added one by one. This allowed thorough testing of the application by the end users and incorporation of their feedback before next module was launched. This strategy made implementation of subsequent modules simpler. BIRAC 3i Portal is being continuously upgraded to make it more and more user friendly for the users (based on their feedback).

Capacity building strategy included organizing internal training programmes and training of external users were done by arranging a session regarding online programme during Grant writing Workshops organized annually by BIRAC. In addition, regular training of internal staff is ensured, as and when a new module is added.

Project Management

BIRAC 3i Portal is being managed by a strong in-house team of technical experts and functionality domain managers. The five member team includes one full time IT Officer (team lead), two IT interns (full time), data entry operator (full time) and one part time Consultant. Roles and responsibilities of various team members are as follows:

- IT Officer: An expert in PHP, My SQL, AGAX, JS and HTML, IT Officer is completely responsible for the portal from the technology perspective. He takes care of the development, testing, trouble shooting, data management etc.
- IT Interns: The Interns provide support to the IT Officer for coding, development and testing of part modules, auditing, customer support, etc.
- Data Entry Operator: Responsible for entry of back log data
- Consultant: Provides overall supervision with regard to functionality aspect. The consultant is responsible for overall planning, prioritization and ensuring compliance with timelines.

The process for developing the online system for scheme management was

started in mid-2009 and was initially outsourced to Sify Technologies Ltd. The scope of application at that time was limited to development of online application for one scheme only, i.e. BIPP. The agreement with Sify continued for nearly two and a half years and post that the portal is being managed in house. All modifications, updation, auditing, etc. are handled by the in-house team.

Financial Model

The cost for development and maintenance of portal is completely borne by the organization.

Efforts at Sustainability

Efforts made in order to ensure sustainability of the e-Governance initiative:

- Regular feedback is sought from internal and external users and updations are made. Important changes that have been incorporated with a view to sustainability include integration of the main application with other internal modules (IP manager, Finance Module, Leave management, Tour management etc.), developing a common registration page for users applying under different schemes.
- Third party audit is arranged after regular intervals and bugs revealed are immediately fixed by the internal team. Audit is currently on.
- Modifications and upgradations based on the experience gained from handling the system are incorporated immediately.

Challenges Faced in Change Management and Capacity Building

Change Management and capacity building was in general welcomed by all, with little difficulty, whatsoever mentioned below:

- General reluctance amongst end users for shifting from manual mode to online mode. Since, manual handling of proposals provides flexibility to the managers, shifting to online mode was initially seen as a stringent monitoring of performance.
- External users from remote areas found the application difficult.

The Lessons Learnt from Change Management and Capacity Building exercise

The most important lesson learnt from the change management exercise is that development of a web portal with as wide scope as BIRAC 3i Portal requires extensive planning and background work before starting the coding process. It is important to seek feedback from all end users before initiating the coding per se. If the basic concept and logic is appropriately set, implementation and upgrading is not a challenge. On the other hand, a minor mistake done at the basic logic step pays heavily and fixing the same subsequently is rather an exhaustive job. Better the planning and vision, better and easier would it be to bring in the desired change.

Any change management exercise requires a collective effort by a large group and should be done with mutual understanding.

Technology

ICT Solution Adopted

BIRAC website is based on the technologies mentioned below:

- BIRAC web portal based on PHP technology which offers various advantages such as user friendliness, efficiency and user controllability. This portal basically consists of login functions, html and graphic displays. BIRAC 3i portal is a lightweight application which runs efficiently on the internet and integrated with JS (JavaScript), JQuery etc. This portal is a cross browser application developed strictly following the coding standards.
- MYSQL database has been used in BIRAC 3i Portal, because of which the portal is highly robust, secure and fast.

- The Portal is based on Three-tier architecture in which data storage, logic and user interface are developed and maintained as independent modules. The essential components within three-tier architecture are:
- **Database-** Bottom most layers or the back end houses database servers where information is stored and retrieved. Data in this tier is kept

independent of application servers or business logic.

- **Application Server-** Middle layer manages the business rules that manipulate the data as per the governing conditions of the applications. It provides a database independent interface for applications and makes the front end robust. This application uses the Data Processing logic to establish connection to clients. This feature enables a program running on the client computer to make method calls on an object located on a remote server machine. It gives the ability to distribute computing across a networked environment. This layer controls application functionality by performing detailed processing.
- **Client-** The presentation and control logic is embedded in the client tier. This is the GUI layer of the application, which will interact with the Application server by means of web forms.

Compliance with Standards

BIRAC portal is hosted on NICSI Server where all the securities policies are implemented at server level. Database with server are regular monitored by NICSI. NICSI backups the data stored in SQL on daily basis.

Security and Confidentiality Standards

All securities measures have been implemented in BIRAC website. Vulnerabilities are also handled properly in portal to avoid security threats like SQL injection, CSRF attack etc. BIRAC web portal was initially audited by Cyberq. Exceptions and errors are properly handled in BIRAC portal. Unauthorized users are not allowed to access the confidential data.

Disaster Recovery and Service Continuity

- Daily Backup of Application Code and data, so that in case of any failure, data can be uploaded and situation of disaster cab be tackled.
- Frequent Monitoring and testing of BIRAC web portal
- BIRAC web portal uses latest version of technology such as PHP, AJAX, MYSQL etc.

Technology Related Challenges Faced

Various challenges faced while developing the BIRAC web portal:

- Proposal Export to PDF,
- Generate Report in word format.
- Updating the back logs of data in BIRAC database.
- Mapping data from website developed on different platform to BIRAC website.

The Lessons Learnt from Technology Choices and Implementation Strategy Adopted

BIRAC portal is a PHP based application with SQL server as the data storage engine. The portal consists of different schemes which in turn taught the developer to learn proper handling of session in order to avoid unauthorized access. Due to difference in structure of schemes, mapping of data has become difficult over of period of time. Hence, Scripts have been implemented in order to bring the data on same platform which in turn help the user to access the data in one go. Due to high congestion at peak time, user is facing lot of problem in submitting the proposals online. Optimized query method has been implemented in order to avoid this problem which in turn increased the proposals count.

VALUE INDICATORS

Digital Inclusion

Since the portal is for funding management of scientific projects, the entire development has been done in one language only, i.e. English. Accordingly, language, demographic and cultural differences do not pose any impediment towards full utilization of the services offered by the BIRAC 3i Portal.

