

TRANSFORMING GOVERNMENT
E-GOVERNANCE INITIATIVES IN INDIA

A selection of major e-Governance initiatives in
Departments and Projects which competed for coveted
CSI-Nihilent e-Governance Awards for the year 2007-08.
The Awards were presented during 6th International Conference
on e-Governance (ICEG-2008) at IIT, Delhi on 18 Dec 2008.

– Editors



About CSI

The Computer Society of India (CSI) is the largest association of Information Technology professionals in India, with over 30,000 members comprising software developers, scientists, academicians, project managers, CIO's, CTO's and students, among others. The society has 65 chapters spread across the length and breadth of the country. Being closely associated with students, the Society has developed a well-established network of nearly 300 student branches. The purposes of the Society are scientific and educational, directed towards the advancement of the theory and practice of computer science & IT. Please visit www.csi-india.org. Every year CSI conducts its annual convention in different parts of the country thereby providing platform to computer users to interact with specialists. Since 2005, e-Governance Awards are being conferred during the annual convention.



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TRANSFORMING GOVERNMENT E-GOVERNANCE INITIATIVES IN INDIA

Edited by
R K Bagga
Piyush Gupta



Icfai Books™

The Icfai University Press

TRANSFORMING GOVERNMENT: E-GOVERNANCE INITIATIVES IN INDIA

Editors: R K Bagga and Piyush Gupta

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First Edition: 2009

Font: Electra LT Regular

Printed in India

Published by



The Icfai University Press

52, Nagarjuna Hills, Punjagutta

Hyderabad, India-500 082

Phone: (+91) (040) 23430 – 368, 369, 370, 372, 373, 374

Fax: (+91) (040) 23352521, 23435386

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ISBN: 978-81-314-2222-9

ACKNOWLEDGEMENTS

I would like to express my sincere gratitude to the Computer Society of India (CSI) for providing me the opportunity to participate in the e-Governance Awards process leading to the creation of this compilation. This has been possible only through the total support of Prof. K K Aggarwal, President CSI and Mr. Lalit Sawhney, the past President and all the members of Execom of CSI.

Special thanks are due to Dr. Ashok Agarwal, Mr. Piyush Gupta, Dr. Mahesh Chandra, Mr. S P Singh, Dr. MP Gupta, and Dr. Sanjiv Vaidya for assisting, as Members of Selection Committee. Prof. ML Sai Kumar, Prof. G P Sahu, Mr. Ramanathan, Mr. M R Datar and Mr. Satish Babu need special thanks for participation in the field visits.

Core Group members (Ashok Agarwal, Piyush Gupta, Sridevi and Vijay) have been regularly interacting to guide the conduct of the Award process through different stages of the Award and deserve our special gratitude. Our thanks to Mr. L C Singh, Mr. Minoo Dastur and Harish Rao of Nihilent Technologies for supporting this entire effort.

My thanks to each and every one of the authors of the papers included in this book for their time and effort. Mr. D Mathur, DIT deserves special thanks for providing updated write-up on NeGP at a very short notice. As Convener of CSI Nihilent e-Governance Awards 2007-08, I will be failing in my duty if I do not acknowledge all the states, departments, districts and project officials particularly, IT Secretaries for sending their nominations as well as details of results and enablers for evaluation by our Selection Committee. All of us are grateful to states, departments, districts and project teams for frank discussions during our field visits and sharing their

experiences. Prof. M P Gupta who volunteered to undertake evaluation process for e-District Awards this year needs special thanks. It has been a wonderful learning experience for all of us.

I want to compliment all 130 registered nominations who helped us with their ONLINE submissions in this years awards. Idasoft team's effort of new design for online nomination was very useful. Special compliments to award winners for the year 2007-08 for their well deserved recognition. All of us were convinced that 6 states, 7 departments and 28 projects short-listed were of very high standard and deserved recognition. Let me thank all e-Gov leaders who made presentations to the Selection Committee during field visits and the final meeting held at Hyderabad.

Lastly, thanks to my Secretary, Mr. Vijay, Ms. Sunanda Varma from IIIT-H and the team at Icfai Research Centre, Hyderabad who gave me full support in making this book possible. In particular, speical thanks to Mr. Ved Prakash and the team of able sub-editors including V Sandhya Srikanth, R Kalyani, Meenakshi Raju Ponnada and Suguna Nagaraj K.

Wishing for many more online applications for next year awards.

– R K BAGGA

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FOREWORD

Computer Society of India, the largest association of Information Technology professionals in India and, the Nihilent, an ISO 9001:2000 and SEIM CMM ® level 5 certified global consulting and solution integration company headquartered at Pune, India, have been focusing jointly on the importance of e-Governance for the last six years and have instituted a series of awards for recognising the successful efforts made by various government departments at Centre, States and Districts in achieving good governance using ICT. Evaluation Criteria for CSI-Nihilent e-Governance Awards for the year 2007-08, for Best e-Governed State, Best e-Governance Project, Best e-Governed Department and Best e-Governed District, have been based on a well defined mechanism to maintain uniformity and transparency. The first step is the Result-Enabler Approach viz., Result Indicators, Enabler Indicators and Self-Assessment Indicators; the second step is evaluation by field visits by the expert committee and principal experts to the states, departments, districts and project sites for a ground study and appreciating the e-Governance initiatives by the participating agency in these awards; and the third step is presentation by the concerned participant/contestant of these awards.

I am happy to know that this year too, a compilation of selected best entries of case studies for e-Governance awards 2007-08, is published and is being released on 18th December 2008, during an award function at the IIIT campus Delhi, in conjunction with the inauguration of the 6th International Conference on e-Governance (ICEG-08). It gives me immense pleasure to write a few lines about this compilation of selected case studies and projects on e-Governance in India.

CSI-Nihilent e-Governance Awards 2007-08 compendium has been beautifully compiled in four parts. Part I, gives the overview of E-Governance Assessment in four chapters covering issues on e-Governance, e-Governance approach in India—The National e-Governance Plan (NeGP) and Approach & Methodology for Project Assessment—CSI Nihilent e-Governance Awards 2007-08. Part II of this compilation covers the Government Departments i.e. Motor Vehicles Departments, Kerala; Departments of Food, Civil Supplies and Consumer Affairs, Chhattisgarh; Directorate of Treasury Accounts & Pension, Chhattisgarh; Department of Rural Developments, Andhra Pradesh; Board of Revenue, Uttar Pradesh etc. Part III gives illustrations of Government to Citizen (G2C) Projects and covers about 17 projects from States like Andhra Pradesh, Arunachal Pradesh, Andaman & Nicobar Islands, Chhattisgarh, Delhi, Gujarat, Haryana, Karnataka, Maharashtra, Madhya Pradesh, Uttar Pradesh, West Bengal etc. Part IV of this compendium describes vividly the initiatives of Government to Government and Government to Employee (G2G/G2E) and Government to Business (G2B) projects giving a description of various projects and ICT applications for citizens of the country and suggestionss, on how to improve interactions amongst government, citizens and businesses which are the main stakeholders of e-Governance.

The e-Governance initiatives are gaining momentum to make services more transparent and to reduce response time and cost, I feel the necessity for continuous monitoring and evaluation of all the on-going activities in e-Governance at the grass-root level. I am glad that the Government of India has taken major initiatives to accelerate the implementation of e-Governance strategies and challenges and creating the right environment for G2G, G2B, G2E and G2C services within the country by adopting new policy on open standards for e-Governance, which is in force since July 2008. I also strongly feel the need to identify the successful efforts and

share the learning and experiences from National and International best practices in the area of e-Governance. I would also like to emphasize the importance to recognise the good initiatives and work done by them to encourage others to use and combine the best technology from the best service providers to do the best job at the grass-root level of society spread across the globe in general and the geographical limits of the Indian Sub continent in particular.

New emerging technologies in wireless communications and in the IT sector have offered new opportunities to make use of alternative modes of service deliveries that are more efficient and more convenient to the citizens. It has enhanced the range of choice and boosted the confidence as to how and when they should use these services ensuring great potential for growth and development. Nevertheless, there are tremendous social, economic and political problems yet to be tackled and solved efficiently, through IT education for the rural masses if we want to reap the maximum benefit of e-Governance and extend the services to their door step. Since a majority of services to citizens are needed and provided at the district and block level, the transformation has to start at the district level through Common Service Centres (CSC) established in villages connected to districts electronically.

To conclude, I convey my heartiest felicitations to the entire editorial team of this compilation of case studies on e-Governance and congratulate the representatives of all the Award Winning projects.

– **Prof. K K Aggarwal**

President, Computer Society of India (CSI)
Vice Chancellor, GGS Indraprastha University, Delhi.

MESSAGE

Knowledge-Driven Governance

e-Governance is the interweaving of government development processes with a range of modern information processing and communication technologies (including the Internet, Local Area Networks, mobiles etc.) to improve effectiveness, efficiency and service delivery while promoting democracy by making them equitably available to all. But why do we need e-governance? e-Government can transform citizen service, provide access to information to empower citizens, enable their participation in government and enhance citizen economic and social opportunities, so that they can make better lives, for themselves and for the next generation.

e-governance, however, is not really the use of IT in governance but a tool to ensure equitable and easy to avail good governance. It does not mean proliferation of computers and technology; it is basically a political decision that calls for discipline, attitudinal change in officers and employees, and massive government process re-engineering. Implementers and drivers of e-governance initiatives agree that the biggest challenge of deploying e-governance is not technology but change management encompassing cultural, organizational, process, people and technological challenges. A metrics driven governance would enable a government body or municipal corporation to perform efficiently and effectively to achieve its public mission. This involves having performance metrics for key departments, processes and roles, and a dashboard at different levels for monitoring the performance.

Managing knowledge and institutionalising learning is an important aspect of ‘effective governance’. The economies of nations and companies centre around Knowledge Management (KM) and innovation. Various changes, be it cultural, organizational, process, people and technological, are required to enable knowledge sharing and create a culture of learning. The key aspects include identifying the knowledge required, creating a culture of learning and sharing, putting in processes and technologies to support, and assigning responsibilities.

Externalising the intrinsic knowledge and motivating people to be partners is a challenge. Framing a knowledge management solution as per capacity, measuring the performance/outcome is essential to the whole process. It should not be sporadic; rather it should be leveraged as a part of the working process. Technical tools, process tools, people issues and measuring capacity creation should be embedded in a KM solution. It also involves soft skills and competency set based on roles, level, etc. Measuring contribution, creating reference points around the knowledge and then using it to exploit the investment will ensure success of the adoption.

How do we Create a Culture of Learning? — The Intent to Learn

Learning happens in communities. Competencies such as teamwork and collaboration are very important. The intent to learn cannot be institutionalised without a culture of collaboration. Ontology has an answer to this problem. Ontology is a science of “Being” and “Existence”. Even in the context of a government organization, it defines what it wants to be in its Vision and Mission statements. If communicated well, these statements would automatically define what each employee should be. E.g., The mission is “To be the most customer-centric and innovative department”. Thus, each employee can re-define himself/herself as “Customer centricity” and “Innovation”. People should be able to see both these values in each and every employee and their

respective actions. Like they say, “There is a difference between saying customer-centric and being customer-centric”. The intent to learn can happen only when each individual is part of a group. Creating such Intent is a must for learning and sharing.

What gets measured gets done. Learning and sharing, need to be part of the Scorecards and Key Performance Indicators (KPIs) of each employee. Employees also need to be measured on their contribution to process improvement and their contribution to organizational knowledge creation and competency enhancement. A scorecard ensures that each person is not just measured on financial objective that give an indication of past performance since they are lag indicators. The Learning objectives are the lead indicators and give you a view of future performance. Similar scorecards can be created at the corporate and departmental levels with balanced objectives and measures at all levels. To encourage collaboration and team performance, an appropriate performance management model should be used which includes weightages to corporate, departmental and individual performance. The above would ensure that collaboration and teamwork are encouraged and rewarded.

We, at the Computer Society of India and Nihilent, have been doing our bit in the last few years, towards creating a knowledge repository of the various e-governance initiatives in the country. The cases that you will read in this year’s compilation bear testimony to that effort. We hope this helps to spread the wealth of practical knowledge on e-governance, and at a larger level, foster a culture of learning, innovation, collaboration and performance in the government sector.

– L C Singh
President & CEO,
Nihilent Technologies Pvt. Ltd.

PREFACE

With major economic crisis looming in the US and rest of the world, India is going to be effected with a downturn in outsourcing business and consequent job market. Can the e-Governance initiative on the anvil in India bridge the gap? With the hardware cost, becoming affordable, it is only recent phenomena that the government sector has started using ICT for development. During the current five-year plan, Government of India has come out with a National e-Governance Plan (NeGP). It is estimated that over Rs.35000 crores may be spent both for mission mode projects and capacity building efforts at Centre, State and other agencies in next few years.

Computer Society of India being a premier body of professionals in India, established in 1965, has been in the forefront of ICT applications in all sectors of Indian industry, academia and the government. CSI provides a well-connected network of computer users, who can help provide computer related interface for all government applications. Nihilent has been partnering with CSI since 2002 and is providing the much needed support for conducting the e-Governance awards every year. This year's awards are aimed at providing incentive to States, Departments, Districts, as well as Project in India, so that their applications get shared across different parts of the country. To reach the grass root level e-District Awards category has also been added this year.

The CSI Nihilent e-Governance Awards 2007-08, assessment model is based on Result-Enabler approach along with Analytic Hierarchy Process (AHP), which was introduced two years ago for the first time, bringing in transparency and objectivity in selecting the award winners. During the previous two years all the short listed nominations in e-Governance have been documented for use

by all. For the current year also, this compilation has been attempted based on the write-ups received from various e-Governance initiatives in Departments and projects being implemented in different parts of the country. The Selection Committee has attempted to finalize these awards based on extensive evaluation of results & enablers, and field visits for presentation during International Conference on e-Governance (ICEG-2008) scheduled to be held at IIIT Delhi from 18th December 2008.

This compilation consists of four parts where Part I has four chapters covering vision and national plan for e-Governance, and the methodology adopted for CSI-Nihilent e-Governance Awards 2007-08. Chapter 1 covers, the National e-Governance Plan (NeGP), the insights of the plan conceptualized by the Government of India. The chapter also consolidates the identified projects at the Centre and State levels. It also lists various other initiatives being taken as part of infrastructure and capacity building. In chapter 2, the result of Issue Process attempted during ICEG-2007 has been nicely documented by Dr Ashok Agarwal and his team. Chapter 3 by Piyush Gupta suggests an approach for Evaluation of e-Governance Projects. The paper was presented to international audiences at the ICEGOV 2007 in Macao. Chapter 4, an approach for assessment methodology adopted for CSI-Nihilent e-Governance Awards 2007-08, explains the assessment framework, as well as the possible insights that can be gained from it. The model of e-Governance award for this year has been thoroughly deliberated and discussed by the Core Team of the Awards. This chapter gives sufficient cases on the overall methodology and also discusses some of the key learning's in the process encountered by the team.

Part II is devoted to some of the selected departments in the states of Kerala, Chhattisgarh, Andhra, Gujarat, UP and Tamil Nadu to give a flavor of departmental efforts in using ICT for providing better services to citizens. Chapter III and IV consist of the 28 nominated e-Government case studies ranging from G2C, Urban/Rural and

G2G/G2E/G2B categories respectively. Part III covers Government to Citizen projects from different states dealing with registration, agriculture, electronic citizen, employment effort etc., and online information. Part IV of the Book gives details of 11 projects providing government to government/employees services, government to business under G2B, G2G/E categories. 7 states, who came forward to share their experiences, have contributed these papers.

Based on online submission, the project documentation has been authored by the respective project team members and it does not express the views of the editors of this book. CSI and editors take no responsibility for any ownership or copyright infringement.

Editing this book has truly been a rewarding experience not only for us but for all the members in the core team. We hope the book will provide an interesting reading to all interested in e-Governance and provide a good learning for the policy makers, and implementers working in the Government, industry and academics. We sincerely appreciate the efforts of authors of this compilation for meeting our deadlines.

With growing initiatives in e-Governance, this book will provide lucid learning and be of interest for all who are involved in conceptualizing and implementing e-Governance projects in the country.

– R K Bagga and Piyush Gupta, Editors.

PART I

E-GOVERNANCE:
OVERVIEW, ISSUES, APPROACH AND
PROJECT ASSESSMENT

e-Governance Approach in India – The National e-Governance Plan (NeGP)

Dhrupad Mathur, Piyush Gupta and A Sridevi

1. Background

India witnessed initial attempts towards implementation of e-Government with a focus on networking government departments and developing in-house government applications in the areas of defense, economic monitoring, planning and the deployment of IT to manage data intensive functions related to elections, census, tax administration etc. These applications during the 1970s, 1980s and early 1990s, focused on automation of internal government functions rather than on improving citizen service delivery.

The efforts of the National Informatics Center (NIC) to connect all the district headquarters during the eighties was a very significant development. From the early nineties, IT technologies were supplemented by Information and Communication Technologies (ICT) to extend its use for wider sectoral applications with policy emphasis on reaching out to rural areas.

While the emphasis has been primarily on automation and computerization, state governments have also endeavored to use ICT tools for establishing connectivity, networking, setting up systems for processing information and delivering services. At a micro level, this has ranged from IT automation in individual departments, electronic file handling and workflow systems, access to entitlements, public grievance systems, service delivery for high volume routine transactions such as payment of bills and taxes, to meeting poverty alleviation goals through the promotion of entrepreneurial models and provision of market information.

2. Introduction to NeGP

The Plan seeks to lay the foundation and provide the impetus for long-term growth of e-Governance within the country. The plan seeks to create the right governance and institutional mechanisms, set up the core infrastructure and policies and implement a number of Mission Mode Projects (MMPs) at the center, state and integrated service levels to create a citizen-centric and business-centric environment for governance.