Green e-Governance

As mentioned earlier, the web application, BIRAC 3i Portal has been hosted on a shared server of NIC. This ensures optimal utilization of power and resources for running the application. Within the organization, there is no waste produced

on account on using the web application. Regular back up of the data is taken in a hard disk and so far a single hard disk (capacity 1 TB) is being used. Data which becomes too old and obsolete is deleted and last few backups are maintained.

Further, the application has helped a lot towards reducing paper wastage. Had the online system not been there, more than 1000 proposals received every year would be submitted as hard copies. This would lead to wastage of more than 15,50,000 pages per year (1000x5x300 for proposal submission + 1000x50 for proposal review).

Dr. Renu Swarup, Senior Advisor, Department of Biotechnology [DBT], and Managing Director, DBT-BIRAC, Delhi. Email: swarup.dbt@nic.in

Amar Nath Shukla, IT Officer, BIRAC, Delhi. Email: ashukla.birac@nic.in

mKisan - Mobile Based Services for Farmers

Department of Agriculture and Cooperation, Govt. of India

Dr R K Tripathi and Shilpa Mehta

Description of the Project

About 40 crore mobile telephone connections exist in rural areas. Still, internet penetration in the countryside is abysmally low (in single digit percentage). So, mobile phone is the most effective tool having pervasive outreach to nearly 8.93 crore farm families. SMS Portal inaugurated by the President of India, disseminates advisories and information to farmers based on their location, crops and language and is a pan India effort down to the Block level. With addition of other mobile based services, a full-fledged mKisan Portal is now available at www.mkisan.gov.in. All parts of mKisan (particularly push SMS Service) have enabled Central and State organizations in agriculture and allied sectors to give information/services/advisories to farmers by SMS. Farmers give their consent (and preferences) to join this service on the toll free number of the Kisan Call Centre or by Web Registration directly or through the Common Services Centres or Pull SMS or local agricultural offices. All new registrations and existing databases are seamlessly integrated. About 70 lac farmers have already opted to receive advisories & services on their mobile phones. Data entry by officials from remote locations and queries by farmers by Pull SMS & USSD (Interactive Text Messaging) have also started. 10 lac farmers are have been registered for USSD service at Government expense. The farmers have been grouped based on the State, District, Block and the Crops/Activities selected by respective farmers. USSD (Unstructured Supplementary Service Data), IVRS (Interactive Voice Response System) and Pull SMS are value added services which have enabled farmers and other stakeholders not only to receive broadcast messages but also to get web based services on their mobile without having internet. The portal has been integrated with the CSCs wherein farmers can get results of their queries or questions on

their mobiles after paying a modest fee (Rs 3 to 5) to the VLEs. Kisan Call Centres and mKisan Portal also are also in tandem technologically & administratively.

Since its launch by the President of India, more than 267 crore SMSes (largest transactions on e-Taal) have already been sent to the farmers – making it most pervasive & biggest ever ICT initiative in terms of reach. The SMS Portal has unique features like database to sift farmers down to Block level & to select specific agricultural commodities/animal/bird/fish, rating/correction of messages by the supervisory officers, searchable database of previous advisories, phone number-wise (of intended farmers) status report of delivery, drillable & graphical dashboard, query review interface with email piping etc. 3088 officers and experts from the Government of India (DAC, ICAR, DAHDF, IMD, CWC) and State Governments & its organisations down to Block level, SAUs, KVKs and AMFUs are activated and using the portal in 12 different languages by using easy phonetic typing. Based on a central architecture, the application can be accessed and used from anywhere by authorized users. Feedback in objective arithmetical form regarding quality of messages is also being taken from farmers by SMS / IVRS. More than 20 services are already integrated to use the power of SMS, which include Buyer-Seller Interface, Choice of machine & dealer, Kisan Call Centre, Market prices, Agromet advisories, NeGP-A roll-out, Farm-mechanisation, Micro-irrigation, Animal-husbandry, Fertilizer testing etc. IVRS and Voice-based advisories have also been rolled out. Text to voice conversion (without internet) at the user end is also under advanced stage of development for semi-literate & illiterate users. There have been some efforts in the past by some States and organisations in public & private sectors regarding advisories by SMS, but these have been rather limited in terms of extent of coverage and range of features offered. This is why all Government organisations in the Centre and States in agriculture and allied sectors are using this portal only by giving up isolated efforts in the past. The project has clearly demonstrated core learning priorities of the farmers. Over the 15 months of implementation of this project, it has become evident that SMS based advisories have a clear edge over other conventional modes of extension services as it is economical, instantaneous and efficacious. Farmers can also suggest by Pull SMS a specific topic or query

to which a generalized advisory can be sent. This fully scalable, sustainable and adaptable portal (which leverages existing infrastructure of DeitY & NIC) was developed in-house with a small team of a few IT professionals at a miniscule cost.

Messages are sent based on technical literature prepared by research organisations, Government orders, websites and, most importantly, Farmers' Portal (www.farmer.gov.in) of which SMS Portal was originally a part. Farmers' Portal is a one stop shop for farmers where a farmer can get information on range of topics including seeds, fertilizer, pesticides, credit, good practices, dealer network, availability of inputs, beneficiary list, agromet advisory etc. This Portal is the backbone of mKisan.

RESULT INDICATORS

Key Performance

Current Stakeholder Benefits

- **Farmers:** Text based advisories to farmers & other stakeholders in broadcast mode in entire gamut of topics & sub-topics in Agriculture & allied sectors ranging from agromet advisories to pre-sowing to irrigation to harvesting to marketing operations in agriculture / horticulture and advice on animals, poultry & fisheries (please drill down graph number 3 down to specific message level at http://mkisan.gov.in/advs/db/smsdb_chart.aspx). Registration of farmers on web (http://mkisan.gov.in/wbreg.aspx), KCC (www.dackkms.gov.in), CSC (http://apna.csc.gov.in/) and Pull SMS < KISAAN REG (Your Name),(first four characters of State),(first four characters of District),(first four characters of block)>, Farmer centric information on USSD http://mkisan.gov.in/ussdapplication.aspx)
- **Business:** Buyer-farmer platform on SMS / Web, Drillable database for give agri-input to know about needs & priorities of farmers at various stages of crop cycle, Direct interface between machinery dealers & farmers, Mandi prices, Subsidy management in micro-irrigation, Lab-test reports, Licensing System for Dealers, Retail sales by dealers of

seeds & fertilizers etc.

- **Software Developers for Web Based Services:** Ksewa is a plug and play method for integration of web-based services for delivering the same through SMS directly from the application (Some important services already integrated are listed at http://mkisan.gov.in/services.aspx and integration steps can be seen at http://mkisan.gov.in/aboutksewa.aspx)
- **Officers & Experts:** Safe but simple user interface for registration by experts & officers, integration & enlargement of databases and search (check Login Interface at www.mkisan.gov.in and Search of previous advisories at http://mkisan.gov.in/advs/txtsrch.aspx -
- **General Public and Academia:** Android apps on agriculture & allied sectors (http://mkisan.gov.in/downloadmobileapps.aspx and http://mkisan.gov.in/aboutmobileapps.aspx), Feedback on messages received by farmers and web-based scrutiny by supervisory officers and to understand the needs of farming sector (screen-shots are all attached but live interface can be seen after logging in)
- **Farmers and others without Access to Internet:** USSD (10 applications already live), IVRS, Pull SMS (http://mkisan.gov.in/aboutussdstructureandcode.aspx) and Kisan Call Centre (http://mkisan.gov.in/KCCTotalCall.aspx and http://mkisan.gov.in/aboutkcc.aspx)

Benefits obtained from these services by each category of stakeholders

- Farmers get all the services and information from web based portals without necessarily having internet. The information received is useful in enhancing production & productivity as the advisories are tailor made for farmers' location, crops and language. Agri-business / input companies and buyers of agricultural produce get relevant information about farmers' needs so as to attune their product lines accordingly. Farmers get the power of internet for most of their needs like locating beneficiaries, farm schools, demo plots, fertilizer sales etc. directly on their feature phone. A direct interface sans middlemen is also established between dealers and farmers. In case of Ksewa, developers of individual applications can focus more on refining their application

instead of bothering about integration module, IP whitelisting, SMS Gateway charges etc.

Services Planned for Future

- Text to voice conversion
- Mobile/tablet based information dissemination customized to individual farmers
- Geo tagging of field surveys, training, demonstration etc. for monitoring of extension programmes.
- Use of space technology for rural connectivity
- Mobile apps on Windows, Java and iOS as well

Implementation Coverage

- Farmers, extension functionaries, industry and other stakeholders in the entire country

Transaction Volume

Total SMSs sent using SMS portal (mKisan) (Launched in May 2013)

- 2013-14 – 72.39 crore
- 2014-15 - 167.41 crore

(Till September 2014) Number of Farmers benefited through SMS Portal (mKisan) Launched in May 2013

- 2013-14 – 26.81 crore
- 2014-15 - 62.00 crore

(Till September 2014) - Number of advisories till date is 1,30,871.

Efficiency and Improvement Initiatives

Time and Cost Efficiency

- Since its launch by the President of India, more than 89 crore messages or 265 crore SMS (largest transactions on e-Taal) have already been sent to the farmers.
- mKisan Portal for Farmers has empowered all Central and State Government Organizations in Agriculture & Allied sectors to give

information/services/advisories to farmers by SMS in their language, preference of agricultural practices and locations. Thus, economy is exercised by avoiding wasteful expenditure in sending such advisories to farmers which they may not need.

- Due to vast size, huge population and difficult topography of the country, dissemination of information in timely manner was a major challenge purely by physical outreach. Besides high cost, electronic media (DD, AIR and private channels) also has its own constraints due to limitation in time slot available and vast area & subjects to be covered in variegated scenario of Indian Agriculture. With mKisan, in time dissemination of information, appropriate technologies and package of practices is significantly curtailed. Thus, farmers benefit in a timely manner at an extremely low cost.
- Productivity and production has witnessed all round increase despite vagaries of weather. This has become possible inter alia due to extension efforts under m-Governance.
- About 70 lac farmers have already opted to receive advisories & services on their mobile phones. The farmers have been grouped based on the State, District, Block and the Crops/Activities selected by respective farmers.
- Mechanisms for registration of farmers have been simplified by involving common service centers/ Kisan Call Centres more pro-actively so as to get large number of farmers included in this service. There are also other modes of registration such as Pull SMS, Common Service Centre, Bulk Data Uploading etc. Efforts are also underway to send voice based advisories to those of the farmers who opt for it.
- As the portal uses two different SMS gateways of DeitY and NIC, an automatic load sharing script maintains the load between two gateways supported with dashboards providing complete information on the messages delivered.
- Delivery reports of each of the mobile numbers to which these messages are sent are available to every user on the dashboard after logging in. Thus, discontinued or failed numbers are discontinued resulting in saving of money.
- Since Agriculture has biggest chunk of the load on DeitY and NIC Gateways, telecom companies are coming forward to give reduced

prices.

- All messages or advisories are 100% accurate and tested and cross-checked by a team of 4 officers – particularly at District and below level. Officers and experts are also compelled to search the previous advisories and also cross-check District Contingency Plans & IARI / ICAR page on agricultural advisories before sending an advisory.
- Large volume of messages, particularly when single message is for lakhs of farmers at the national or State level, are delivered efficiently within a few hours as each lot of 4000 messages goes through in much less than 30 seconds.

Innovative Practices

- Under the National e-Governance Plan – Agriculture (NeGP-A), various modes of delivery of e-enabled services have been envisaged. These include internet, touch screen kiosks, agri-clinics, private kiosks, mass media, Common Service Centres, Kisan Call Centres, and integrated platforms in the departmental offices coupled with physical outreach of extension personnel equipped with pico-projectors and hand held devices. However, mobile telephony (with or without internet) is the most potent and omnipresent tool of agricultural extension.
- mKisan Portal for Farmers has empowered all Central and State Government Organizations in Agriculture & Allied sectors to give information/services/advisories to farmers by SMS in their language, preference of agricultural practices and locations. To put it succinctly, almost every Government Department, Office and Organisation from the Ministry Headquarters down to the level of Block having anything to do with agriculture and allied sectors in every nook and corner of the country has been authorised to use this Portal to provide information to farmers on vast gamut of issues.
- USSD (Unstructured Supplementary Service Data), IVRS (Interactive Voice Response System) and Pull SMS are value added services which have enabled farmers and other stakeholders not only to receive broadcast messages but also to get web based services on their mobile without having internet. This is done at an extremely reasonable cost of Rs. 4.97 per farmer per month (for unlimited transactions).