The government approved the National e-Governance Plan (NeGP), comprising 27 MMPs and 8 components, on May 18, 2006. The government has accorded approval to the vision, approach, strategy, key components and implementation framework for the NeGP. However, the approval of the NeGP does not constitute a financial approval for all the MMPs and components under it. The existing/ongoing projects in the MMP category, being implemented by various central ministries/state departments/states would be suitably augmented/enhanced to align them with the objectives of NeGP.

Key Observations Made while Endorsing the Plan

- Adequate weightage must be given for quality and speed of implementation in procurement procedures for IT services
- Incorporation of suitable system of incentivization of states to encourage adoption
- Trend of delivery of services through common service centers should be encouraged and promoted
- Wherever possible services should be outsourced
- Full potential for private sector investment should be exploited
- Connectivity should be extended up to block level through NICNET/SWANs
- Government Systems R&D to be undertaken.

3. National e-Governance Plan-Backdrop

- **Hon'ble Prime Minister's Announcement (15th August, 2002):** As stated under the Hon'ble Prime Minister's 15 important initiatives announced on Independence Day 2002, government intends to implement a comprehensive programme to accelerate e-Governance at

all levels of the government to improve efficiency, transparency and accountability at the Government-Citizen interface.

An extract of the Hon'ble PM's announcement on Independence Day 2002, pertaining to e-Governance is reproduced as under:

“The Ministry will implement a comprehensive programme to accelerate e-Governance at all levels of the government to improve efficiency, transparency and accountability at the Government-citizen interface...”

- **Hon'ble Prime Minister's Statement at National Development Council (December, 2002):** National Development Council (NDC), while approving the Tenth Five Year Plan has directed that four empowered sub-committees be set up. One of these sub-committees set up by the Planning Commission on 31st March 2003 is for Governance Reforms including e-Governance, chaired by Deputy Prime Minister. An extract of the PM's statement at NDC (December 2002) pertaining to e-Governance is reproduced as under:

“e-Governance, which can contribute significantly to better governance, is a major thrust of the Tenth Plan. I urge all concerned to implement this strategy.”

- **Priority Agenda approved by Cabinet (September, 2003):** In the priority agenda approved by the Cabinet in September 2003, implementation of National e-Governance Action Plan has been accorded highest priority and identified as Item No.1 under Category 1 for review by the Hon'ble Prime Minister directly.
- **A Core Group on Administrative Reforms (CGAR):** A Core Group on Administrative Reforms (CGAR) has been constituted in March 2003 under the Chairmanship of Cabinet Secretary to –
 - Draft plans for phased, time-bound prioritized adoption of e-Governance in Government of India.
 - Identify Core Mission Projects in e-Governance

From the various announcements stated above and the actions taken at the administrative level, it can be seen that introduction of e-Governance in the central ministries/departments and at the states/UTs level, has been accorded highest priority. Department of Information Technology jointly with Department

of Administrative Reforms and Public Grievances (DAR&PG) prepared a National e-Governance Action Plan for implementation in the government at the center and states and was presented to the Hon'ble Prime Minister which has been approved in-principle.

- **Apex Committee for NeGP:** An Apex Committee for NeGP has been constituted on 23rd August 2004 for overseeing and providing policy directions for implementation of NeGP and ensuring inter-ministerial co-ordination. This Committee is under the chairpersonship of Cabinet Secretary.

The composition of Apex Committee is as follows:

i) Cabinet Secretary	Chairman
ii) Finance Secretary	Member
iii) Secretary, Department of Expenditure	Member
iv) Secretary, Planning Commission	Member
v) Secretary, Department of Personnel and Training	Member
vi) Additional Secretary, Department of Administrative Reforms and Public Grievances	Member
vii) Secretary, Department of Information Technology	Member- Convener

4. NeGP Vision

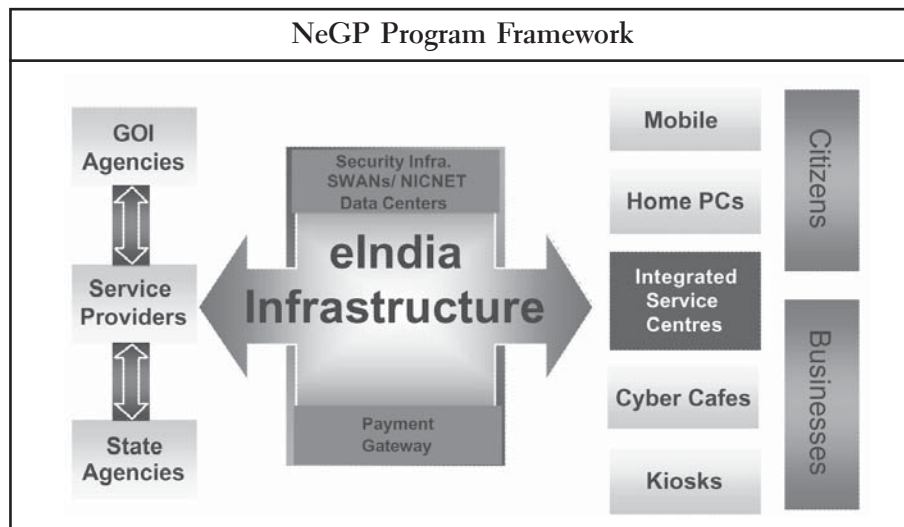
The NeGP aims at improving delivery of government services to citizens and businesses with the following vision:

“Make all Government services accessible to the common man in his locality, through common service delivery outlets and ensure efficiency, transparency and reliability of such services at affordable costs to realise the basic needs of the common man.”

5. The Framework for e-Governance

As depicted in the diagram, (see next page) the e-Governance framework would include Back-ends (databases of the different government agencies, service providers, state governments etc.,) Middleware and the Front-end delivery

channels (home PCs, mobile phones, kiosks, integrated citizen service centers etc) for citizens and businesses. The Middleware comprises of communication and security infrastructure, gateways and integrated services facilitating integration of inter-departmental services.



6. National e-Governance Strategy

- Centralized initiative, decentralized implementation
- Identify services to be targeted
- Prioritize services (Mission), identify measurable service goals (Outcomes)
- Identify, appoint and empower mission leaders
- Create mechanism for effective private sector participation
- Put in place a common infrastructure, policies, standards and framework
- Service delivery through CSCs
- Think Big, Start Small and Scale Fast
- All services supported by 3 infrastructure pillars to facilitate web-enabled anytime, anywhere access
- Connectivity: State Wide Area Networks (SWANs)/NICNET
- National Data Bank/State Data Centers (SDCs)
- CSCs primary mode of delivery.

7. Major Components of the National e-Governance Plan

- Core Policies
- Core Projects
- Core Infrastructure
- Support Infrastructure
- Human Resource Development and Training
- Technical Assistance
- Awareness and Assessment
- Organisational Structures
- R&D.

8. Core Projects (Mission Mode Projects)

S.No.	Mission Mode Projects	Line Ministries/Departments Responsible
	Central Government	
01	Income Tax	Ministry of Finance/Central Board of Direct Tax
02	Passport Visa and Immigration Project	Ministry of External Affairs/Ministry of Home Affairs
03	MCA21	Department of Corporate Affairs
04	Insurance	Department of Banking
05	National ID	Ministry of Home Affairs
06	Central Excise	Department of Revenue/Central Board of Excise and Custom
07	Pensions	Department of Pensions and Pensioners Welfare and Department of Expenditure
08	Banking	Department of Banking
09	e-Office	Department of Administration Reforms and Public Grievances
	State Specific Projects	
01	Land Records	Ministry of Rural Development
02	Road Transport	Ministry of Road Transport and Highway
03	Property Registration	Department of Land Resources
04	Agriculture	Department of Agriculture and Cooperation
05	Treasuries	Ministry of Finance
06	Municipalities	Ministry of Urban Development and Poverty Alleviation
Contd...		

<i>Contd...</i>		
07	Gram Panchayats	Ministry of Rural Development
08	Commercial Taxes	Ministry of Finance
09	Police (UTs initially)	Ministry of Home affairs
10	e-District	Department of Information Technology
11	Employment Exchange	Ministry of Labour and Employment
Integrated Service Projects		
01	EDI (E-Commerce) Formatted transaction of business documents (invoice, Purchase order) electronically transmitted	Ministry of Commerce and Industry
02	E-Biz Single window Government-to-business portal offering services for the complete lifecycle of business	Department of Industrial Policy and Promotion/Department of Information Technology
03	e-Courts	Ministry of Home Affairs
04	e-Procurement	Director General of Supplies and Disposals (DGS&D)
05	Common Service Centers	Department of Information Technology
06	India Portal Single window web based delivery of information and Government services at the national level	Department of Information Technology/ Department of Administrative Reforms and Public Grievances
07	National e-Governance Service Delivery Gateway	Department of Information Technology

8.1 Selection Criteria for the Mission Mode Projects

- Impact in terms of number of people likely to be affected by project
- Impact in terms of likely improvement of the quality of service
- Impact on the economy or economic environment in the country
- Impact in terms of the likely cost-benefit of investments in the project
- Readiness and willingness of ministry/department to position a National Mission Project
- Feasibility of implementing the project from a financial, administrative and political perspective within a reasonable time frame.

8.2 Core Infrastructure

- National eGovernment Intranet (NICNET, ERNET and other service providers)

- State wide Intranets
- National e-Government data center
- State data centers
- Security Infrastructure
- Resource center for e-Governance (PKI etc)
- GIS National spatial data infrastructure
- Language Resource Center.

8.3 Support Infrastructure

Support Infrastructure would cater to areas such as:

- Service delivery infrastructure at state, district, block and village levels including wireless infrastructure for last mile connectivity
- E-post
- Design, development and deployment of low cost technology solutions
- Integrated service delivery front-ends.

8.4 Human Resource Development and Training

This component of Human Resources Development/Training under NeGP is addressed by the Capacity Building scheme and addresses several areas including Training for:

- e-Governance policy makers
- Chief Information Officers
- Project specific training
- General IT skills and competencies
- Special training programmes for specialists
- Security, use of local language solutions, advanced courses architecture, language technologies
- Equipping National/State institutions of Public Administration for e-Governance training etc.

8.5 Awareness and Assessment

- E-Readiness assessment of various states/departments
- Setting up of virtual e-Governance forums

- Assessment of E-Projects
- Best practices for e-Governance
- e-Governance national resource database
- Newsletters on e-Governance, workshops/seminars/conferences
- Competitions and awards
- e-Governance forum for NGOs, pvt. sector, academic
- Training Institutions
- Publicity and awareness (media, films etc).

8.6 Research and Development (R&D)

- Architecture
- Standards
- Integration strategies
- Language technologies
- Electronic payment systems
- Security and other areas related to e-Governance.

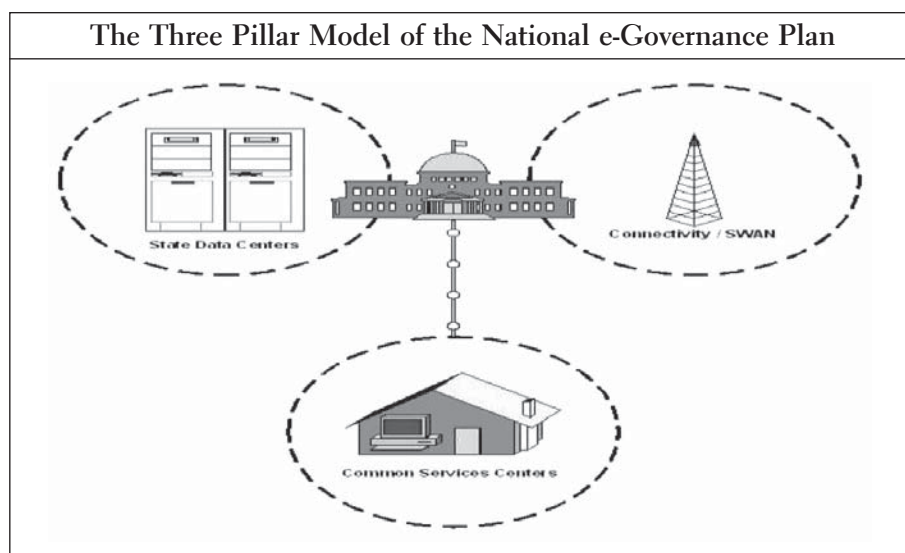
9. Infrastructure Pillars of NeGP

- Connectivity: State Wide Area Networks (SWANs)/NICNET
- National Data Bank/State Data Centers (SDCs)
- Common Service Centers (CSCs) primary mode of delivery.

9.1 SWAN (State Wide Area Network)

Key Infrastructure – Features

- Minimum 2 Mbps connectivity till block level
- Over all project outlay of Rs.3334 crore including state share
- Around 7500 POPs and provision of data, voice and video connectivity services to more than 100,000 government offices

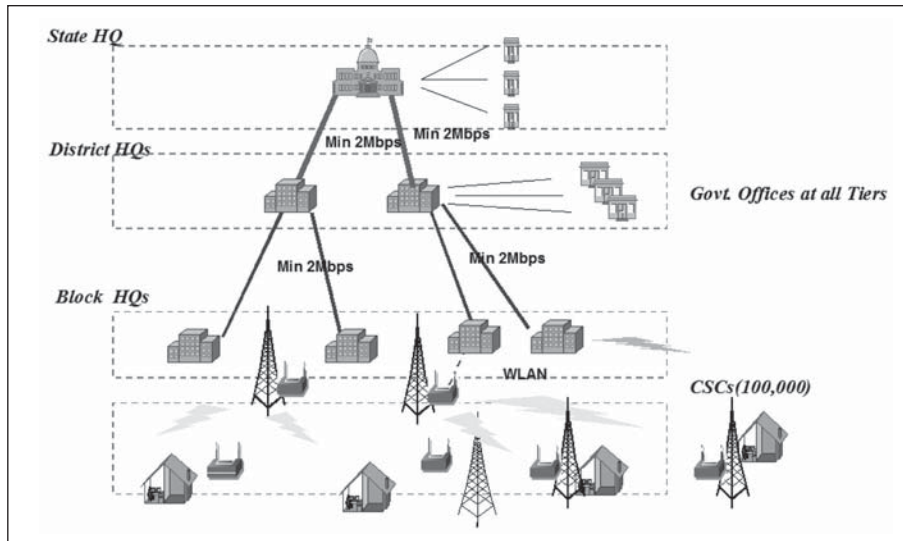


- Two Implementation Options:
 - Option I: Public Private Partnership
 - Option II: NIC
- BSNL – Primary bandwidth service provider
- Service Based Implementation and Operational Framework.

SWANs across the country, when fully implemented, will create more than one million route km of network connecting more than 100,000 government entities. This would bring a connected government space which is unprecedented and would bring a paradigm shift in the way the government works for itself and for the citizen. Success of various e-Government initiatives taken up at the State and the Central level would heavily depend on maximum utilization of SWANs.

9.2 State Data Center (SDC)

There has been a long-felt need for a common infrastructure for supporting the development and deployment of e-Governance applications in states. Most notable being the State Data Center (SDC) and State Wide Area Network (SWAN).



Need for Data Centers

- To create a shared secure resource for consolidation of data, services, applications and Infrastructure at the State/UT level to enable electronic delivery of G2G, G2C and G2B services
- Ensure better operations, standardization of systems and management control
- Aggregation of IT infrastructure (Hardware, Storage, Networking and Software) and management resources leading to reduced costs of creating common Infrastructure and faster deployment
- Optimal utilization by sharing of IT infrastructure resources to meet individual peak loads.

Project Objectives

- Availability of 'IT Infrastructure on Demand' to state departments and agencies
- Enhanced reliability
- Higher availability of system and data – 99.98%
- Guaranteed service levels
- Efficient and effective management of information security-related issues
- Centralized and simplified management

- Improved quality of data housekeeping
- Dynamic scalability
- Lower risk of data loss
- Better management of security and access control
- Faster implementation cycle.

Implementation Options

The Policy Guidelines for SDC have been formulated and approved. The Policy Guidelines cover the different deployment models detailed as below:

- **Option I:**

Build: The State/UT create their own data center facility.

- **Option II:**

Outsource: The State/UT leverages the existing IDCs available in the country to host, co-locate only.

The key objective is to enable effective data control under both the options, a composite team shall be formed for undertaking certain key functions, supervising and managing the operations of the SDC. The State/UT and NIC together will form a composite team for the state data center. This composite data center team would further be supported by domain specialists and support staff that would be recruited by the state for the state data center. Financial support for 5 years is being provided by DIT, GoI for engaging the right skills for the domain.

9.3 Common Service Centers (CSCs)

The purpose of CSCs is to create a low cost vehicle for Government institutions so that easy, direct and cost-effective delivery of e-Governance services to the rural citizen is possible. The aim is to create 1,00,000 CSC across the Country at the village level. More details are given later in this chapter.

10. Capacity Building Initiatives Under NeGP

The nature and scale of e-Governance initiatives planned within the domain of the state governments, present a considerable enhancement in the aspiration level of government. Major managerial and technological challenges are one

consequence of this, particularly in the context of the need for implementation of these projects in a “mission/projectised mode”, (with clearly defined goals, timelines and responsibilities) by concerned departments of the state governments. There is also a need to manage the entire programme at the state level in a coherent manner with consistent strategies for cost optimisation and integration. For achieving this, the state governments need to provide for overall direction, standardisation and consistency across initiatives and at the same time, have the resources and flexibility to drive this plan.

Keeping in view the enormous task of driving NeGP in line with the overall spirit of service orientation most states are inadequately equipped in terms of personnel and the skill-sets needed to handle the host of issues involved. Many states have a skeletal IT department that is not designed to deal with the complexity of issues involved. For NeGP to achieve its goals, this is the first gap that needs to be addressed.