- Integration with other farmer-centric services such as Kisan Call Centres, Common Service Centres, Web Portals for extracting relevant information The portal has been integrated with the CSCs wherein farmers can get results of their queries or questions on their mobiles after paying a modest fee (Rs 3 to 5) to the VLEs.

Levels of Integration

- Farmers' Portal, which is the backbone of the mKisan, integrates databases and hordes of applications in Agriculture sector by different department of the Government of India, State Governments, State Agriculture Universities, Research Institutes etc.
- There is complete linkage between 80 components of services being developed / implemented under NeGP-Agriculture and mKisan. Mobile is the most powerful and omnipresent tool of delivery of services among the various options envisaged under NeGP-A.
- Not only the ministries dealing with Agriculture & allied sectors but also other organisations like India Metrological Department have been using this Portal for their services down to AMFU level.
- About 70 lac farmers have already opted to receive advisories & services on their mobile phones. The farmers have been grouped based on the State, District, Block and the Crops/Activities selected by respective farmers.
- Now, nearly 20 web based services across the country have already been integrated with the SMS Portal and many more are in the queue.
- Nearly 3000 officers and experts from the Government of India (DAC, ICAR, DAHDF, IMD, CWC) and State Governments & its organisations down to Block level, SAUs, KVKs and AMFUs have been activated and are using the portal in 12 different languages by using easy phonetic typing. More than thousand more such officers & experts have recently applied to get activated.

ENABLER INDICATORS

Process Reengineering

- Major front end changes included delivery of services and information by SMS and USSD instead of reliance solely on the web. Thousands of officers who have been sending these messages to farmers have been using hardware already available in their office. Since it is a web-based tool, no major front end changes were needed except strengthening internet availability in those Block Offices where it posed a challenge.
- Messages from SMS Portal can be sent to the farmers in in the language of their choice at the time of registration for the service. There has been overwhelming adoption of local languages by the experts as phonetic typing (three options viz. C-DAC, Microsoft, and Google) is very simple & intuitive to use.
- SMS and Email alerts are being automatically generated whenever an end user registers or requests for activation.
- All databases in disparate forms have been integrated from various sources (KVKs, ICAR institutes, State Governments, Kisan Call Centres etc.)
- A user friendly interface appears immediately after logging in and gives all the information on the click of a mouse (including delivery reports, all details of previous messages, user list, supervisory control etc.).
- Search of previous advisories by keyword and topics has been enabled on public interfaces also.
- A dashboard in drill down form (up to the level of each message) has been created http://mkisan.gov.in/advs/db/smsdb_chart.aspx).

Back End Changes:

- Dovetailing Kisan Call Centre and Common Service Centre with mKisan.
- Telephonic verification to electronic requests coming in the dashboard for activation (instead of paper request).

Challenges Faced in Implementing Process Changes

- Technical issues in system architecture of search, phonetic typing issues in C-DAC, non-uniformity in formats between NIC and C-DAC Gateways.
- Long messages by some officers (often copy & paste from a site), non-consultation among officers, very basic messages whose content is already known to farmers, non-documentation of field visits.

The Lessons Learnt from the Process Re-Engineering Exercise

- There should be a dedicated help line number which is available 24x7 so that required help can be given to users as and when needed and people can use the system effectively and efficiently. There should also be a limit on text size and number of advisories per user per day.

Project Management

- Presently, the SMS messages are delivered to farmers as per their preference without charging any cost for this service with the objective to let the farmers understand the advantages of mkisan before they finally get convinced of its relevance and be ready to even pay for it.
- A totally in-house and dedicated team of programmers led by Consultant (ICT) has been able to continuously update the mkisan portal based on feedback received from users and beneficiaries (farmers).
- All the users are also monitored with respect to the content and relevance of the messages sent to the farmers and are provided regular feedback accordingly. Senior Officers in the hierarchy of users are also enabled to go through the messages and send further amendments and guidance to the users.
- The users of mKisan portal sending SMS based advisories to the farmers are also required to go through the archives of messages sent in related areas to avoid any contradiction/ duplication. The users sending advisories to farmers are also required to consult the related institutions to get the message vetted technologically before its delivery to farmers
- Constructive feedback from users to continuously improve SMS portal through NeGP infrastructure through Consultants and departmental officials.

- A module to capture the assessment of the farmers on the quality of this service. All advisories are rated at the scale of 1-5 by the farmers.
- Farmers' and other stakeholders' feedback being taken by Pull SMS or through an IVRS session.
- Audit trail of all actions by users as well as different persons entering/handling the system is also being maintained for any forensic or audit activity.

Financial Model

- Presently it is entirely from government of India. However, gradually cost sharing by beneficiaries for the services like USSD shall be introduced. The project has been greatly cost effective as it has been able to cover large number of farmers with minimal cost as compared to conventional mode of information delivery to farmers through training and workshops organized by extension agencies.

Efforts at sustainability

- The project has been launched for giving timely knowledge inputs or advisories to the farming community so as to increase their productivity as well as to get best remuneration for their produce. With this aim, all services to the farmers are free so far. The project is using SMS Gateway services of Department of Electronics & Information Technology (DeitY) and National Informatics Center (NIC), which, in turn, are being supported through budgetary allocations by Government of India for providing these citizen centric services through mobile platforms. DAC also is pitching in.
- Once an optimum level of SMS traffic to farmers is reached, it will be possible to work out an economic cost per farmer which the farmers would voluntarily come forward to pay. Business entities are also likely to contribute.

The Lessons learnt from Change Management and Capacity building exercise[s]

- Regular monitoring of the quality of messages sent to the farmers
- Apart from monitoring of the quality of messages by senior officers and

internal monitoring mechanism, it is also important to obtain the feedback of farmers receiving these messages far greater acceptability of these advisories amongst them.

- Integration of various services for the farmers through mobile based system.
- There is a great diversity of farmers and farming practices in India having a large number of small and marginal farmers with poor literacy percentage. It is therefore, important that they are supported in getting registered for SMS service through multiple channels of access as per their capacity and resources.

Technology

ICT solution adopted

- Data Centre created for DACNET Projects and now for NeGP-A is being used for providing these services. After competitive bidding, Microsoft Stack turned out to be the cheapest even in comparison to open service software. .NET Framework with C# and SQL Server 2012 have been used for this project under NeGP-A. implementing agency is HP India Sales Pvt. Ltd. which is supplying its own branded hardware.
- Addressing language issue of the farmers with the help of easy phonetic typing in 12 different languages. Google, Microsoft and CDAC APIs are being used for this.
- Through the use of Email piping all replies given by users/experts from any platform are converged on the dashboard irrespective of the device or interface from which the responses are sent. Both SWAN and SDCs are being leveraged by users or officials for accessing Farmers and SMS Portals for creating and sending messages.
- SMS Portal has been designed and developed in a modular concept. Different modules include Users Registration/Management, SMS Creation and sending, Dashboard, Feedback and Monitoring and Database Search. All modules are re-usable and scalable in true sense. Registration and feedback modules have been used in many applications by different development teams of NIC and other departments.

Compliance with Standards

The portal is compliant with following e-Government standards

- GIGW compliant, Localization in Hindi, Mobile Governance, Interoperable by using XML as the mode of data transfer, Security Audited by NIC and W3C

Security and confidentiality standards

- The portal is security audited by Cyber Security Division of NIC and all measures have been taken care of by the development team to maintain security and confidentiality standards.

Disaster Recovery and Service Continuity

- Technical risks may be in terms of obsolescence of hardware or software stack used for development. This may also be in terms of availability of sufficient number of suitably trained manpower. Latest version of .NET Framework with C# and SQL Server 2012 have been used for this project under NeGP-A and implementing agency is HP India Sales Pvt. Ltd. which is supplying its own branded hardware.
- State-of-the-art hardware and software stack have been used. Complete hardware and system software are under five years warranty by the implementing agency with provision of complete updates and upgrades by the OEMs. The application is hosted on state-of-the-art NeGP-A servers at National Data Center, Shastri Park which is highly secure and the current hardware will be able to sustain all future requirements in terms of computing and database. DR sites have been provided under NeGP-A.

Technology related challenges faced

- Sorting out some very new technologies like Email piping, on the fly language conversion, IVRS, Outbound Dialing (OBD), and USSD etc. took longer than intended.

The Lessons learnt from Technology choices and implementation strategy

- Work is also going on for software tools in collaboration with IIT Chennai (through DeitY) to provide for an accurate conversion of text into voice based advisories so that the same message can go in the form of a text/voice advisory without internet.
- Since effective internet penetration in the rural areas is about 5% only, text messaging in the language of the farmer transcends the barriers of digital divide. Provision of web based services through SMS or USSD has thus been the fulcrum of the whole Project.

VALUE INDICATORS

Digital Inclusion

- Experts and officials from different departments and levels are having their proficiency in giving information/services/advisories to farmers by SMS in their language, preference of agricultural practices and location. The messages are being sent in 12 different languages based on easy phonetic typing. The farmers have been grouped based on the State, District, Block and the Crops/Activities selected by respective farmers.
- Considering its cost-effectiveness and massive outreach, USSD applications are also being integrated with the SMS Portal to facilitate the farmers in drilling to various databases without internet connectivity

Work is going on for software tools in collaboration with IIT Chennai (through DeitY) to provide for an accurate conversion of text into voice and simpler apps to be installed on any type of mobile to facilitate this conversion.

Green e-Governance

- There is a considered effort to procure IT resources (through central procurement) which consume lesser power. Efforts are made to promote using alternative means of power particularly solar power as a substitute to gensets.
- The SMS portal is an initiative which has zero paper consumption thus greatly saving this resource.
- The department is also considering use of tablets and pico projectors in

the rural areas which require less power for delivery of extension services to farmers.

- There is a conscious effort to dispose the e waste through the agencies which are approved by Pollution Control boards and having professional capability to handle the e waste.

Dr R K Tripathi, Director (EM/IT), Department of Agriculture and Cooperation, Ministry of Agriculture, New Delhi, Email:rk.tripathi@gov.in

Shilpa Mehta, Consultant [ICT], Department of Agriculture and Cooperation, Ministry of Agriculture, New Delhi Email:shilpa.mehta@gov.in

Online Pre- Harvest Test System using Farm enrolment database

[Marine Products Development Authority, Govt. of India]

Leena Nair and Usha Singh

Description of the Project

Aquaculture shrimp is the major export item from India contributing nearly US $ 2.5 billion. The aqua farms producing shrimp for export are mandated to be enrolled with MPEDA and other agencies by the competent authority. The aqua farms details are collected through series of campaigns in the farming clusters by the representatives of MPEDA. The information collected is digitized into several attributes of aqua farms database. The data entry started in December-2012. Each farm requested for enrolment is physically verified to obtain Geo Spatial information through capturing co-ordinates of the aqua farm with the help of a GPS instrument and capturing other requisite information by the representative of MPEDA. Each application for enrolment is given an acknowledgement number, a copy of which is available with the farmer and is recognized by a unique identification number of 8 characters. The GIS data is processed in a sophisticated GIS software (ArcGIS) to arrive at the unique GIS reference - the centroid of the farm recognized by its latitude and longitude. About 50,000 applications are received by MPEDA for enrolment purpose, of which 44,200 had been physically verified. The farm enrolment data base is a multipurpose data base.

As part of the guarantees provided by Govt. of India to leading importing countries/markets, aquaculture shrimp exported to the EU should have a PHT [Pre-Harvest Test] certificate. A sample of shrimps is collected before the harvest is done and tested for residues of any antibiotics which are banned. The manual system of pre-harvest test was in operation since April, 2009 till March, 2013. The whole process of request for a sample, sample collection, testing in the lab, further testing in high end labs, generation of certificates, printing of certificates, verifying the authenticity of certificates, verification of sample

collectors visit to the farm, identification of farm by the sample collector, etc. were incorporated in the newly developed online PHT system which relied on the farm enrolment database. The on-line Pre-Harvest Certificate system started on 15th April, 2013. An exhaustive set of reports for monitoring of the PHT system, operation and maintenance of the labs/chemicals, employee work assessment, production related reports etc., are generated.