The Planning Commission has issued broad guidelines for use of the ACA indicating that the first priority is capacity building. These detailed guidelines for use of ACA for Capacity Building (CB) are being issued by DIT, as indicated in the broad guidelines issued by the Planning Commission. The CB guidelines take cognisance of the fact that different states are at different levels of readiness for e-Governance and have different levels of aspiration. Capacity gaps are therefore not viewed in an absolute context but relative to the goals set out by the respective state government for itself. Hence, the first step envisaged in capacity building is for the state to make a quick “as-is” and “to-be” assessment. All capacity gaps and guidelines contained herein need to be seen with reference to this state specific context.

10.1 Capacity Building Needs and Governance Structure for NeGP

1. As NeGP in the states would be cutting across departments, it is expected that the state government at the highest levels would be providing leadership, direction and vision for e-Governance, which would result in broad roadmap and prioritisation of the projects. Professional teams need to be in place with appropriate skill-sets and aptitude at two levels:
 - a. Programme level (i.e., at State Level)
 - b. Project level (i.e., at Department Level)

2. The first level deals with issues that cut across projects such as overall policies, strategies, technologies, common infrastructure and so on. These issues need to be dealt with by a department designated by the state government, typically, the state IT department/e-Governance department. The second level deals with all project level (i.e., departments of state government initiating e-Governance projects) issues from conceptualisation to implementation and O&M phase. The issues involved here are considerably different and are intimately connected with the domain in which the department functions. Further, capacity building would also help to maintain continuity of approach despite changes of key incumbent officers leading e-Governance.

10.2 Lack of Personnel with Appropriate Background and Aptitude

Personnel with appropriate background and aptitude would be helpful in prioritising, conceptualising, developing and managing the e-Governance projects. The areas of expertise identified as being necessary for handling programme/project level issues are:

- a. Business Process Reengineering
- b. Change Management
- c. Financial Management
- d. Technology.

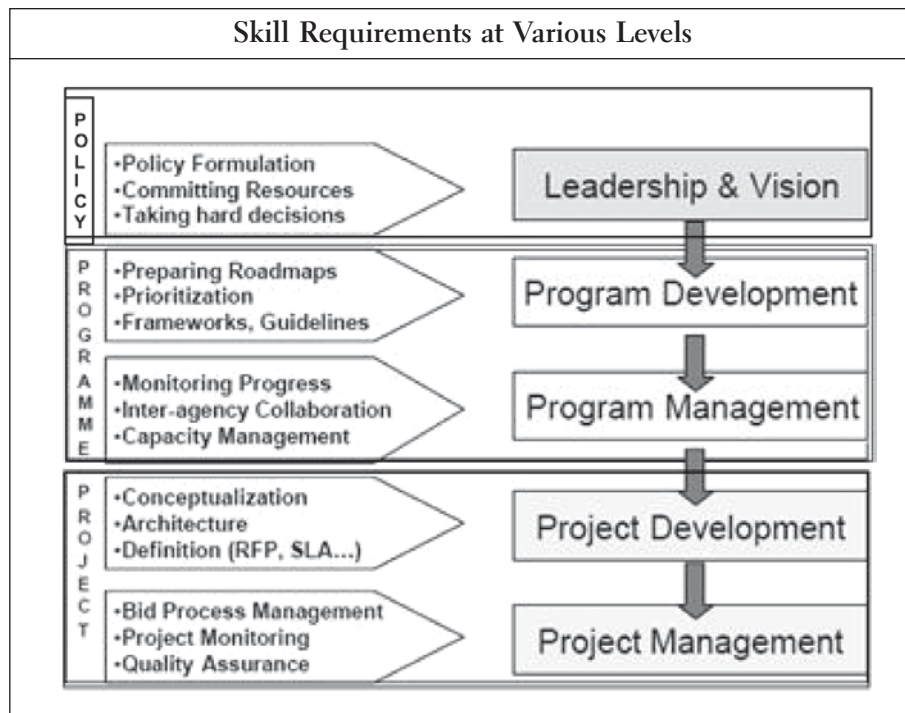
It was also noted in the guidelines that this gap would be covered by a judicious mix of two approaches:

- i. Sourcing of carefully selected personnel from government, PSUs or any state agency or central agency, with required background and experience
- ii. Sourcing personnel from the private sector.

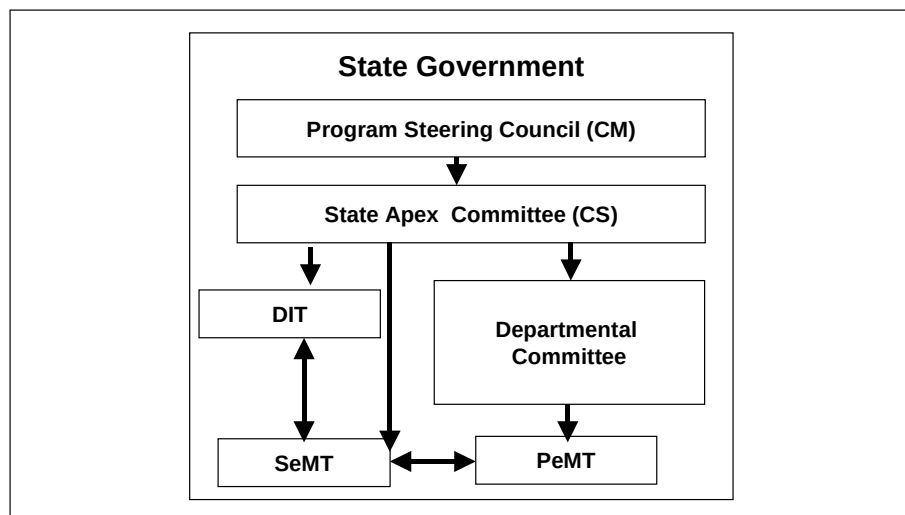
In order to take e-Governance in the holistic way, there will be different areas of knowledge and skill requirements at various levels, and the figure below illustrates the same.

10.3 Institutional Framework Under NeGP

Based on specific capacity gaps identified above, capacity building and institutional framework are being suggested to address these gaps. If a state government already has a framework in place which performs similar roles as indicated below, the *same can be retained*, with or without alteration, taking



the cue from these guidelines. The following illustration provides a conceptual overview of CB and institutional framework in the state government:



(Abbreviation used: CM – Chief Minister, CS – Chief Secretary, DIT – Department of IT, Government of India, PeMT – Project eGovernance Mission Team, SeMT – State eGovernance Mission Team).

Apex Level

A Program Steering Council (PSC) should be set up ideally under the chairmanship of the Chief Minister in the state to provide overall vision, broad policy direction and guidance to the state e-Governance Program – SeGP (i.e., state specific project areas under NeGP). To achieve the policy goals and objectives as determined by the PSC, a high level committee – SeGP Apex Committee is expected to be set up to provide strategy direction and oversee the SeGP and ensure inter-departmental co-ordination.

Program Level

A state e-Governance Mission Team (SeMT) needs to be formed to support the PSC and SeGP Apex Committee and function as the secretariat and full time internal advisory body in undertaking e-Governance projects. This team would be responsible for undertaking the groundwork for providing for an overall direction, standardisation and consistency through program management of the e-Governance initiatives in the state. All interdependencies, overlaps, conflicts, standards, overarching architecture, security, legal aspects, etc. across projects as well as core and support infrastructure shared across several projects would fall under the purview of this group. However, only the SeGP Apex Committee would have the power to issue directions to any department. It is expected that the SeMT would typically consist of 5-10 core people initially. The actual size would depend on the scale and maturity of the e-Governance programme in the state.

Project Level

Various departments of the state government taking up e-Governance projects would require a full time dedicated Project e-Governance Mission Team (PeMT). This team would function as the secretariat reporting to the project leader. This team would oversee project execution and would manage implementation and deal with technology, process and change management related issues. The approach for formation and skill-sets required for PeMT would be on similar lines as mentioned for SeMT. It is expected that the PeMT would typically consist of 4-8 core people and have a well-balanced mix of domain expertise (serving/retired officials of the department having detailed knowledge about the department and its processes and functions) and technical expertise (i.e., technology, process reengineering, change management, project management).

11. Steps taken at State Level

It was seen that detailing of the above is best undertaken in the context of a framework for an overall e-Governance roadmap for the state. It was also felt that this would possibly be the right time and opportunity for states to have an overall state e-Governance roadmap. During the year 2006-07 all the states in India undertook this exercise to prepare the three basic reports:

1. State e-Governance Roadmap (SeGRM)
2. State Capacity Building Roadmap (CBRM)
3. Detailed Project Report (DPR) for capacity building.

Definition of a roadmap can be interpreted by different people differently given a particular context; e-Governance roadmap is no different. The emphasis and detail of a roadmap would typically vary with the specifics of the assignment and is a function of the contract of engagement.

NISG (National Institute for Smart Government) had developed a comprehensive approach to the development of an e-Governance roadmap that is broken down into 5 different levels across two distinct phases.

Phase I

1. e-Government Vision
2. e-Government Strategy
3. e-Government Blueprint

Phase II

1. e-Government Program and
2. e-Government Ecosystem

As development of a complete e-Governance roadmap is fairly elaborate and time consuming exercise, at the first instant, the development of the e-Governance roadmap was restricted to the Phase I. This roadmap was used for developing the capacity building proposal to DIT, Government of India.

The government approved the capacity building scheme in January 2008 for taking National e-Governance Plan (NeGP) forward across the country in all the states and UTs. The scheme is mainly for providing technical and

professional support to state level policy and decision-making bodies and to develop specialized skills for e-Governance. The scheme has an outlay of Rs.313 crore for a period of three years and will be implemented by the Department of Information Technology. The scheme envisions:

- i) Establishment of institutional framework for state level strategic decision-making including setting-up of State e-Governance Mission Team (SeMT).
- ii) Imparting of specialized training, orientation programme for SeMTs and decision-makers (state legislature and senior bureaucrats), knowledge sharing and bringing in international best practices.
- iii) Strengthening of training institutions in states.

The approval would help in setting up of a central Capacity Building Management Cell for coordination and implementation of the scheme, which will be working under the Empowered Committee for CB under the chairmanship of Secretary (IT) especially set-up for the scheme.

12. Overview of Few of the Mission Mode Projects

Presented below is a brief write-up on few of the MMPs under NeGP, to bring some level of understanding on these projects. Most of the projects are in the conceptualization or implementation stage, and there may be changes in the project outlines as listed here.

12.1 eBiZ

The eBiz initiative seeks to address several issues relating to approvals and permissions, reducing the points of contact between the business entities and the Government agencies, standardization of requirement information, establishment of single-window services and reducing the burden of compliance. The Department of Industrial Policy and Promotion is piloting the initiative.

The vision of eBiz is to provide comprehensive G2B services to all the business entities in an even driven manner. Its objectives include reduction of time for getting the G2B services in the pre-establishment and post-establishment periods to provide integrated services of central, state and local governments, automate the workflow in the concerned government departments and above all to enhance transparency, speed and certainty in provision of G2B services.

eBiz Project is designed to help a variety of stakeholders like the entrepreneurs, industries and businesses, industry associations, regulatory agencies, industrial promotional agencies, banks and financial institutions, taxation authorities etc.

12.2 e-Courts

The Indian Judiciary comprises nearly 15,000 courts situated in approximately 2,500 court complexes throughout the country.

In the Indian Judiciary, effort for computerization of some of its processes has been going on since 1990. From 2001-03, 700 city courts in four metros were computerised and during 2003-04, computerisation of another 900 courts were undertaken.

Need was felt to make the programme of ICT enablement of the Indian Judiciary mission-critical. Under NeGP as a MMP, it is proposed to implement ICT in Indian Judiciary in three phases over a period of five years. The project scope is to develop, deliver, install and implement automated decision-making and decision support system in 700 courts of Delhi, Bombay, Kolkata and Chennai; 900 courts in the 29 capital city courts of states and UTs and 13000 district and subordinate courts.

The objectives of the project are:

- To help judicial administrations of the courts in streamlining their day-to-day activities
- To assist judicial administration in reducing the pendency of cases
- To provide transparency of information to the litigants
- To provide access to legal and judicial databases to the judges.

12.3 e-Procurement

This MMP is being implemented to ensure that government procurement becomes simplified, transparent and result-oriented. It is being implemented by Director General of Supplies and Disposals (DGS&D), a central purchasing organisation under the Ministry of Commerce and Industry, having core competency in procurement of goods and services and involves computerization of DGS&D.

The objectives of the MMP are:

- To establish a one stop-shop providing all services related to government procurement
- To reduce cycle time and cost of procurement
- To enhance transparency in government procurement
- To enhance efficiency of procurement
- To bring about procurement reform across the government.

In DGS&D, out of 350 items, 200 items are currently covered by e-Procurement system. It has also implemented a system for single cheque to be issued to the bank along with information on the suppliers' accounts, which was used by the bank to automatically credit the suppliers with their dues. It is envisaged that by end 2006, all procurements made by DGS&D will be made electronic.

As the CVC has already mandated all departments to publish their tenders on Internet by 01/04/2006, the project envisages covering all aspects of procurement from indent of tender-to-tender preparation, bidding, bid evaluation and award of contract. It will have extensive security features for encryption and decryption of bids, use of digital signatures and payment gateways. NIC is currently working on a pilot e-Procurement implementation with the State of Orissa and based on performance, it will be extended to other ministries and states.

12.4 Electronic Data Interchange (EDI)

The objective of the MMP is to simplify procedures, introduce electronic delivery of services by regulatory and facilitating organisations, provide 24×7 access to users, increase transparency in procedures, reduce transaction cost and time and introduce international standards and practices. This will enable clearance of export/import of cargo at ports/airports/ICDs etc., within 24 hours.

The following organisations have been selected for integrated EDI implementation – Airports (7 locations), Airlines (20 locations), Apparel/Textile Export Promotion Councils (24 locations), Banks (106 locations), RBI, Customs (35 locations), Container Corporation (38 locations), DGFT (33 locations), Export Promotion Organisations, DG Commercial Intelligence/Statistics and Inland Container Depots/Container Freight Stations (47 locations), Indian Railways (1 location) and Port Trusts (13 locations).

The services covered under the project are:

- Electronic filing/clearance of export/import documents by exporter/importer/agents to Customs, Ports, Airports, etc.
- e-Payment of custom duties, charges (handling/freight etc.) of Ports, Airports, etc.
- Filing/processing of licenses for DGFT.
- e-Payment of license fee for DGFT.
- Electronic exchange of documents between community partners such as Customs, Ports, Airports, DGFT, Banks etc.

12.5 India Portal (www.india.gov.in)

The National Portal of India is a Mission Mode Project under the National e-Governance Plan being implemented by NIC. The objective behind the Portal is to provide a single window access to the information and services of the Indian Government at all levels from central government to state government to district administration and panchayat for the citizens, business and overseas Indians. An attempt has also been made through this Portal to provide comprehensive, accurate, and reliable and one stop source of information about India and its various facets. The information in the Portal has been well classified into distinct modules, which are also interlinked at relevant places to provide the visitor with a holistic view.

First version of the Portal was launched by the Hon'ble Union Minister for Communications and IT, Thiru. Dayanidhi Maran in a public function on 10th November 2005.

As part of the content management strategy, National Portal Coordinators (NPCs) have been nominated from both 66 central ministries/departments and 35 state government, who are responsible for the content development, compilation and maintenance. A Web-based secured Content Management System (CMS) (<http://portalcontent.nic.in>) has been developed to facilitate contribution of content by the NPCs. Multilevel committees have been constituted for the long-term implementation and management of the project.

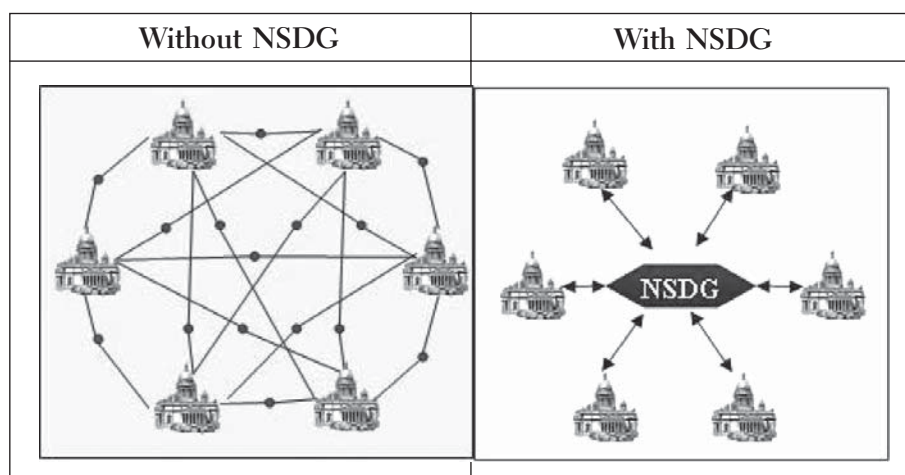
12.6 National Service Delivery Gateway (NSDG)

One of the goals of NeGP is the need to cooperate, collaborate and integrate information across different departments in the center, states and local

government. Government systems characterized by islands of legacy systems using heterogeneous platforms and technologies and spread across diverse geographical locations, in varying state of automation, make this task very challenging. The National e-Governance Service Delivery Gateway (NSDG), an MMP under the NeGP, can simplify this task by acting as a standards-based messaging switch and providing seamless interoperability and exchange of data across.

Vision of the NSDG

The emergence of many e-Governance applications for different departments to provide online services to citizens, businesses and government would require increasing interactions amongst departments and with external agencies at various levels in government.



Departments would need to develop connectors/adaptors for point to point connections between departments creating a mesh as shown in the above figure and also tight coupling between applications. This would lead to applications difficult to maintain and upgrade in case of version change and change in government policies and business rules. NSDG is an attempt to reduce such point to point connections between departments and provide a standardized interfacing, messaging and routing switch through which various players such as departments, front-end service access providers and back-end service providers can make their applications and data inter-operable. NSDG aims to achieve a high order of interoperability among autonomous and heterogeneous entities

of the government (in the center, states or local bodies), based on a framework of e-Governance Standards.

Project Objectives

The objectives of the NSDG are –

- To act as a core infrastructure for achieving standards-based interoperability between various e-Government applications implemented at various levels and geographically dispersed locations.
- To evolve Gateway messaging standards and build a government owned Central Gateway based on these standards.
- Act as a catalyst in enabling the building of standards based e-Governance applications with Gateway as the middleware to ensure interoperability.
- Enable integration across center, state or local governments, there by enabling Integrated Service Delivery and a Service Oriented Architecture (SOA) leading to joined up government.
- Help protect the legacy investments in software and hardware by easily integrating them with other technology platforms and software implementations.
- De-link the back-end departments/Service Providers (SP) from the front-end Service Access Providers thereby –
 - Ensuring separation of concerns of service access from the service implementation i.e. separates the Portal, CSC, Kiosks etc., from the government services which reside in the back-end departments.
 - Encouraging competition at the front-end by allowing independent service access providers to provide services with varying levels of complexity, cost and service quality levels.
- Shared services can be added on to the core services as and when required, as special common services of the Gateway without affecting the core functionality of the Gateway, thereby providing flexibility and modularity.
 - encourage back-end services to be plugged into the infrastructure as and when they are ready.

- Reduce the cost of e-Governance projects by rationalizing, distributing and optimizing the services framework.
- Use PKI infrastructure for secure transactions. Provision exists for encryption of department payload to ensure confidentiality of department data. The gateway provides digital signature and certificates to all stakeholders interacting with the gateway for identification, authentication and authorization. Transaction and audit logs help track government data.
- Enable transaction logging and time stamping for tracking of transactions and centralized control.
- Help the departments back-end workflow evolve gradually as the Gateway acts as a middleware de-linking the back-end from the front-end. This means that even the departments which do not have the complete automation or work flow at the back can still deliver e-Service to the citizens in a limited manner through the Gateway. To cite as an example, a server may be put up at the department for message exchange with Gateway in absence of readily available infrastructure at the department.

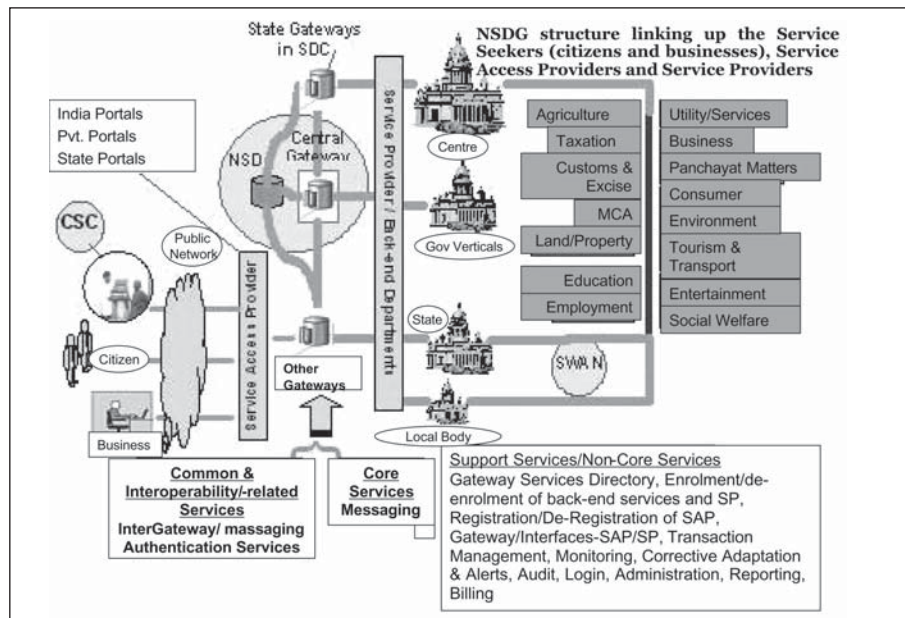
The specifications developed for the Gateway messaging and support/ common services are –

- Interoperability Interface Specification (IIS)
- Interoperability Interface Protocol (IIP)
- Inter Gateway Interconnect Specification (IGIS)
- Gateway Common Services Specification (GCSS).

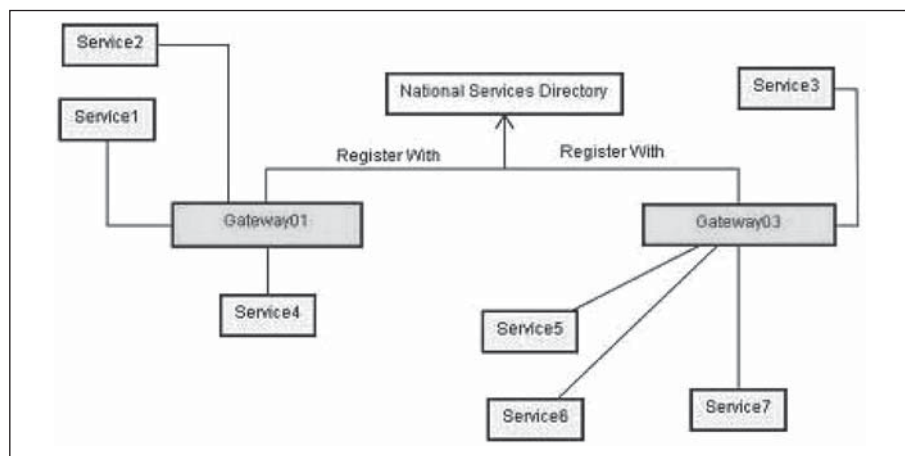
The following figure illustrates the NSDG structure linking up the Service Seekers (citizens and businesses), Service Access Providers and the Service Providers (government departments or third party service providers).

The NSDG will Link Major Entities

1. **Service Providers (SP):** The back-end government departments or any other third-party agencies offering e-services to citizens and businesses, and to other government departments, are collectively referred to as Service Providers (SP). Third-party SPs may offer specialized services such as authentication, payment gateway services, or joined-up services.



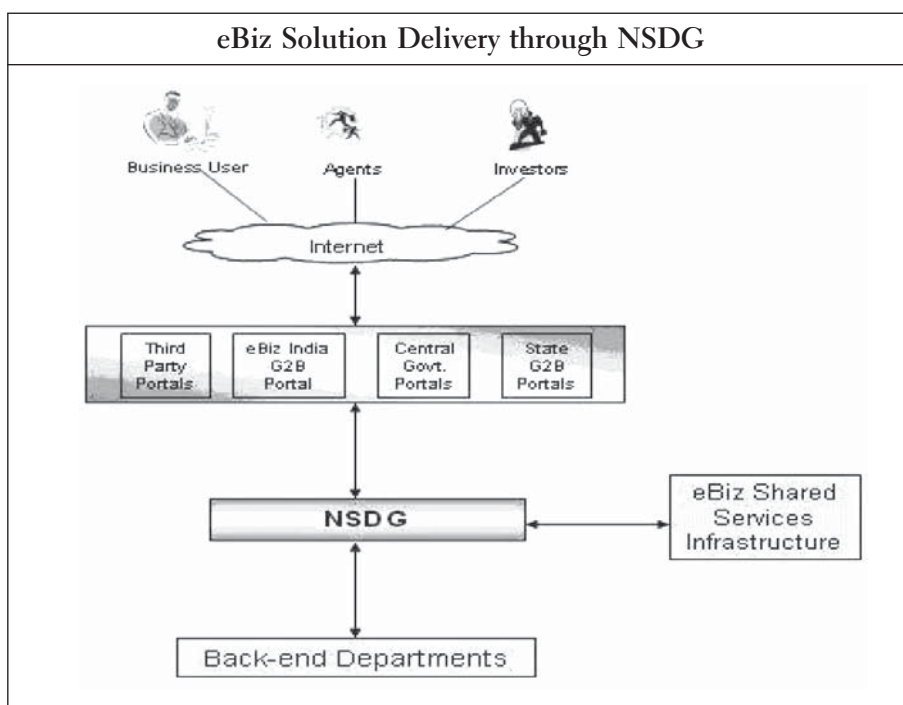
2. **Service Access Provider (SAP):** A Service Access Provider is an entity, which facilitates government service access by service seekers, by providing a front-end infrastructure. Linked to the SAP will be the delivery channels, which would be the access mechanism for the citizens and businesses to avail the e-Governance services.



Positioning NSDG in Various e-Gov Projects

Following are the scenarios where NSDG (and state level Gateways – SSDGs) are being positioned. These are just the initial set of e-Governance projects where NSDG is being positioned.

- i) **eBiz – Platform for G2B services with NSDG as the core middleware:**
The Department of Industrial Policy and Promotion (DIPP), Government of India has been pursuing eBiz Project, whose main purpose is to create a one-stop-shop of convenient and efficient online G2B services to the business community, by reducing the complexity in obtaining information and services related to starting businesses in India, and dealing with licenses and permits across the business life-cycle. NSDG is being positioned in the architecture as the core messaging middleware for inter-operability.



- ii) **Passport – ensuring inter-operability with NSDG:** Consular, Passport and Visa (CPV) division of the Ministry of External Affairs (MEA) is responsible for issuance of Passports to Indian Citizens. The MMP on Passports, named Passport Seva Project, aims at providing all the Passport-related services to the citizens in a speedy, convenient and transparent manner.

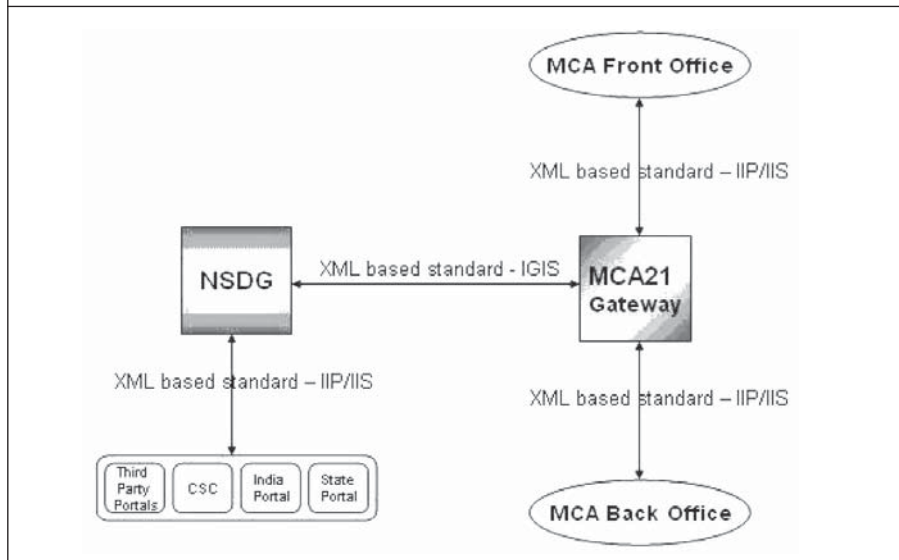
While the Passport-Seva project architecturally has its own domain-specific gateway for its messaging needs, by ensuring interoperability of this domain-specific gateway with NSDG, it ensures that the passport

services are a part of the Constellation of Gateways being envisaged across the country and that the services and data are extensible to multiple front-end delivery channels and other departments as and when the need arises.

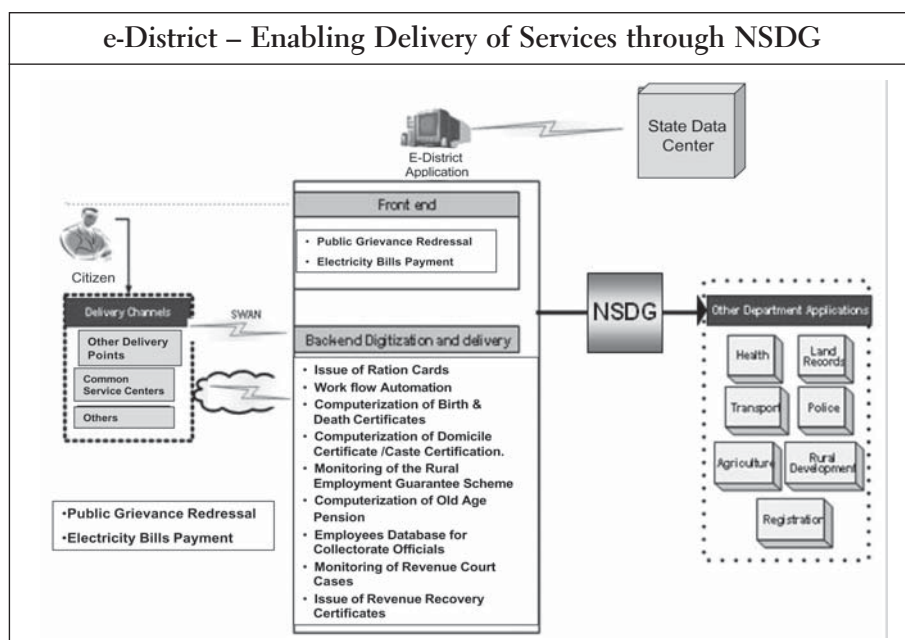
- iii) **MCA21 – ensuring inter-operability with NSDG:** Keeping in tune with the e-Governance initiatives the world over, Ministry of Corporate Affairs (MCA), Government of India, has initiated MCA21 project, which has enabled an easy and secure access to MCA services in a manner that best suits the corporate entities and professionals, besides public at large. The MCA21 project is designed to fully automate all processes related to the proactive enforcement and compliance of the legal requirements under the Companies Act, 1956. The www.mca.gov.in portal is the single point of contact for all MCA related services, which can be easily accessed over the Internet by all the users from a place as per their convenience.

By ensuring inter-operability with NSDG, MCA will ensure that its services can be extended to businesses via multiple front-end delivery channels, and other value-added services can be offered which are over and above the base services offered by MCA21 currently.

Inter-Operating MCA21 with NSDG for Extended Reach and Value-Added Services through Multiple Front-End Delivery Channels



- iv) **e-District – enabling delivery of common services through State Gateways:** e-District is a state mission-mode project under the NeGP. The project aims to target certain high volume services currently not covered by any MMP under the NeGP and undertake back-end computerization to enable delivery of these services through Common Services Centers. The implementation strategy of e-District is suitable taking into account the infrastructure currently being created under NeGP such as SWANs, SDCs, CSCs and the state e-Governance service Delivery Gateways (SSDGs).



The Gateway would provide major benefits to the departments such as –

- **Multiple Delivery Channels:** The position of the Gateway as the middleware will facilitate easy provisioning of government services through various delivery channels seamlessly.
- **Better Audit Management and Time Stamping:** Results in better tracking (auditing) and security of each transaction.
- **Web enabling of Legacy Applications:** With the use of Gateway Server, even legacy applications can be Internet-enabled as it can act as a Web layer around them. So government departments need to put least effort for Web-enabled legacy applications.

- **Interoperability:** The Gateway positioning as the middleware will facilitate easy inter-departmental data exchange.
- **Departmental Workflow:** The Gateway will also help the departments back-end workflow evolve gradually as the it acts as a middleware de-linking the back-ends from the front-end. This means that even the departments, which do not have the complete automation or workflow at the back-end, can still deliver e-Service to the citizens in a limited manner. To cite as an example, a Server may be put up at the department for message exchange with Gateway in absence of readily available infrastructure at the department.
- **Seamless Availability of Information:** The placement of constellation of Gateway Servers at state level will facilitate in getting information and doing transactions by citizens of one state, with government departments of other states seamlessly.
- **Centralized Management:** The positioning of Gateway Server and building portal of all the departments the central location, i.e., in State Data Center, will help in better centralized administration, monitoring, over all maintenance work and deployment of hardware of website at optimal level.
- **Shared Services:** In future, Gateway has the capability to add additional functionality to support shared common services like authentication, payment gateway interface, etc.

Benefits to the Front-end Applications (Service Access Provider)

The Gateway would provide major benefits for any SAPs:

- **Easy interface with departmental data and business logic:** With the middleware like NSDG in position, the departmental data and business logic reside at the back-end and a SAP is in a position to easily integrate with the departmental data and provide value added services.
- **Integrated and joined up services:** With NSDG in position, a SAP could easily provide integrated services to the citizens by fetching data simultaneously from multiple departments or send the service request to one department which could in turn fetch data from other departments and send the same to SAP.

- With NSDG as the middleware, it gives SAP flexibility in modifying the front-end application without touching the back-end applications

Benefits to Citizens

A citizen expects the following while availing the government services:

- He is able to fill minimum data and avail the service
- An acknowledgement giving reasonable guarantee that his application has reached the destination
- Status tracking
- Grievance redresses at one point
- His data privacy is maintained
- He has a single window service catering to multiple departments.

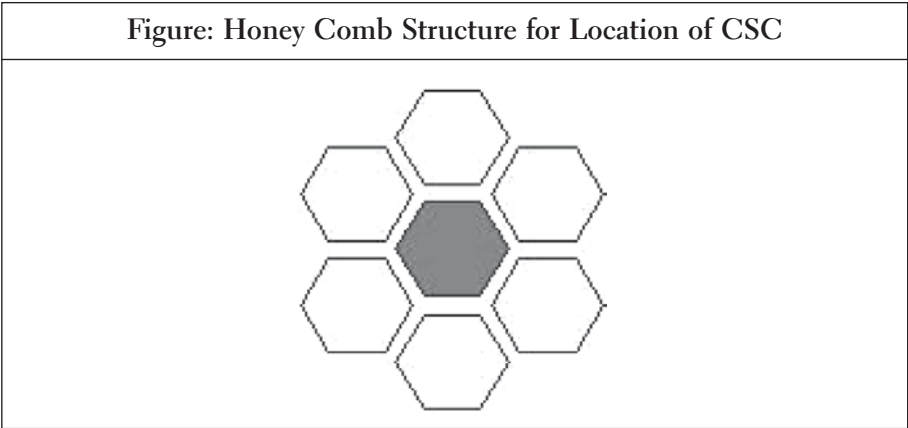
Gateway sits between the portal/website and the back-end departments and helps achieve the above. It is not visible to the users but silently does intelligent routing.