RESULT INDICATORS

Key Performance

Beneficiaries:

- Farmers: (Government to Citizen). Farm enrolment and issue of PHT Certificate to Farmers
- Exporters: (Government to Business). The PHT certificates are used by the Exporters to export the Shrimp to European Union,
- EIC/EIA: (Government to Government). The Export Inspection Agency (EIA) uses the data/PHT Certificates for verification while issuing Health Certificates.

Earlier, PHT certificates were issued only to the CAA (Coastal Aquaculture) registered farms. The Farm enrolment was started to cover more farms for PHT and consequently, more farms approached for PHT. Around 50,000 farms of the States Andhra Pradesh, Goa, Daman & Diu, Gujarat, Karnataka, Kerala, Maharashtra, Odisha, Pondicherry, Tamil Nadu and West Bengal are enrolled. Around 62,675 PHT certificate are issued as on date.

Transaction Volume

2013-14	439112
2012-13	37723

Web-site Hits volume

2013-14	644579
2012-13	27774

Efficiency and Improvement Initiatives

Traceability became easier and faster. The farm data base is used for many other purposes (Collection of NRCP samples, disbursement of subsidies etc.). The SMS service helped to get the Certificates faster.

ENABLER INDICATORS

Process reengineering

Major ICT and Non-ICT changes

- On-line submission of test request and verification.
- Stream lined the process in ELISA labs and higher labs: (Sample forwarding to another Lab for testing if the collecting Lab is non-functional due to testing equipment failure).
- Online verification provided by stakeholders to verify the Certificates.
- SMS alerts.

Change Management and Capacity Building

All users of the system are given training. The Testing Labs are run by approved Lab operators and trainings were given to all these Operators. They give proper training to their staff. In addition to this, Monitoring Officers are posted for every Lab. Also, the Labs are attached to local offices of MPEDA to monitor the Lab functioning and the concerned officers. Review meetings are conducted daily, weekly, monthly and half yearly by different levels of officers for monitoring the system.

Technology

The system uses web technology as all the key beneficiaries are geographically spread across the country. The need of centralized management and control of various processes in the system led to selection of the web technology with online application. In addition to this, the web technology reduces the business cost, and reaches to beneficiaries at any time. Centralized management of data and ease of back up, quick and easy updates of data and easy compilation of data and direct access to latest data are the other benefits.

Web Technology -.Net frame work (4.0) was adopted as technology solution for application as well as for maintenance module. IIS as Web server and Microsoft SQL server as Database were chosen.

The system almost meets the e-govt. standards as per the notified standards of GOI specified in the notification in the following areas

- Localization & Language Technology Standard
- Metadata and Data Standards
- Digital Preservation Standard
- Quality Objectives and standards

The following policies and methods are provided to keep the security and confidentiality standards

- Security Audit Clearance from GIO approved auditors
- Password strength as per GOI standards
- Keeping of password history
- Password age restricted to 30 days
- Notification of previous login
- Automatic termination of session
- Access log
- Enforcing data input by human (captcha)
- Input Data Validation
- Encryption of vital data
- Protection of transmitting data
- User authentication
- Management of user (disable. Password reset etc.)
- Access control policy
- Tracking of IP address
- Use of strong protocols
- Restriction in remote control
- Control of malicious software
- Integrity of data
- Restriction of physical access
- Control of visitors
- Keeping standards of wiring and UPS
- Protection of Fire etc.

The application is hosted at National Data Centre, New Delhi which follows all the standards specified by Government of India for Disaster Recovery and Service Continuity.

The switching over from .Net frame work 2.0 to .Net frame work 4.0. was the challenge faced in technology.

Web technology is most ideal choice for a system which requires faster retrieval of information, collection of data from geographically disbursed location, compilation and preparation of MIS, centralized management etc. The implementation strategy (planning, process re-engineering , Setting up basic infrastructure, creation of basic data, capacity building, meeting the e-govt standards and data, process, security etc.) adopted in the system proved that the adopted strategy was successful and can be replicated in similar projects.

Leena Nair, IAS, Chairman, Marine Products Export Development Authority (Mpeda), Kerala. Email: leenanair@mpeda.gov.in

Usha Singh, Systems Analyst, Marine Products Export Development Authority (Mpeda), Kerala. Email: usha@mpeda.gov.in

Section - IV

About SIGeGov

Computer Society of India

Special Interest Group SIG eGov eGovernance

About CSI Special Interest Group on e-Governance [CSI - SIGeGov]

Maj.Gen [Retd] Dr. R K Bagga and K S Vijaya Sekhar

Background

Computer Society of India (CSI) has implemented the concept of "Special Interest Groups" to promote activities and research in major focused areas. Special Interest Group on e-Governance (SIGeGov) has been formed in Hyderabad during 2006-2007 with Dr Ashok Agarwal (Adjunct Professor BITS Pilani; Chairman, EWB India & Past Chairman, CSI-SIGeGOV) with support from CSI HQ and CSI Hyderabad Chapter. The basic objective has been to focus on an important area where Information Technology can be leveraged and bring likeminded professionals together to add value by bringing out recommendations relevant to various stake holders. CSI is the only professional society covering individual users and citizens as members and is most appropriately suited to focus and add significant value to the successful implementation of e-Governance initiatives in our country. Because, e-Governance has the capacity to take our country to next generation as developed nation and mission of CSI-SIGeGov is to play an important role in that process. SIGeGOV has become more relevant now with the Government of India launching mission 'Digital India' using SMACs.

Objectives

CSI-SIGeGov objectives include knowledge sharing with all stakeholders through holding conferences, Knowledge Sharing Summits (KSS) and recognizing e-Governance initiative by giving CSI Nihilent eGovernance Awards (CNEA). CSI has instituted Nihilent e-Governance Awards and SIGeGOV is expected to organize these awards and implement judging

process; SIGeGov also act as Secretariat for e-Governance awards and maintain updated databases of all relevant stakeholders in this area; Support research in selected areas assessment framework and implementation strategy for e-Governance projects; Participate in the processes for evolving standards in technology, processes and databases; Conduct of National and International conferences in e-Governance individually or by joining hands with other institutions; Interact with international bodies like IFIP and SEARCC to benefit India by sharing our experiences with other nations.