- Gateway will allow the Citizen to fill minimum data and fetch remaining data already available under Unique ID or with other departments.
- It is able to intelligently route the citizen request from the website/portal to the destination department and send an acknowledgement back.
- It keeps a record of each transaction in a secure manner and does not open the packet data (payload).
- Seamless availability of information – The placement of constellation of Gateway Servers at state level will facilitate in getting information and doing transactions by citizens of one state with the government departments of other states seamlessly.

12.7 Common Service Centers

The Government has approved a Common Services Center (CSC) Scheme for providing support for establishing 100,000 Common Service Centers (CSCs) in 600,000 villages of India . The Scheme, as approved by the Government of India, envisions CSCs as the front-end delivery points for government, private and social sector services to rural citizens of India, in an integrated manner. The objective is to develop a platform that can enable government, private and

social sector organizations to align their social and commercial goals for the benefit of the rural population in the remotest corners of the country through a combination of IT-based as well as non-IT-based services.



The scheme has been approved at a total cost of Rs.5742 cr. over 4 years, of which the Government of India is estimated to contribute Rs.856 cr. and the state governments Rs.793 cr. The balance resources would be mobilized from the private sector. The CSCs would be designed as ICT-enabled Kiosks having a PC along with basic support equipment like Printer, Scanner, UPS, with Wireless Connectivity as the backbone and additional equipment for edutainment, telemedicine, projection systems, etc., as the case may be.

The scheme is to be implemented through a Public Private Partnership. CSCs are the primary physical front-end for delivery of government and private services to citizens. They are one of the three pillars of the core and support infrastructure of the NeGP for enabling anytime anywhere delivery of government services, the other two being (a) the State Wide Area Network (for Connectivity) which has already been approved by the Government for Rs.3334 cr. and b) the State Data Center Scheme (for secure hosting of data and applications) for which the draft guidelines are under preparation.

Implementation of a mission-oriented project of this size and scope would pose significant challenges of project management at the national level, as also in exploiting opportunities to achieve significant economies of scale in the identification, customization and implementation of the physical and digital infrastructure required for the project. Further, many of the potential citizen-centric services would lend themselves to aggregation at the national level. To serve

the above objectives and to enable the state-specific implementation plans to benefit from such economies of scale, aggregation of best practices, content providers, etc. DIT has appointed a National Level Service Agency (NLSA) with defined terms of reference to coordinate the entire activity.

The CSC Scheme has a 3-tier implementation framework:

- At the first (CSC) level would be the local Village Level Entrepreneur (VLE – loosely analogous to a franchisee), to service the rural consumer in a cluster of 5-6 villages.
- At the second/middle level would be an entity termed the Service Center Agency (SCA – loosely analogous to a franchiser) to operate, manage and build the VLE network and business. An SCA would be identified for one or more districts (one district would cover 100-200 CSCs).
- At the third level would be the agency designated by the state – the State Designated Agency (SDA) – to facilitate implementation of the scheme within the state and to provide requisite policy, content and other support to the SCAs.

Central Mission Mode Projects

12.8 e-Office

The need for efficiency in government processes and service delivery mechanism is a long-felt one. The Government of India has recognized this need and hence included the same as a core Mission Mode Project (MMP) under the National eGovernance Plan (NeGP). It is estimated that, if designed properly, the MMP could target over 2 lakh users. This project is aimed at significantly improving the operational efficiency of the government, by transitioning to a Less Paper Office within the next five years. The design of MMP is to achieve the following objectives:

- To improve efficiency, consistency and effectiveness of government responses
- To reduce turnaround time and to meet the demands of the citizens charter
- To provide for effective resource management to improve the quality of administration

- To reduce processing delays, and
- To establish transparency and accountability

The core of the project would be:

- Work Flow Automation
- Knowledge Management

A Project Management Team (PMT) headed by a programme coordinator and assisted by a representative each of DIT and NIC along with two subject-matter experts will oversee the implementation of the project.

12.9 Central Excise and Customs (Customs and Service Tax)

The Central Board for Excise and Customs (CBEC) is implementing this MMP with a view to facilitate trade and industry by streamlining and simplifying customs and excise processes and helping Indian businesses to enhance its competitiveness and create a climate for voluntary compliance by providing guidance and building mutual trust. This project intends to enable the taxpayers with up-to-date information relating to customs, central excise, service tax laws, forms etc., through Internet. It will also enable online transaction, electronic filing, and Web tracking of documents and even electronic credit of the drawback amount directly into their account.

The project aims to network 20,000 users in 245 cities using wide area network. Some of the services proposed to be covered in the MMP are:

- Simplification of registration, returns, revenue reconciliation and exports procedure
- Movement towards integration of goods and service taxation
- e-Registration for excise and service tax
- e-Filing of returns and refunds
- Integration of e-Filing with system driven, risk-based scrutiny
- Export facilitation through linkages between excise and customs
- Improved dispute resolution mechanism
- Monitoring of arrears and their recovery
- Central excise revenue reconciliation

12.10 Income Tax

The Department of IT is implementing a comprehensive plan to deploy ICT for setting up an excellent taxpayer service with the objective of promoting remote access to information and facilities to allow taxpayers and citizens to transact all businesses with department on anywhere anytime basis. These include creation of national database, data centers, jurisdiction free filing of returns, online status of accounts and refunds. Some of the services proposed to be covered in the MMP are:

- Submission of returns online
- Tax accounting
- Processing of tax return
- Processing of TDS return
- Taxpayer grievance redressal
- Taxpayer correspondence
- Tax compliance
- Allocation of PAN.

The project comes under the Central Board of Direct Taxes, Ministry of Finance.

12.11 MCA 21

MCA 21 is a path-breaking project implemented by Ministry of Corporate Affairs, Government of India (previously Department of Company Affairs). NISG assisted the ministry in conceptualization and design of the project, bid process management, project implementation and roll out. Currently, NISG is assisting the MCA in operations and maintenance of the project through setting up of Program Management Unit for the project.

MCA 21 has put the Ministry of Company Affairs on track to meet stakeholder needs in the 21st century. MCA21 is envisioned to provide anytime and anywhere services to businesses by the Ministry of Company Affairs. It is a pioneering program being the first mission mode e-Governance project undertaken in the country. This program builds on the GoI vision to introduce a service-oriented approach in the design and delivery of government services, establish a healthy business ecosystem and make the country globally competitive.

The project covers all major transactions, barring those concerning liquidation of companies. The services currently provided include –

- Registration and incorporation of new companies
- Filing of annual returns/balance sheets/forms denoting change of names/address/director's details
- Registration, modification and verification of charges
- Inspection of public documents
- Applications for various statutory services offered by the ministry
- Issue of certified copies, and
- Redressal of investor grievances.

The portal enables electronic filing of documents. A Data center established in Delhi serves as a secure electronic registry for storage and retrieval of records. A Disaster Recovery Center in Chennai provides the back-up for the electronic registry.

The MCA21 covers a network of 25 MCA offices across the country, with more than eight lakh registered companies. Following the signing of an agreement with M/s Tata Consultancy Services Ltd. on 1st March 2005, the project was piloted initially in Coimbatore on 18th February, 2006 and then at Puducherry and Ernakulam. It was launched in Delhi on 18th March, 2006 and became operational at all 20 offices of ROC by the end of July, 2006 except J&K which became operational in September 2006. E-filing of all documents is mandatory since September 16, 2006, with the amendment in Companies Act mandating use of digital signatures of companies' authorized representatives. The new system enables payment of statutory fees through offline as well as online modes. In all, the 399 branches of 5 major banks across the country have been authorized to accept payment of statutory fees in offline mode, while online payments can be made through credit card and Internet banking with the help of a secure payment gateway.

On January 17, 2007 a provisional Certification of Completion was awarded to TCS, signifying the commencement of operations and maintenance phase of the project. As of July 20, 2007, the portal registered an average of 17 lakh hits per day. The e-filings till then totaled 23.77 lakhs. According to an earlier

estimate, more than 80% of the documents were directly filed by companies and professionals. In all, 84,000 companies were registered online.

12.12 Unique ID (UID)

Project UID, a Planning Commission initiative, proposes to –

- Initially create a central database of residents above the age of 18 years, and
- Generate a unique identification number (UID) for all such residents.

UID process study recommendations have been presented to the Process Committee (Planning Commission) on 27th April. ‘Proof of Concept’ (PoC) to establish linkage between partner databases such as RD, PDS and EPIC has been initiated by the DIT as per the directions of the Process Committee. POC is being carried out in 3 Gram Panchayats. This UID is intended to be used in the first instance, as the basis for efficient delivery of various social and welfare services to persons below the poverty line (BPL).

Unique ID can be used as the basis for identifying and authenticating a person’s entitlement to government services and benefits through a single system rather than all government departments individually and independently investing in creating infrastructure, systems and procedures for verifying entitlement of residents under various schemes of the government. To this end, the project envisages provision of linking of existing databases, as well as providing for future additions, to the fields of content to the database, by the user agencies.

One of the key advantages envisaged as an outcome of the project is that the Unique ID will be helpful in reducing identity related fraud and allow only targeted people to get the benefits from the government.

The Planning Commission initiative with a focus on reaching the social sector benefits to the beneficiaries more efficiently and effectively is being steered by the DIT, as the line ministry, through NICS/NIC as the technical solution provider and a consultant for the process definitions for operation and maintenance of the database.

This MMP comes under Ministry of Home Affairs.

12.13 Passport and Immigration Visa

The Passport Seva Project is intended to transform the delivery of all passport-related services across the country, with accent on process efficiency, citizen

focus, employee productivity and system transparency. This transformation is sought to be achieved by introducing information and communication technologies in citizen-facing processes identified for aggregation in the proposed Passport Facilitation Centers (PFCs) and in service-oriented processes streamlined for efficiency at existing passport offices. The project is being implemented in the public-private partnership mode.

The new passport issuance system will be designed, developed, implemented, and operated in accordance with a service-oriented approach. The objectives of the modernized system that NISG recommended are:

- Establish a secure and error-free passport issuance system that compares with the best in the world
- Issue passports (fresh, re-issue, duplicate) in 3 working days
- Issue passports under *Tatkaal* scheme on the same day
- Provide miscellaneous passport services on the date of application itself
- Render the above services through simplified procedures and in conditions of comfort for the passport seeking public
- Provide a portfolio of online services to the citizens
- Provide ALL services to the stakeholders, conforming to a set of SLAs.

The Immigration Visa and Foreigners' Registration and Tracking Mission Mode Project (MMP) initiated by MHA aims to develop a comprehensive approach to design an integrated solution, so as to streamline and simplify procedures in line with the philosophy of the NeGP.

The overall objective of the MMP based around the core values of security, enablement and customer facilitation are:

- Integrated ICT system for Immigration, Visa and Foreigners' Registration and interface with passport system.
- Improve efficiency and effectiveness of the immigration system for facilitation of legitimate services and to prevent illegal immigration.
- Develop a secure and integrated information collection and dissemination system for intelligence-driven decision-making.
- Provide data confidentiality and integrity to ensure privacy and security.

12.14 Pensions

A 'Pensioner's Portal' will have the following components:

- Non-interactive – to provide updated information on pension issues
- Interactive part – to monitor grievance redressal at three levels, viz
- Central level in Department of Pension and PW (nodal point)
- Central Ministries/department level and
- Pensioners' Associations level (field level).

All the three levels would be interlinked. Pensioners registering grievances on the portal would get unique access code, which would help him/her monitor progress of his case. The designated Nodal officer at the level of Department of Pension and Pensioners' Welfare and at the level of Central Ministry/Department would also be able to monitor the progress.

The expenditure for providing software/hardware, phone etc. to pensioners' Associations would be made by Department of Pension and Pensioners' Welfare through recurring and non-recurring grants. The Central Ministries/Departments would meet such expenditure on their own. The mechanism would be operated initially in phased manners covering larger cities in some states. The design and software for the portal is being developed by the NIC who have been engaged for this purpose.

This MMP comes under Ministry of Personnel, Public Grievances and Pension.

12.15 Banking

The evolution of Core Banking Technology in India has empowered and transformed customer of the branch to the customer of the bank providing him/her the convenience of 'anytime and anywhere' banking in India. The present stage of core banking limits anywhere/anytime operations to within the bank.

The integration of core banking solutions of various banks will bring in operational efficiency, online fund settlement; reduce inter-bank clearing transactions; reduce time and effort involved in handling clearing transactions and their settlement thereby facilitating improved customer service and customer satisfaction; improved regulatory compliance; improved cash and fund management; standardization of processes across the banks and improved management information system. One of the main utilities can be electronic mode of payments using Smart Card and Point of Sale Terminals as a viable

alternative to paper-based cash transactions of small value (micro payments) that will reduce the circulation of cash.

The services provided under this MMP are:

- Electronic Central Registry under Sarfaesi Act, 2002
- One India One Account – for Public Sector Banks
- Electronic Mass Payment System.

12.16 Insurance

With a view to improve services to customers in the General Insurance sector, this MMP has been conceived. The objectives of the MMP are:

- To facilitate customer service through education, information, speedy processing of claims and online issuance of policies on Web
- To provide automated grievance reporting and redressal facility to customers
- To create and enlarge business opportunities
- To create holistic database of insurance users
- To integrate insurance database with other government database to analyse social security aspects, and
- To facilitate service delivery.

The project is proposed to be implemented through the four PSU Insurance companies. The project comes under the Department of Economic Affairs, Banking and Insurance Division.

State Mission Mode Projects

12.12 e-District

Districts are the de facto front-end of government where most G2C interaction and bulk of citizen-centric services are delivered. There is a need to improve this experience and enhance efficiencies of the various departments at the district level to enable seamless service delivery to the citizen.

For successful implementation of e-Districts, the redesigning of the existing processes and delivery mechanism to facilitate an efficient and effective service delivery structure, has been identified as a key activity.

The objectives of the MMP include:

1. Back-end computerization to enable efficient delivery of G2C services through CSCs –
 - Digitisation of records
 - Automation of Workflow
 - Value addition to services through process re-designs.
2. To proactively provide a system of spreading information on the government schemes planned developmental activities and status of current activities.

Front-ends under the scheme are only to be built at district, *tehsil*, sub division and block level, in the form of citizen facilitation counters. Village level linkage would be established through CSCs for delivery of services.

Indicative services planned to be delivered through this MMP include:

- **Certificates:** Creation and distribution of certificates for income, domicile, caste, birth, death etc.
- **Licenses:** Arms Licenses etc.
- **PDS:** Issue of Ration Card etc.
- **Social Welfare Schemes:** Issue of old age pensions, family pensions, widow pensions etc.
- **Complaints:** Related to unfair prices, absentee teacher, non-availability of doctor. Online filing and receipt of Information relating to the Right to Information Act.
- **Linking with other e-Government Projects:** Registration, Land Records, and Driving Licenses etc.,
- **Information Dissemination:** Disseminating Information relating to government schemes, entitlements etc.
- **Assessment of Taxes:** Property tax, and other government taxes
- **Utility Payment:** Payments relating to electricity, water bills, property taxes etc.

Initially a few districts in some states are to be taken up for pilot implementation of the MMP, and once the pilots have been implemented, the contours of the e-District project would be finalized as an MMP, to be

implemented across the country. Few of the states implementing e-District include Delhi, Meghalaya, Goa, Mizoram, Jharkhand, Punjab, Kerala, Rajasthan, Madhya Pradesh, Tripura and Maharashtra.

12.18 Agriculture

Agriculture is operationalised by Department of Agriculture and Cooperation (DAC). The typical services envisaged in Agriculture, as an MMP provides information to farmers on:

- Seeds, fertilizers, pesticides
- Government schemes
- Soil recommendations
- Crop management
- Weather and marketing of agriculture produce.

Several projects such as *Asha* in Assam, *Kissan* and *e-Krishi* in Kerala and *Krishi Maratha Vahini* in Karnataka have been initiated by DAC. To spearhead implementation of MMP in Agriculture, DAC has adopted twin strategy through AGRISNET and two portals AGMARKNET and DACNET.

12.19 Treasuries

A Core Group on Computerisation of Treasuries in state has been constituted to formulate a draft scheme on project for Treasuries Computerisation under e-Governance plan of the Government of India. Due to partial or non-computerisation of State Treasuries/Office of AGs, most of the information relating to the operations in the government account continues to be exchanged in paper form only. In order to get the accounts of state governments expeditiously and to provide for better Management Information Systems, networking of all agencies involved in finalisation of accounts of state governments is necessary. The detailed concept note is being worked out by the Department of Expenditure (DoE).

The Services envisaged by the in Treasuries as an MMP are:

- Payment of salaries to government employees
- All expenses paid through PLA

- Account reconciliation
- Department-wise and head-wise expenditure compilation and communication to AG.

12.20 Registration

Successful implementation of the CARD (Computer-aided Administration of Registration Department) project implemented by the Government of Andhra Pradesh resulted in the countrywide initiative launched by DIT aimed at taking best practices of successful implementations as part of its Horizontal Transfer Programme.

The objectives of the project were to replace existing manual systems of verification and scrutiny of documents, valuation of properties, capturing and preserving copies of the documents, conducting searches and of maintaining back-office records.

As part of the MMP, the core services proposed to be offered under the project are:

- Market Valuation (MV) calculator
- Payment of stamp duty fees
- Registration of documents – all movable and immovable properties
- Issue of Encumbrance Certificate; and
- Issue of copies of certified documents.

12.21 Police

Police has been included in the NeGP as a response to an ever-increasing threat of terror and ascending crime graph. It addresses the need to improve the efficiency of the police force. One of the major steps in this direction is the creation and sharing of crimes and criminal database. In addition, the MMP also includes personal management and inventory control. However, there are large variations in these functions across the states, which do not allow common development of the processes and consequently the software. The MMP therefore adopts a phased approach towards implementation.

In the first phase only those functions, which are common across the states, and are driven by the CrPC, are to be attempted. This is being implemented under the Common Integrated Police Application (CIPA) Project. This enables

basic primary information generated at the police stations, to be computerized and help the police officers in the police stations to reduce their paper work thereby bringing in efficiency in the operations.

Implementation of CIPA started on pilot basis at six police stations of New Delhi in April' 05. Rollout at the remaining 122 police stations in Delhi have been completed.

12.22 Municipalities

The National Mission Mode Project (NMMP) for Municipalities is one of the Mission Mode Projects that has significant citizen interaction, since municipalities provide a large number of basic services for millions of citizens living in urban centers in India.

The vision for the National Mission Mode Project for e-Governance in Municipalities is to leverage the ICT opportunities for sustained improvement in efficiency and effectiveness of delivery of municipal service to citizens. MMP, in its current form, envisages covering all Urban Local Bodies (ULBs) in class 1 cities (423 in total) during the period 2006-07 to 2010-11. NMMP envisages implementation of various application modules covering the following services/management functions within ULBs:

- Registration and issue of birth and death certificate
- Payment of property tax, Utility Bills and Management of Utilities that come under ULBs
 - Property tax
 - Water supply and other utilities
- Grievances and suggestions
- Building plan approvals
- Procurement and monitoring of projects
 - E-procurement
 - Project/ward works
- Health program
 - Licenses
 - Solid Waste Management

- Accounting system
- Personnel Information System
- Grievances handling, including implementation of the elements of the Right To Information Act, Acknowledgement, Resolution monitoring
- Waste Management Services.
- **Project Implementation – 423 ULBs over a period of 5 years**
 - 2007-2008 – 35 cities (Million plus population)
 - 2008-2009 – 69 cities
 - 2009-2010 – 106 cities
 - 2010-2011 – 106 cities
 - 2011-2012 – 107 cities.

12.23 Gram Panchayat

As Panchayat represents the first level of interaction for over 60% of Indian populace i.e. the rural masses and provides a large number of basic services for millions of citizens living in rural centers in India, the National e-Governance Plan has identified Panchayat as one of the Mission Mode Projects(MMP). The MMP has been designed to overcome the challenges being faced in the villages such as lack of reliable communication infrastructure, delay in providing services to the citizens (Licenses, Certificate etc), low revenue mobilization for implementing schemes at the Gram Panchayat level and lack of monitoring mechanism for the schemes. MMP envisages implementation of various application modules covering the following services/management functions within Gram Panchayat:

I. Services Identified for Citizens

- Issue of trade licenses and NoC
- House-related services
- Certificates of birth and death, income and solvency
- Dissemination of internal process of panchayat agenda, voting, resolution
- Copy of proceedings of Gram Sabha and action taken report
- Receipt of funds/progress report.

II. Services Identified for Functionaries

- Dissemination of Data BPL, PF for landless agricultural labourers, education, health facilities and status
- Digitization of the village infrastructure on a map.

A National Panchayat Portal has been developed by NIC which has a versatile front-end in terms of dynamic website for Panchayat, with information, content and services needed by people, links citizens with Panchayat, links Panchayat with each other, allows access to information and services provided by the Ministry of Panchayati Raj and state Panchayati Raj departments. There are also some of the following back-end solutions currently available from NIC, which are being used in Panchayati Raj Institutions.

- Priasoft (Tamil Nadu, Orissa, Chattisgarh)
- Priasoft-Aasthi (Karnataka)
- Priasoft-e-Panchayat (Andhra Pradesh)

12.24 Transport

Road Transport was included as one of the MMPs in the NeGP with a view to create a unified data schema which could be used by all the states for computerisation of their transport offices for issuing –

- Vehicle registration certificates
- Driving licences.

The implementation agency – NIC developed a Smart Card Operating System for Transport Application (SCOSTA) to ensure inter-operability of smart card RC and DL documents across the states and union territories. The development involved the implementation of two software – *Vahan* for vehicles registration activities and *Sarathi* for driving licence-related activities.

This MMP is being implemented as part of the Horizontal Transfer Programme of DIT.

12.25 Land Records

Maintenance of land records has now become more vital for administrators and creation of a land information system is one of the key issues facing governance today. Land records itself is a generic expression and could include

records such as the register of lands, records of Rights, Tenancy and Crop (RTC) inspection register, mutation register, disputed cases register etc. It also includes primary information about land presented in terms of its geological information like the shape, size, landforms, soils; economic information related to land use irrigation and crops; and the information pertaining to the legal rights, registration and taxation. There is an ongoing project for digitization of land records, being implemented by MoRD.

Main objectives of this MMP are:

- To facilitate easy maintenance and updating of changes which occur in land database such as changes due to availability of irrigation/natural calamities/consolidation/or on account of legal changes like transfer of ownership, partition, land acquisition, lease etc.
- To provide for comprehensive scrutiny to make land records tamper-proof, this may reduce the menace of litigation and social conflicts, associated with land disputes.
- To provide the required support for implementation of development programmes for which data about distribution of land holdings is vital.
- To facilitate detailed planning for infrastructural as well as environmental development.
- To facilitate preparation of an annual set of records in the mechanised process and thereby producing accurate documents for recording details such as collection of land revenue, cropping pattern etc.
- To facilitate a variety of standard and ad-hoc queries on land data.
- To provide database for agricultural census.

Core services offered under the MMP are:

- Issue of copy of records of rights
- Crop, irrigation and soil details
- Filing and tracking of status of mutation cases
- Availability and submission of forms.

12.26 Commercial Tax

The maturity of VAT implementation varies across states and the need has been strongly felt for streamlining VAT administration through citizen-centric,

service-oriented processes, and establishing a certain degree of standardization with respect to Commercial Tax (CT) administration. Since the CT departments mainly interface with businesses and often account for 60%-70% of the total revenue of the states and union territories, their functioning can directly affect the attractiveness of a state as a business destination. In order to improve the efficiency of VAT administration, it is important that administrative procedures are simplified and processing timelines are reduced by usage of computerized systems. Faster grant of registration and electronic processing of VAT returns would be important.

In this context the Commercial Taxes-Mission Mode Program (CT-MMP) has been conceived under the National e-Governance Plan (NeGP) of the GoI. The initiative is spearheaded by the Department of Revenue (DoR), Ministry of Finance, with the National Institute for Smart Government (NISG) and Ernst & Young as Strategic Consultants to the DoR. Some of the important e-Governance initiatives recommended as part of CT-MMP are:

- Online Application for Registration
- Electronic filing of returns
- Electronic clearance of refunds
- Electronic payment of tax
- Online dealer ledger
- Online dealer verification
- Online issuance of CST statutory forms
- Facility to the dealer to obtain various online information services.

12.27 Employment Exchange

It is visualised that the Employment Exchange MMP will help match the requirements of employers and potential employees. According to the requirement of employers, quick lists of candidates and call letters can be generated through the employment exchange portal. It will also provide valuable guidance to the unemployed and can facilitate online registration of vacancies by employers. Computerized counselling is also likely to be made available to unemployed youth. Ministry of Labour and Employment is in the process of conceptualising this MMP.

Most of these projects are at conceptualization or development or pilot implementation stages. MCA21 project has been the first to be implemented across the country. We expect to see many of these projects fully implemented and to benefit the stakeholders.

(Dhrupad Mathur, Sr. Consultant, EGPMU, DIT GoI, Piyush Gupta, General Manager (CB and KM), NISG, and A Sridevi, Manager, NISG.)

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Critical Issues in e-Governance

Ashok Agarwal, Sita Vanka and K Sriram

1. Background

This paper is based on the deliberations during the 5th International Conference on e-Governance (ICEG 2007). A structured Issue Process methodology was followed by identifying a set of critical issues responsible for the success of e-Governance projects in India. A set of issues were identified by seeking suggestions from all the stakeholders covering academia, industry and government, and a shortlist of critical issues was made. A white paper on each particular issue was prepared and these were discussed by eminent panelists* in ICEG 2007. This paper is based on the informational inputs received from white papers and the panel deliberations.

2. Critical Factors

Based on the Issue Process Methodology as described earlier a set of four critical issues were identified.

1. Building capacity for implementation.
2. Management of the complete project lifecycle.
3. Enterprise architecture model, integration and interoperability.
4. Socio-political implications of e-Governance.

Each issue is discussed in detail in the following sections.

* Contributions of Dr. Jaijit Bharracharya, Mr. Mohan Datar, Mr. Piyush Gupta, Mr. Ajay Ahuja, Prof. S. Sadagopan, Prof. M P Gupta, Mr. Jay Prakash Narayan and Mr. Krishnan as issue owners and panelists are highly appreciated and acknowledged.

3. Capacity Building for Implementation

e-Government is a fairly complex process of creating and harnessing the right environment that consists of people who are committed to the cause and those who have the right knowledge, skill sets, and attitude. Taking note of the potential of e-Governance in improving the quality of life of the masses and the learning associated with earlier initiatives, the Government of India has come up with a national program – National e-Governance Plan (NeGP), which has been approved. e-Governance is also a part of the Government's agenda of governance as mentioned in its National Common Minimum Program. In this context, the national program has identified several e-Governance projects called Mission Mode Projects (MMPs) at the center and state level, which are to be implemented by the respective line ministries.

The National e-Governance Action Plan comprises core components and 27 MMPs to be executed across the country. Certain MMPs are to be implemented by the line ministries at the national level, some by the state governments and certain integrated projects. Major activities proposed in NeGP include:

- a) Core policies
- b) Core projects – MMPs
- c) Core infrastructure
- d) Support infrastructure
- e) Human Resource Development/Training
- f) Technical assistance
- g) Awareness and Assessment
- h) Organisational structures
- i) R&D.

These are the key areas identified for Capacity Building (CB) initiatives by the government.

Considering the nature and scale of e-Governance initiatives planned under NeGP, the central and state governments typically do not presently have enough committed manpower and supporting infrastructure to manage the e-Governance projects. Keeping in view the enormous task of driving NeGP

in line with the overall spirit of service orientation, most of the ministries and states are inadequately equipped in terms of personnel and the skill-sets needed to handle the host of issues involved.

NeGP has an integral component of “Capacity Building”, in which the state governments are required to build capacity (in terms of resources of people, process and tools) for conceptualizing, developing and managing the e-Government projects. Through CB, the state governments would be better placed to envision and steer the NeGP program in a “projectized mode”. Thus, CB can facilitate a strong base for the state governments for developing sustainable e-Government projects. To accomplish this need in an appropriate way, each of the states had developed an e-Government Roadmap (EGRM) and a Capacity Building Roadmap (CBRM) during 2006-07, which represents a state-wide approach to the realization of the NeGP in reality. The core competencies of e-Government human resource may be described as being:

- Knowledgeable (technical and professional skills and combinations thereof),
 - with Communication skills (ability to share the knowledge), and
 - with Interpersonal skills (motivation in a group leadership and teamwork environment) to produce the technical skills, aptitude, and attitude.

Therefore, for implementing an e-Government plan in a sustainable manner, it will be essential to fill the e-readiness gap between the capacities needed for pervasive e-Governance and the capacities actually present.

Under NeGP CB guidelines, an institutional framework has been suggested for the policy and implementation levels. The framework suggests setting up various focused groups at the following levels

i) Apex Level

A *Program Steering Council* should be set up ideally under the chairmanship of the state chief minister to provide overall vision, broad policy direction and guidance to the state e-Governance Program – SeGP (i.e., state specific project areas under NeGP).

ii) Programme Level

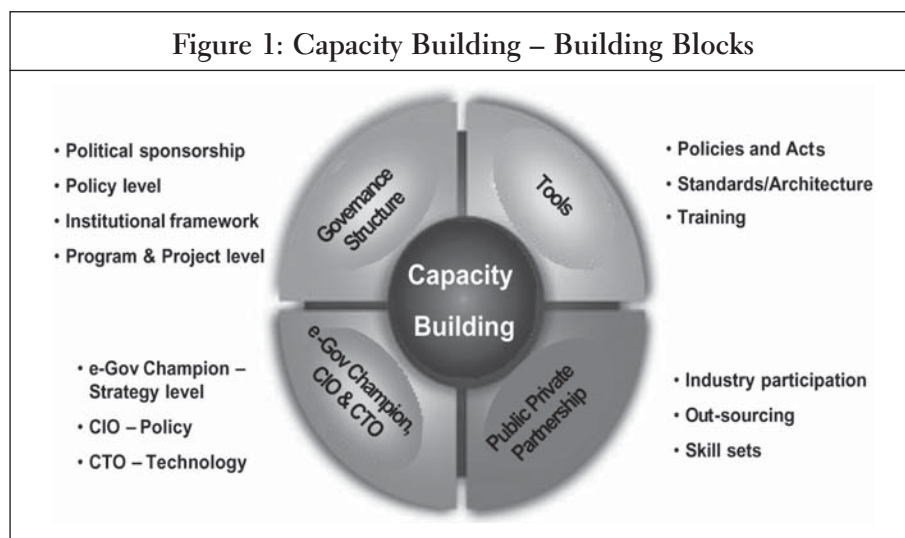
A *State e-Governance Mission Team* (SeMT) needs to be formed to support the Program Steering Council and SeGP Apex Committee and function as the secretariat and full time internal advisory body in undertaking e-Governance

projects. This team would be responsible for undertaking the groundwork for providing for an overall direction, standardization and consistency through program management of the e-Governance initiatives in the State. All interdependencies, overlaps, conflicts, standards, overarching architecture, security, legal aspects, etc. across projects as well as core and support infrastructure shared across several projects would fall under the purview of this group.

iii) Project Level

Various departments of the state government taking up e-Governance projects would require a full time dedicated Project e-Governance Mission Team (PeMT). This team would function as the secretariat reporting to the project leader. This team would oversee project execution and would manage implementation and deal with technology, process and change management related issues.

Most of the states have the Apex level groups in place; however the program and project level teams are still to be set up across the identified MMPs. The situation with the central government ministries and departments is more or less in the same. The Building blocks for capacity building are depicted in Figure 1.



3.1 Some of the Issues Identified

- i. Lack of correct understanding of capacity building requirements.
- ii. Lack of information on the Human resource requirements to support the central and state e-Governance mission

- iii. Lack of personnel with appropriate background and aptitude
- iv. Inadequate skill sets of personnel already deployed
- v. Lack of appropriate institutional framework to handle the capacity building
- vi. Lack of proper policy to fill the gap through sourcing from private sector
- vii. Inadequate expertise and skills within the state training institutions to lead training programs at the policy maker level.
- viii. Lack of thrust on institutional capacity building in the domain of e-Governance
- ix. Non-availability of specific standards and policy guidelines for e-Governance.

3.3 Emerging Recommendations

a. Building a Body of Professionals for Implementation and Research on e-Governance

- Consolidation of research, knowledge and capacity building,
- Setting up of e-Governance centers at IITs
- Creation of reference and knowledge sharing on e-Governance in educational institutions including schools and colleges
- Developing a curriculum with specific studies and topics on e-Governance. This will lead to wider awareness and a strong foundation, thereby enabling the future citizens of the country to be e-savvy.

b. Educating Users

Incentives to citizens for using e-Services – citizens (majority) think this to be liability; there is a need for policies to motivate the citizens and make them passionate to use e-services.

The e-Government strategies adopted by municipal, county (district) and state governments worldwide tend to neglect citizen participation. To enable the Internet to foster e-democracy, government Web portals need to adopt various initiatives to engage the public in online decision-making. Contrary to popular belief, many proponents of wide-scale citizen participation do not automatically shun technology. Moreover, the government Web portal is, however, a technological tool that has not yet been utilized up to its potential to empower citizens. For e-Government to significantly enhance citizen participation, Web portals need to be sufficiently equipped with tools like bulletin boards, feedback forms, policy forums, and performance reporting systems.

The continued study of e-Governance worldwide, with the third Rutgers-SKKU Global e-Governance survey currently in session, will further provide insight into the direction of e-governance in general and online citizen participation in particular, throughout regions of the world.

c. Building Facilities and Infrastructure for

- Efficient operation
- Data maintenance
- Dealing with public and for accuracy of data
- Proper power supply
- Network-related areas
- Proper hardware and software installation
- Maintenance of hardware
- Developing a census of computing infrastructure across government offices
- Defining unified policies.

d. Institution Building and Organization

Capacity Building is not just regular training, change management, learning's from assessment studies, governance structure, but requires Institutionalization for success.

There are a large number of distributed systems that are coming up with similar solutions. An example of such a system is the e-District project. It would be extremely non-prudent to set up separate digital infrastructure for each one of them. There should be policies in place to ensure that such wastage of national resources does not happen. A classic example of such cooperation leading to enormous savings for the government is the VAT implementation for the northeastern states.

There is also a need to address inter-departmental rivalries as they may be detrimental to the success of any project.

e. Developing Process Capabilities and Policy

Developing evaluation processes for solutions: Open-tender focused more on commercials ignoring technology and expertise. Many times technically

superior solutions are rejected because of being more expensive in an open tender environment.

Developing procurement processes: It has been noticed that one of the key issues hindering widespread adoption of e-Governance is the complexity of procurement of IT equipment, software and services that is compounded by lack of clear procurement policies by CVC and DGS&D.

Need for additional e-Governance Act: e-Governance projects require a different procurement policy since here it is the services in addition to equipment.

f. Resource Deployment; Track-Back and Audit

The CB roadmaps prepared by all the States/UTs are lying on the shelf for over 18 months now, as the CB scheme is not yet approved by the Government of India (GoI). This has watered down many enthusiasts at the State level from proceeding further. Rapid adoption of e-Governance by citizens of India is one of the most critical issues that need to be considered and addressed during all the phases of the design and implementation of e-Government services for citizens.