Activities

I. CSI Nihilent eGovernance Awards

(http://www.csinihilent-egovernanceawards.org/)

CSI-SIGeGOV has instituted a series of awards by recognizing contributions made in the field of e-Governance in the country. This exercise is being sponsored by Nihilent Technologies, Pune. The awards are given for recognizing the efforts made in e-Governance area, specifically for State, Department, District and Project levels. There is active participation for these awards from State and Central Government establishments, Departments, District authorities and many Undertakings, research establishments. Participation by many of these Central and State level organizations have made these Awards an awaited event, every year since 2002. Concept of field visits and Analytical Hierarchy Process (AHP) was implemented to make the award process transparent and acceptable to government officials. Publication of all nominations in the form of a book is another feature for wider circulation and knowledge sharing.

II. Knowledge Sharing Summit (www.csi-sigegov.org)

The National level e-Governance Knowledge Sharing Summit (KSS) is an annual event organized by CSI-SIGeGOV. The summit aims to provide a forum for policy makers, practitioners, industry leaders and academicians to deliberate, interact and develop an actionable strategy for transparent and good governance. To grow rapid and successfully, there is a need to respond proactively to the changing environment. This essentially calls for strengthening the capabilities, seizing and exploiting the opportunities. There is an inherent need to explore and share success stories, best practices and achievements spread across the country for better implementation of e-

Governance initiatives. The KSS intends to provide a forum for discussion on e-Governance initiatives of Government of India, implementation strategies and challenges and to share learning from national best case studies in the area of e-Governance. SIGeGOV launched a website to act as knowledge portal for all e-Governance initiatives in India. In 2009, the first KSS was held at Hyderabad with support from Government of Andhra Pradesh. In 2010, second summit was held in Bhopal with support from Government of Madhya Pradesh. In 2011, third summit was held in Gujarat with support from Government of Gujarat. As a special gesture during KSS-2011 CSI conferred on Mr Narendra Modi, Hon'ble Chief Minister of Gujarat its first e-Ratna award recognizing unique leadership using ICT in state of Gujarat for providing better citizen service over the years. All major activities including e-Governance awards database is maintained and updated, regularly. In 2012, KSS was held at Raipur with support from Government of Chattisgarh. Shri Raman Singh, Hon'ble Chief Minister was conferred as e-Ratna award for the year 2012. Then in 2013, KSS was held at Visakhapatnam along with 48th CSI Annual Convention with Shri J Satyanarayana the then Secretary, IT was the Chief Guest for Awards ceremony.

III. International Conference on e-Governance (www.iceg.net)

International Conference on e-Governance (ICEG) was founded at IIT Delhi in 2003 to address the growing need for furthering our knowledge in e-governance. It is organized under the umbrella of International Congress of e-Government (ICEG) which is a forum for the advancement of knowledge in eGovernance and to promote various government levels across the globe. ICEG is to serve as a premier global organization where various stakeholders (academics, government officers, industry, professionals, NGO, citizens, government and international agencies) can participate and share ideas and resources for the knowledge creation, skill development, networking and spread of e-government at various levels. It became a beacon for eGovernment policymakers with its very first conference in 2003 when the then Hon'ble President Dr APJ Abdul Kalam guided the conference as Chief Guest. SIGeGOV jointly organized ICEG series at University of Hyderabad in 2008; at IIT, Delhi in 2009; at IIM, Bangalore in 2010; at NIRMA University, Gujarat in 2011; and at SCMS, Kochin in 2012.

IV. Research Projects

The following major research projects have been attempted by SIGeGOV with its limited resources.

a) eGovernance in Kerala

During the year 2014, CSI SIGeGov undertaken a research study on "e-Governance in Kerala – G2C strategies for augmenting citizens experience" funded by the International Centre for Free and Open Source Software (ICFOSS), Government of Kerala. The research work has been completed and report submitted to Government of Kerala.

b) An On-line database of e-Governance initiatives accessible through a new SIGeGov knowledge portal

One SIGeGOV objective is to see that all knowledge assets has to be compiled and should be made available through an online medium which help spread the knowledge of e-Governance even more widely. To meet these goals and to convert CNEA nomination repository of over 400 e-Government best practices from traditional book format to searchable and annotated database of knowledge. The project involve standardizing headings, creation of metadata, filling gaps information, verifying current status of the projects with original sources and cross-referencing etc.

c) Ten years of e-Governance in India:

An analytical study is being undertaken in 2015 to associate the domain of e-Governance from its earliest days and, as already noted, has in its repository a wealth of information that will help to trace the path that e-Governance has tread in India over the last ten years. An analytical study of similarities and differences between e-Government projects across the various States of India, which ones succeeded in sustaining themselves and which ones failed etc will prove to be invaluable to practitioners of e-Governance.

d) NISG CIO Training Program – Creation of Teaching Case Study

This project NISG CIO Training Program – Creation of Teaching Case study involved creation of 30 teaching case studies and accompanying teaching notes. This was successfully completed by Prof Harish P Iyer under the able guidance of Dr.R.K.Bagga, Chairperson, Research Center for e-Governance (RCeG), IIIT-Hyderabad. The objective of this project was to develop teaching

case studies mapped to the key phases of the e-Governance Life cycle phases with a view to providing the course faculty with a guidance on the minimum level of knowledge that should be extracted from the teaching cases and placed before the course participants ensuring a minimum measure of standardization with respect to the manner in which the teaching cases are to be administered in order to reduce individual faculty bias and variability.

V. CSI Hyderabad Chapter (http://www.csihyderabad.org)

CSI was born in Hyderabad in 1965. CSI Hyderabad Chapter (http://www.csihyderabad.org) is one of the largest Chapters in India with many senior members and large number of student branches. It has been a vibrant chapter since the inception with many programs and conventions conducted on regular basis. The team at Hyderabad chapter has a blend of Members from Industry and Academia with a mission to bridge the gap between industry and academics. Hyderabad chapter is the only chapter in the country which has its own Social Networking website (http://www.csihyderabad.ning.com). CSI Hyderabad has tied-up with corporate organizations to provide in-depth training and executing live projects for students in the final year engineering colleges, as a part of their curriculum. The program starts off with an intensive training program that is customized based on live projects, covering programming languages, platform, database management, software development life cycle, project management, documentation, team work and soft skills etc.