Adopting the following paradigm for e-Governance may help in addressing the above mentioned issue:

This issue calls for devising methods to find out the success of e-Governance initiatives. Therefore, the first question that needs to be asked is:

What are the criteria of success of the e-Governance projects/initiatives?

How to measure this success?

When to measure? (At which stages) and

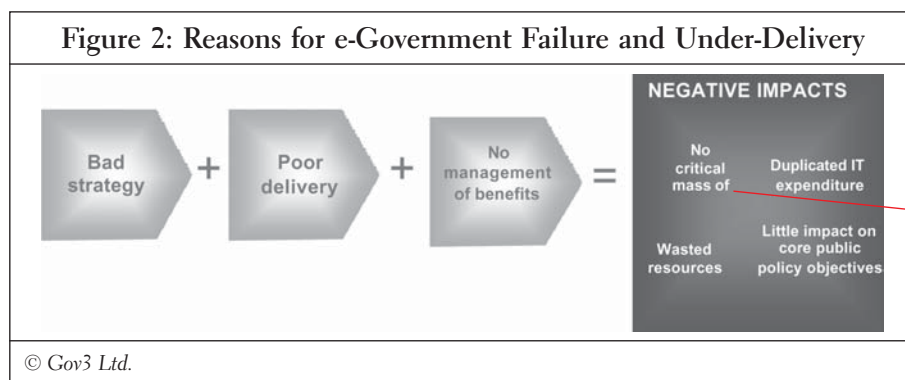
How often to measure?

4.0 Management of the Complete Project Lifecycle

It was felt that there is serious need to take a relook at the complete project lifecycle and management of e-Governance programs.

4.1 Core Reasons of e-Governance Failure in Developed Countries

Almost all early e-Government initiatives in the developed world cost too much and delivered too little; many still do today. The reasons for this are many, but they boil down to the three core failures illustrated in Figure 2 each of which is then discussed in more detail.



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The United Kingdom government had commissioned a research in to the issues affecting the project life cycle of e-Government projects. It then published a paper titled “Common Causes of Project Failure” in 2005. The Gov3 analysts have defined 7 classic causes of failure, based on this paper and other research. These seven “Sins” are¹:

i) Lack of Strategic Clarity

Many projects fail because the project team and its key stakeholders do not have a common view, with shared measures of success, of what the project is trying to do. A strong business case, driven by a clear set of benefits owned by the key stakeholders, should be an essential pre-condition of any public sector ICT investment. Unfortunately this is not always the case, and too many projects are driven by “what the technology can do”, but not by “what the organisation needs”.

ii) Lack of Sustained Leadership at Political and Senior Management Level

Significant ICT projects require significant change, and significant change requires leadership. Yet often this is not forthcoming: either because projects fail to achieve the sustained leadership attention they need at the highest levels in government, or because those in leadership positions do not have the skills they need to exercise effective leadership of ICT-enabled change.

iii) Poor Understanding and Segmentation of User Needs

Failure to engage closely with users – whether citizens in the case of external services, or public employees in the case of internal services – is a common

¹ Source: Gov3 analysis, drawing on research published by the UK government (‘Successful IT: Modernizing Government in Action’, Cabinet Office, 2000; ‘Common Causes of Project Failure’, OGC, 2005) and by the European Commission (through its Breaking Barriers to e-Government research programme <http://www.egovbarriers.org/>)

cause of project failure. So too, is a failure to understand user needs on a sufficiently segmented basis – every service will have very different users, each with different attitudes to and requirements from the service.

iv) Lack of Effective Engagement with Stakeholders

Most ICT-enabled change projects in the public sector involve complex sets of stakeholders – users, suppliers, delivery partners elsewhere in the public, private and voluntary sector, politicians and the media. Failure to manage this complexity significantly increases risk of failure, and yet stakeholder management is typically an activity which gets squeezed when project timescales or budgets get tight.

v) Lack of Skills

In addition to standard IT delivery and programme/project management skills, transformational e-Government programmes require a rich mix of broader skills: for example, in change management, process mapping and redesign, channel management and marketing and communications. Failure to identify and manage these skill requirements is a key programme risk.

vi) Poor Supplier Management

Strong partnership relationships with suppliers are essential. Yet many common supplier management practices militate against this, leading to high risks of failure. Common mistakes include:

- Evaluating proposals primarily on immediate price rather than long-term value for money (and in particular the degree of confidence that the chosen supplier will secure delivery of the expected business benefits)
- Management of the supplier relationship being undertaken at too junior a level within the organisation – on major projects, this should be an issue for the very top levels of management
- Lack of effective project team integration between client, supplier and the supply chain.

vii) “Big Bang” Implementation

Finally, many projects fail because they seek to deliver too much technological and organisational change at once. Success is much more likely in a programme with initial deliverables which create as much customer value as possible for as

low a level of technology expenditure and delivery risk as possible; which learns from that experience and then moves on to more sophisticated technological and organizational changes.

4.2 Current Challenges in India

It has been strongly felt that the above challenges as had been found by the developed nations do play a very important role in India as well, more because India has started emphasizing more and more on technology-enabled channels for delivery of services. Appreciating the fact that there have been a number of studies that discuss about the major challenges in successful project implementation, focus in this paper is to raise those pertinent issues, addressing which may facilitate successful project implementation.

For example, disjointed and unsynchronized efforts in major programs: The SWAN/CSC and SDC schemes, which are announced at different points by GOI, are required to be implemented in each state in a synchronized manner. However, by virtue of the fact that they have been announced at different points of time and that the uptake of the states has not been uniform for these 3 programs, we are likely to end up with a situation where we have only one or 2 of the 3 components in any state. This is likely to result in sub-optimal utilization or non-utilization of such expensive assets. To compound the situation, there is a further dimension of asynchronous implementation of the MMPs, which are supposed to feed these three elements of IT Infrastructure with content. This will result in further under-utilization of the infrastructure. Necessary correctives have to be applied at the national and state levels urgently. In the Indian context, some specific challenges are discussed below.

a) Change in Policy to Provide Adequate Funding Support for Project Preparation and Planning

“Starting from conceptualization to ultimate delivery of services to stakeholders; generally, time distribution for various activities involved in a project cycle is skewed in favour of implementation and fire fighting rather than planning. This is majorly because of pressures from distortions in governments funding mechanism. There is hardly any support to departments and implementing agencies for project preparation and planning. This activity starts with sanction of money for the project, which is done on the basis of a skimpy project document (Expenditure and Finance Committee Memo) which hardly talks about governance issues, services and services levels, expected outcomes for the project”.

b) Objectivity in Selection and Scoping of Projects

Many frameworks and models exist today, for assessing an e-Governance project, after it is implemented. Using these frameworks like EAF 2.0, one can determine the success and impact of the project. However, this amounts to a post mortem exercise. What is needed is a tool or framework which will enable the decision-makers to determine what is most required and what is most likely to succeed. Replication of a successful pilot may not always deliver a similar successful outcome, since, either the priorities of the local citizens may be a little different, or the organizational capabilities may be different or both. If a framework or a model can be built which can help the decision-maker to assess the success rate of a future project, based on real time parameters, it will serve a better purpose than an assessment framework.

There needs to be a priority list of government departments for automation based on size and spread of the departments, as all departments need not be automated at the same time.

c) Change in Government's Transfer Policies to Ensure Sustained Leadership throughout Project Life Cycle

A host of initiatives in the country have fallen by the wayside due to arbitrary change in leadership. A prime example is the initiatives of the government. The issue has been plaguing IT adoption in governments in the country since the time governments in India have started adopting IT. Unlike non-IT activities of the government, IT has the peculiarity of being extremely intense and requiring focused implementation at a speed that is more than the speed of obsolescence of the systems as well as the requirements. Hence, regular transfer policies of the government is highly damaging for a proper roll out of government systems. There is a need to have clear policies on the continuity of the personnel involved with IT so that systems get implemented fast, before they get obsolete.

d) Emphasis on Redesigning Services with Citizen Focus

Although this principle is now widely known and accepted, in practice it is rarely followed. The in-depth study and reengineering of existing business processes should be made an intrinsic part of the project preparation and planning phase. The current practice is to load this responsibility on the application software vendor. The vendor's approach is driven by the dual constraints of tight delivery schedules and achieving user acceptance for his software. The vendor, thus is

tempted or forced to accept the path of least resistance. On the other hand, the business process reengineering, actually is a path of maximum resistance and the only mitigation strategy is change management. The application vendor's role should be to automate and implement the reengineered processes which are already debated and approved by the customer organization.

e) Policy and Process Changes in Government's Project Procurements

"The current requirement for all MMPs to follow the age-old procedures of approval through SFC, EFC, CNE, etc., is causing interminable delays. The system of Empowered Committees (ECs), though established in several MMPs, is not yielding the desired result, as they are not really empowered with the financial approval powers. ECs have to be made all-powerful in respect of the MMPs".

"Hardware life cycle management in government projects is very poor with the utilization of the infrastructure below 20%. There are no policies for upgradation. The AMC contracts are never signed, and if signed, the payments are inordinately delayed. It is also necessary to design policies for the emerging problems of e-Waste".

As stated in the paragraph 'Seven Deadly Sins', strong partnership relationships with suppliers are essential. Yet many common supplier management practices militate against this, leading to high risks of failure.

It is necessary to devise policies to enable procurement of 'Product and Services'. The current policies can only handle 'Bespoke' software development and delivery. It is thus depriving e-Government projects the advantages offered by proven products and their implementation by similarly proven implementation vendors.

f) Avoiding Poor Estimation of Project Scope and Completion Schedule

Most e-Government projects are started with improper effort estimates and unrealistic project schedules. While the 'poor estimation' is a result of lack of detailed project scoping, understanding end-user requirements and identification of mandatory BPRs, the 'unrealistic schedule' is the result of combination of a) the attempt to cover up the delays in initial decision-making process leading to award of contract, and b) lack of understanding of the importance of 'Organisational change management' in implementation of any e-Government project. The project schedules invariably do not have any provision for this important activity. Inefficient handling of the change management, leads to impeding silos for project execution.

It is therefore necessary to invest substantial time, effort and money at the project planning stage. Thereafter, the project execution should be supported by well planned and well executed programme of 'capacity building and change management'. The project schedule should be comprehensive to include both these components.

g) Evolution from Project Management to Program Management for MMPs

"The Government of India is making huge investments in e-Government projects. Large funds are being set aside under NeGP for MMPs. Many large and complex organization structures have been created to facilitate the change, speedily, albeit in an orderly and planned manner. In spite of these steps, the current scenario in India, especially with respect to MMP projects is not very promising. For example: "NeGP is composed of 27 MMPs. Barring a few, none of the programs deserve to be called MMPs because there is no sense of urgency or missionary zeal in the respective ministries. It is necessary to prescribe calendar deadlines for each MMP and review the same rigorously at the level of CS (Chief Secretary). The current system of PMU (Project Management Unit) making a peripheral attempt to monitor progress of MMPs has to be replaced with a system that is more proactive. Clear responsibilities have to be fixed on the secretaries of the respective ministries with respect to the timelines".

What is required is evolving an organization structure and framework for effective 'Program Management'. According to Wikipedia "Program Management" is the process of (management/managing) multiple ongoing inter-dependent (project)s. Program management provides a layer above (project management) focusing on selecting the best group of programs, defining them in terms of their constituent projects and providing an infrastructure where projects can be run successfully but leaving project management to the project management community. "Governance:" Programs need a more robust structure and control because of the larger impact their failure can have. The Government of the United Kingdom, (UK government) has invested heavily in program management.

h) Technology to be seen from the Services Perspective and not from the Point of Commodity to be Purchased: Thinking on PPP Models

Looking at majority of the e-Governance projects it actually seems to confuse a third party observer. The basic intent of these projects, whether they are intended to deliver services to the doorsteps of common man and/or increase efficiency of the governmental processes or if they are meant as a competition

to purchase hardware comes in question. As has happened cutting across majority of the projects, majority of these projects have dedicated resources and made RFPs to the finest details of specifying hardware capabilities needed for project execution, happily shifting their focus from the service delivery aspect. It becomes crucial for the decision-makers to understand the effects of technology obsolescence. It is important that the decision-makers are made aware looking at technology as a commodity to be purchased but rather focus on technology projects as modes of services to be delivered. In fact, it would make much more sense to seriously consider different PPP models work for ensuring project delivery and execution.

i) Understanding the Roadmap for Effective Change Management – Effective Intra-Organization Communication Channels to be Set up

“No e-Government Project should be carried out without BPRs”. This principle is widely accepted in theory, but rarely practiced in reality. The identification of the BPRs and “emerging citizen services” should be the two main prerequisites for an e-Government project. They also lay the foundation for drawing a roadmap for effective change management. At present, the trend or common practice is to make the application software vendor responsible for defining these prerequisites. Ideally, this activity should be carried out by the ‘inside government’ stakeholders, since the activity requires a deep understanding of government functions, rules and regulations, and domain knowledge of the department or organisation. If that is not feasible, then the second best option is to entrust the task to those consultants who possess similar quality professionals in their ranks.

Once the roadmap for change management is defined, the next stage is planning for its execution. The National Institute of Smart Governance (NISG) has evolved and exhaustively documented methodologies for this purpose. It has also been entrusted with the responsibility of passing on this knowledge and methodology to selected individuals from the project implementing organisation. NISG calls such individuals as ‘e-Champions’. However, its experience so far is not very encouraging, at least with respect to MMPs.

Another neglected aspect is creation of formal intra organisational communication channels. By the nature of governance and established practices, all formal communications inside a department, moves only within a narrow predefined hierarchy. But change management, which essentially aims at breaking

these barriers, requires establishment of new, yet formal channels of communications. There is a need for institutionalisation of such channels.

j) Skills Updating and Focus Reorientation of Employees: Capacity Building of Skills

As has been mentioned earlier, the whole intent of using tax payer's money for automating service delivery and enhancing government processes is not under question. The question ultimately comes in the silo structure that the government departments operate and the capability of the departments to absorb the complexity of managing technology decision-making and execution.

“Long, never ending project implementation cycles – Projects get started with enthusiasm but are stuck in between due to many issues. Some of them are lack of reward, motivation, incentive to government employees”.

This actually calls for a major re-look at the reorientation and capability building of the skillsets of the employees in different government departments to ensure an easier change management. In a scenario where a large number of government employees still think that computerization will snatch away their jobs, discussing successful roll out of e-Governance programs are but a major challenge.

k) Vendor Relationship Management

Strong partnership relationships with suppliers are essential. Yet many common supplier management practices militate against this, leading to high risks of failure. Common mistakes include:

- Evaluating proposals primarily on immediate price rather than long-term value for money (and in particular the degree of confidence that the chosen supplier will secure delivery of the expected business benefits)
- Management of the supplier relationship being undertaken at too junior a level within the organisation – on major projects, this should be an issue for the very top levels of management
- Lack of effective project team integration between client, supplier and the supply chain.

The above issues, noticed by the UK Government, are also applicable to the current Indian situation. Besides these, some additional challenges in terms of vendor relationship management are as follows.

- Lack of clarity on the role and responsibility of the customer/tenderer in the tender or RFP document.
- Lack of standard payment terms which would remunerate vendors proportionate to their initial investments/deliveries/efforts at every stage of project life cycle.
- Continuation of the use of MB books – a methodology used for civil works projects, also for IT projects due to lack of any other standard methodology. Why can't an 'e-Certification' methodology be defined, using e-signatures, for all sign-offs?
- A lack of understanding of the concept of 'Change Request' and hence mitigation of associated risks and conflicts.

4.3 Some Guidelines Based on the above Discussions

a) Identifying Appropriate Projects and Rationalizing them

- The need to create a priority list of government departments for automation based on size and spread of the departments, as all departments need not be automated at the same time.
- A methodology which can be used for identifying an area of intervention: Various government departments just conceive a project without giving a thought to "WHY" of a project. They just start with introducing PCs and Networks without identifying governance issues which ought to be addressed by using ICT along with host of other interventions. This has been a major challenge and is evident from a recent marathon of meetings that we had with 27 major departments which are implementing National e-Governance projects in the country.
- Many Frameworks and models exist today, for assessing an e-Governance project, after it is implemented. Using these frameworks like EAF 2.0, one can determine the success and impact of the project. However, this amounts to a post mortem exercise. What is needed is a tool or framework which will enable the decision-makers to determine what is most required and what is most likely to succeed. Replication of a successful pilot may not always deliver a similar successful outcome, since, either the priorities of the local citizens may be a little different, or the organizational capabilities may be different or both. If a framework or a model can be built which can help the decision-maker to assess the success rate of a

future project, based on real time parameters, it will serve a better purpose than an assessment framework.

- Rationalizing across departments – for example, there are a host of identity solutions that are being conceptualized or already implemented in the country. Such systems include the BPL, Universal Identity, Multipurpose National Identity Card, Passports, PAN card, Voter's ID card, Ration card etc. A unique identity system will have a tremendous impact on the economy of the country and in driving a more inclusive growth.
- Disjointed and unsynchronized efforts in major programs: The SWAN/ CSC and SDC schemes, which are announced at different points by GOI, are required to be implemented in each state in a synchronized manner. However, by virtue of the fact that they have been announced at different points of time and that the uptake of the states has not been uniform for these 3 programs, we are likely to end up with a situation where we have only 1 or 2 of the 3 components in any state. This is likely to result in sub-optimal utilization or non-utilization of such expensive assets. To compound the situation, there is a further dimension of asynchronous implementation of the MMPs, which are supposed to feed the 3 elements of IT Infrastructure with content. This will result in further under-utilization of the infrastructure. Necessary correctives have to be applied at the national and state levels urgently.

b) Planning Process

- From conceptualization to ultimate delivery of services to stakeholders: Generally, time distribution for various activities involved in a project cycle is also skewed in favor of implementation and fire fighting rather than planning. This is mainly because of pressures from distortions in government's funding mechanism. There is hardly any support to departments and implementing agencies for project preparation and planning. This activity starts with sanction of money for the project, which is done on the basis of a skimpy project document (Expenditure and Finance Committee Memo) which hardly talks about governance issues, services and services levels – expected outcomes for the project.
- The planning process needs to adequately address the assessment and planning of government process reengineering and the depth of transformation seeking in e-Gov projects.