VI. CSI Students Branch (CSISB) at IIIT, Hyderabad
(http://csi.iiit.ac.in/)

CSI has large number of student branches with over one lakh members including India's most famous IT industry leaders, brilliant scientists and dedicated academicians. The mission of the CSI Student Branch at IIIT-Hyderabad is to facilitate research, knowledge sharing, learning and career enhancement for all categories of IT professionals, while simultaneously inspiring and nurturing new entrants into the industry and helping them to integrate into the IT community. Based on recommendations of a SIGeGOV, a syllabus on e-Governance suggested for Universities/Engineering colleges. As a pilot, successfully introduced at IIIT Hyderabad, four courses on e-Governance have been completed.

VII. CSI SIGeGOV Books Publications

The following publications covering research case studies on Governance, were released during Annual Conventions of CSI and other events and are available for free download at www.csi-sigegov.org/publications.

1. Envisioning a Digital India - Selected e-Governance Initiatives in India - 2014. Harish P Iyer, Sridevi Ayaluri, K S Vijaya Sekhar and Dr Piyush Gupta.

2. Compendium of Selected e-Governance Initiatives in India. Harish P Iyer, K S Vijaya Sekhar, Sridevi Ayaluri and Dr Piyush Gupta. Virtual Reality Books (2013)
3. Inclusive Growth through e-Governance: Selected e-Governance Initiatives in India. Surendra Kapoor, Prabhu Gollamudi, Nityesh Bhatt and Harish P Iyer. Universities Press (2012)
4. Widening e-Governance Canvas: Selected e-Governance Initiatives in India. Surendra Kapoor, GSN Prabhu and Niytesh Bhat. ICFAI University Press (2011)
5. Enablers of Change: Selected e-Governance Initiatives in India. Piyush Gupta, R K Bagga and Ayaluri Sridevi. ICFAI University Press (2010)
6. Fostering e-Governance: Compendium of Selected Indian Initiatives. Piyush Gupta, R K Bagga and Ayaluri Sridevi. ICFAI University Press (2009)
7. Transforming Government: e-Governance Initiatives in India. R K Bagga and Piyush Gupta. ICFAI University Press (2008)
8. Compendium of eGovernance Initiatives in India. R K Bagga and Piyush Gupta. University Press (2007)
9. eGovernance Case Studies. Ashok Agarwal. Universities Press (2006).
10. The State, IT and Development. R K Bagga, Kennith Keniston and Rohit Raj Mathur. SAGE (2005).

Contact: CSI SIGeGOV Secretariat, IIIT Hyderabad, Prof C R Rao Road, Gachibowli, Hyderabad 500 032 India. Tel: +91 40 6653 1119
Fax: +91 40 2300 0044

List of Acronyms and Abbreviations

APMC	:	Agricultural Produce Market Committees
MSAMB	:	Maharashtra State Agricultural Marketing Board
ACL	:	Access control list
ANGRAU	:	Acharya N. G. Ranga Agricultural University
API	:	Application Program Interface
ASP	:	Application Service Provider
BEEO	:	Block Education extension officer
BPL	:	Below Poverty Line
BPR	:	Business Process Re-engineering
CMA	:	Commissionerate of Municipal Administration
CSS	:	Cascading Style Sheets
CSV	:	Comma separated values [File Format]
DB	:	Database
DISE	:	District information system for education
DR	:	Disaster Recovery
DSC	:	Digital Signature Certificate
EU	:	European Union
GPR	:	Government Process Re-engineering
HTML	:	Hypertext Markup Language
JSON	:	JavaScript Object Notation
KVK	:	Krishi Vigyan Kendra
MMP	:	Mission Mode Project
MPEDA	:	Marine Products Export Development Authority
NASSCOM	:	The National Association of Software and Services Companies
NDSAP	:	National Data Sharing and Accessibility Policy
NeGP	:	National e-Governance Plan
NIC	:	National Informatics Centre
NREGA	:	[Mahatma Gandhi] National Rural Employment Guarantee Act
OGD	:	Open Government Data
OS	:	Operating System

PeMT	:	Project e- Management Team
PHT	:	Pre-Harvest Test certificate
PMU	:	Project Management Unit
RTE	:	Right to Eductation
RTI	:	Right to Information
RWD	:	Responsive web design
SaaS	:	Software as a Service
SAN	:	Storage area network
SDLC	:	Software Development Life Cycle
SSL	:	Secure Sockets layer
TINXSYS	:	Tax Information Exchange System
XML	:	Extensible Markup Language
GIGW	:	Guidelines for India Government websites
WCAG	:	Web Content Accessibility Guidelines

Envisioning a Digital India - Selected e-Government initiatives

The idea of a Digital India is an appealing one. Its attractiveness is derived from its implied promise of a society conveniently connected, serviced, and empowered. However, as with most ideas which affect the society at large – ideas which also double up as ideals - the elegance of this idea belies its complexity. From a technological perspective, the idea must encompass high speed internet access, e-Services, mobile connectivity and other emerging advancements. As a guidepost for good governance, the idea must attend to universal access, digital literacy, inclusiveness and numerous other social, cultural and economic challenges. Clearly, the path from digital India as an abstraction to digital India as a concrete outcome and action must, of necessity, branch out in different directions, involve multitude of agencies and yet ensure that all efforts converge towards producing tangible benefits for the Citizens of the Country.

e-Government initiatives which are the result of visionary thinking and which render exemplary quality of service to their stakeholders are all examples of the vision of Digital India coming to fruition. Though each successful e-Government initiative contributes only a small pixel of illumination, collectively they have the power to light up the envisioned India-wide digital canvas brilliantly.

The Special interest group on e-Governance of Computer Society of India [CSI's SIGeGov] together with Nihilent Technologies has been organizing CSI-Nihilent e-Governance Awards annually and publishing in the form of a compendium, a selection of exemplary initiatives from among the nominations received. The initiatives which are chronicled in this compendium – the ninth in its series – are a testimony to the efforts of various administrative levels of the Government in India to judiciously dovetailing the best of ICT with the demands of good governance.

There is no doubt that this compendium – and others which preceded it - will serve as an authoritative source of reference for the best of e-Governance in India.

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