- Life cycle management in government projects
- When to procure the hardware – stage of procurement e.g., Hardware is not put to use until the application is ready
- How to define the specifications
- Sizing of the infrastructure; Assessment of requirements – frequent utilization of the infrastructure is Below 20%
- Upgradation: scaling up of Infrastructure; Upgradation is very rare in government, but the procurement will be done for upgradation of CPU etc.
- Maintenance of the Hardware; In most of the cases, the AMC is not existing
- Disposal of the e-waste models; There is no model for the disposal of the obsolete computer hardware.

c) Budgeting and SLAs

- A number of e-Governance projects are getting implemented through a PPP model. This is especially useful where governments do not have funds and implementation capacities to roll out such projects. It is very important to structure the financial arrangements in such projects to correctly reflect the “Risk-Return” relationship of the government and the private partner.
- Such projects include the MCA21, CSC, SDCs etc. However, the PPP contracts are borrowed from physical infrastructure contracts and therefore have severe drawbacks such as, need for strict service level agreements by the government in order to ensure the success of the projects. The master service agreements appear to be one-sided with all risks loaded on the private player with minimal commitment from the government and with enormous discretionary power that can be misused to bring in the so-called inspector raj.
- India is a role model for the implementation of e-Governance projects on PPP model. However, there is a poor understanding of SLAs at the top policy level.

d) Motivation for Implementation, Empowerment and Coordination and Continuity

At the current stage of maturity of e-Governance, there is a need to motivate and coordinate:

- Projects get started with enthusiasm but are stuck in between due to many issues
- Lack of reward, motivation or incentives to government employees
- NeGP is composed of 27 MMPs. Barring a few, none of the programs deserve to be called MMPs because there is no sense of urgency or missionary zeal in the respective ministries. It is necessary to prescribe calendar deadlines for each MMP and review the same rigorously at the level of CS. The current system of PMU making a peripheral attempt to monitor progress of MMPs has to be replaced with a system that is more proactive. Clear responsibilities have to be fixed on the Secretaries of the respective ministries with regard to the timelines.
- Lack of patronage for e-Champions programs: GoAP and NISG have been running 10-14 week e-champions programs. There is a lack of patronage for these programs, which aim to build capacities at the right level for NeGP.
- A host of initiatives in the country have fallen by the wayside due to arbitrary change in leadership. A prime example is the initiatives of the government. The issue has been plaguing IT adoption in governments in the country since the time governments in India have started adopting IT. Unlike non-IT activities of the government, IT has the peculiarity of being extremely intense and requiring focused implementation at a speed that is more than the speed of obsolescence of the systems as well as the requirements. Hence, regular transfer policies of the government is highly damaging for a proper roll out of government systems. There is a need to have clear policies on the continuity of the personnel involved with IT so that systems get implemented fast, before they get obsolete.
- The current requirement for all MMPs to follow the age-old procedures of approval through SFC, EFC, CNE, etc., is causing interminable delays. The system of Empowered Committees (ECs), though established in several MMPs, is not yielding the desired result, as they are not really

empowered with the financial approval powers. ECs have to be made all-powerful in respect of the MMPs.

- Extremely slow in giving shape to core set of policies under NEGP.

e) Clear Success Parameters, Assessment and Audit

- There is a need to define Value Realization/ROI in e-Governance Projects.
- e-Governance projects to be effective and useful for a country like India, where there exists extreme poverty, want and lack of basic amenities, coupled with digital divide, need to be efficient (in terms of cost), effective (in terms of meeting targets and objectives), and timely. Mere monitoring and pre/post implementation reviews may not be enough. What is needed is a structured Value/ROI-based approach that demonstrates the effectiveness and sets pre set performance standards and benchmarks that enable proper evaluation and appraisal of such projects using the common denominator of value/finance.
- Measures like Balanced Scorecard, ROI, and Val IT can be effectively used.
- Generally, the internal reviews based on project objectives are biased and learnings are not documented to improve the planning and execution of forthcoming projects.
- Scope changes and sometimes change in the objectives itself.
- Post Completion Audit (PCA) for learning.
- Projects need to be audited/verified whether the objectives of the project were met or not.
- Learning needs to be recorded as the project is concluded, to prevent the next project from carrying the same mistakes/erroneous process.
- The significance of Post Completion Audit (PCA) in IT Governance Projects.
- How PCA can be used as a learning process and also highlights the methods and model for conducting PCA for the IT governance projects in government sector.

- Who can conduct the audit? Suggestive qualifications for the team to conduct Audits should include experience both in administration and Information Technology.
- Deliverables of the PCA.

5. Enterprise Architecture Model, Integration and Interoperability

The Key factors to be addressed are security, interoperability and scalable architecture lack of well defined and understandable Enterprise Architecture for government is a road block in the success of e-Governance initiatives in the country. There is a lack of awareness of Enterprise Architecture concepts and its advantages. Standards based architectures are a must for integration and interoperability of various citizen services, within and across the state and the central government. Described below is an approach to e-Governance based on enterprise architecture.

Enterprise Architecture is the description of the current and/or future structure and behaviour of an organization's processes, information systems, personnel and organizational sub-units, aligned with the organization's core goals and strategic direction. Although often associated strictly with information technology, it relates more.

Broadly, to the practice of business optimization in that it addresses business architecture, performance management, organizational structure and process architecture as well.

As a part of national e-Governance plan, the Government of India has a clear vision of making all government services accessible to the common man in his locality. As a part of this initiative, the Government of India and Department of Information Technology are promoting and guiding various states across the country, to setup and design State Wide Area Networks, Citizen Service Centers and State Data Centers to host Citizen Services.

Most of these projects are designed and implemented in silos. There is lack of well defined standards, processes, and architectures for services and data or at least there is lack of awareness at various levels. Based on their immediate needs, different state governments are coming up with different requirements, different architectures, and different technologies. There seems to be no long-term vision of interoperability and integration of these services across states and the center. There is no one standard being followed by all. This has been leading to many administrative, manageability and security issues.

Listed below are typical issues followed by recommendation of a standards based Enterprise Architecture to resolve and avoid such issues. The aim is to approach for Enterprise Architecture for the government that is citizen-centric, open, standard based, interoperable, transparent, flexible, secure, result-oriented and dynamic.

a) Architectural Issues

Most of e-Government projects face one or more of the following issues. These issues have been collated from the feedback and inputs received from various stakeholders from the government departments, academia and vendor community, who are directly or indirectly involved in these projects.

b) Integration and Interoperability Issues

Lack of Integration of various applications within or across various government departments leads to silos, with each department having its own set of data, administrators, management procedures and related issues. These applications and projects, which are not based on standards, create use of varied technologies which may not interoperate. This leads to duplication of work, increasing cost of ownership and complexity.

c) Lack of Knowledge Sharing

A successful implementation in one department is rarely shared with other departments. This leads to duplication of effort and resources.

d) Security Issues

Data security, authenticity, integrity and reliability are generally left to the discretion of the government employees or private partner staff who operate the systems. Many systems lack traceability mechanisms. IT Security controls the access to government's sensitive applications and data; it enables secure online transactions between the government and its citizens and protects the intellectual property. Ensuring security of sensitive citizen information and maintaining compliance are amongst the most critical challenges faced by the governments.

e) Lack of Standards

There is a lack of adopted policy on key issues such as Open Standards and Open Source, leading to issues related to sustainability, costs, security, independence and e-Governance standards. These issues will have a deep

impact on not just the cost of the systems but also the sustainability of the solutions as well as impact on wider IT adoption in India.

To overcome these issues, there is a need for a standard based Enterprise Architecture framework with appropriate knowledge and awareness amongst the key stakeholders. Enterprise Architecture for the government that is citizen-centric, open, standards based, interoperable, transparent, flexible, secure and result oriented and dynamic is the need of the hour.

f) Enterprise Architecture (EA)

Enterprise Architecture is a comprehensive framework used to manage and align an organization's Information Technology (IT) assets, people, operations, and projects with its operational characteristics.

A well defined EA can lead to many benefits including:

- Open and interoperable
- Built-in security and compliance
- Accelerate network service deployment
- Simplify and standardize
- Technology architecture
- Service oriented architectures
- Technology simplicity
- Technology reuse
- Secure access
- Mobility
- IT Enterprise Architecture policies and standards
- Primacy of principles
- Shared business responsibility.

The Government of India is a complex organization with many tiers, starting from the center, diverging to States and further to projects or sub departments within each state. The Government of India's initiative to enable citizen services across the country using IT-enabled resources is huge and complex. With the diversity of people, cultures, incomes, background and expectations across

various demographics, i.e., this task becomes even more complex. Unless there are standards and well defined guidelines, this complexity can lead to confusion.

Although the Government of India through its NeGP initiative is laying down standards and rules and a broad framework to achieve this goal, lot of effort and thinking needs to be put in to arrive at a standard based rules leading to an enterprise architectural framework.

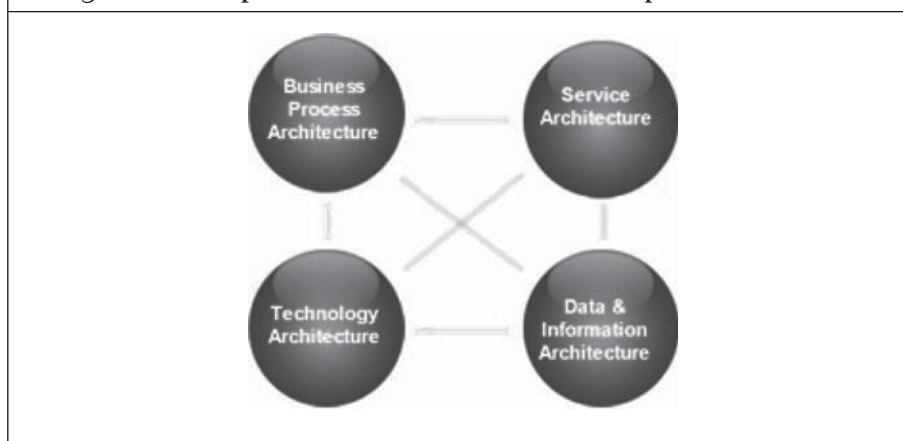
A well defined EA can help the government to align its IT resources to its strategic plan of enabling citizen services using these IT resources. It helps cut costs and complexity and also enables business flexibility and process optimization.

An EA can improve IT agility by standardization, consistency and scalability at the same time increasing security and supporting compliance.

e-Government EA generally consists of the following components (See Figure 3).

- Business Process Architecture
- Service Architecture
- Technology Architecture
- Data and Information Architecture.

Figure 3: Components of E-Government Enterprise Architecture



g) Business Process Architecture

Business process architecture helps us enable communication across business units within the enterprise. This architecture lists various processes to be followed for doing various services, independent of their association with one

or more services. It defines the business operations of the government, independent of agencies that perform them. These processes are further grouped into categories and detailed rules are defined for executing each of these processes. This standardizes the process leading to interoperability and reuse. Examples of these processes can be IT-enabled, flexible, transparent, dynamic, efficient and effective citizen services. A well-defined business process architecture enables communication across various departments.

There should be a well defined framework describing the government processes, communication process across various departments and the center, and proper means and channels of communication and implementation.

h) Service Architecture

This defines the set of services offered by the government, processes to be followed for each service, relationship and dependencies of services. The examples of these services could be Web-enabled services like vehicle registration, license or passport issuance etc. Application Architecture is also defined here, which separates the data logic, business logic and presentation layer in different tiers. Each tier is a separate module, with standards based interface to interact with the other tier.

Defining service architecture standards, with recommendations on the platform, open systems and open standards can be useful.

i) Data and Information Architecture

This defines the data associated with various services, as defined in the services architecture. In data architecture, we enlist all the data elements needed/associated with the above service and then define metadata about each data element. This metadata information includes the standard nomenclature for each data elements, their type, size, format, default value, valid value range, owner etc. Use of such a standard definition by all government applications shall facilitate interoperability among various applications as well their integration which shall go long way in delivery of integrated/one stop services to the citizens and businesses. It is strongly recommended to have standards based open data systems. This will enable easy integration and interoperability across departments and states.

j) Technology Architecture

Technology Architecture forms the foundation of the overall Enterprise Architecture and defines the software and hardware technology platforms based

on standards for interoperability, security, flexibility and modularity. The Technology Architecture consists of many subcomponents, including the ones listed below (Figure 4). A well defined set of specifications should be defined against each of these parameters to achieve standardization, interoperability, integration and flexibility.

Figure 4: Subcomponents of Technology Architecture



Technology is supporting the delivery of service components, including relevant standards for implementing the technology. Together, the architectures are intended to facilitate government wide improvement through cross-agency analysis and the identification of duplicative investments, gaps, and opportunities for collaboration, interoperability, and integration within and across government agencies.

The technology vision should be to provide secure access to data and services on the enterprise network, giving access to information, to any authorized person, from any device, anywhere and anytime.

This could be achieved by –

- using end-to-end authentication and encryption of data and the network
- using an integrated user view with portal services delivery
- enabling mobile computing
- using the single operational data store
- leveraging of open standards and open source.

Each component of the technology is briefly described below. Architecture should be designed and chosen with the objectives mentioned earlier.

- i) *Client*: The goal of the client element is to provide access that is both open and secure. The client devices should be easy to maintain and administer, should not require frequent upgrades and should be cost-effective. There should be standards defined so that all states and departments have similar looks and feels at the client end. The Client devices should be based on Java which is platform-independent. They should have provision for a secure Web enabled access, based on standards.
- ii) *Network*: The Network Architecture and design should be well defined and standardized. It should provide secure access of resources to the authorized clients.
- iii) *Portal*: The access of citizen services should be through a secure portal. The portal's looks and feel should be same across all secure access devices. The portal server should provide secure, role-based access to information from anywhere, at anytime, on any device.
- iv) *Service Oriented Architecture*: Application and service delivery through the dynamic portal is made possible, in part, by Service Oriented Architecture (SOA). By implementing a pragmatic SOA, one seeks to extensively leverage the core business logic using and re-using it to achieve greater enterprise flexibility and business capabilities. By decoupling business logic from applications and then re-combining those components to create new applications and systems, one can take greater advantage of and more easily share existing information assets, as well as more rapidly integrate new assets.

An SOA approach will resolve most of the present day issues. SOA helps design services that are combined to create reusable business components accessible from a variety of client devices. The Business logic is separated from presentation logic and delivered via services. This leads to increased end user productivity and flexibility, reduces costs, enables seamless integration with portal and roles based access control leading to overall better return on assets.

- v) *Storage*: Ubiquitous storage area network and network-attached storage instead of device-attached storage using hierarchical storage manager is

recommended. This storage should be standards based, modular, flexible and scalable. It is also recommended to have a storage architecture which classifies, manages, and moves information to the most cost-effective data repository based on the value of each piece of information at that exact point in time. This helps to

- reduce complexity through automation
- reduce costs from matching data value to protection options and performance needs to storage options
- achieve compliance by archiving data according to its regulatory requirements.

vi) *Data Center*: A data center should provide a secure, scalable, cost-effective infrastructure for the deployment of infrastructure for enabling citizen services. The data center architecture should be scalable, modular service delivery network design, which enables one to deploy multi-tier applications.

At the foundation of the service delivery network should be services, established as resource enclaves. The layer 2 switches in the distribution layer enable services access governed by Access Control Lists (ACLs). A little further up the stack, load balancers balance network load and provide service virtualization, SSL (secure sockets layer) capabilities, and TCP (Transmission Control Protocol) termination.

The service delivery network design is critical in implementing a services oriented architecture, enabling, as it does, the necessary network scalability. Additionally, this design, with its protected resource enclaves, allows client devices access only to those resources to which they are entitled.

Another recommendation for data center architecture is the appropriate provisioning of both stateful and stateless systems for services. This provisioning can help drive down costs and result in performance benefits.

The data center infrastructure components should have secure foundation, with security built-in not bolt-on. The operating system for the server components should be open source, robust, highly available, secure with multi level security and cryptographic framework, should be binary and source compatible, and should have provision for auto correction of hardware resources. The infrastructure components should be based on standards.

Virtualization is strongly recommended as a part of data center design. The virtual data center should hide the hardware and software components behind an abstraction layer and present computing environment as a collection of managed services rather than a collection of hardware.

5.1 Specific Suggestions

The Government of India's e-Governance projects should be based on Enterprise Architecture, which defines a set of business processes and technology standards to be followed throughout the government enterprise, providing services which are citizen-centric, open, standards based, interoperable, transparent, flexible, secure, result-oriented and dynamic.

Enterprise Architecture addresses most of the architectural issues and leads to the following benefits:

- Improves business flexibility, and at the same time, business process and system optimization
- It helps reduce process, system, and infrastructure costs and complexity
- It helps ensure enterprise security and compliance, and
- It drives standardization, consistency, and scalability.

i) Security

Most of us fear to use the online services, due to security or privacy issues.

- Access control
 - When the state provides services to an individual/citizen it must authenticate that the person receiving is eligible to such services. Advanced biometrics based technologies such as digital signatures, iris recognition (used in the case of issue of ration cards in the case of Andhra Pradesh) can have a role in authenticating service recipients
 - With the centralization of data and information that is easily available, there are very serious issues of potential misuse of demographic information, personally identifiable information and general misuse of the information systems.
- Data Security
 - With the fast paced growth of e-Governance, a large amount of data is being created by digitization. While every one is busy in thrashing

out issues which will lead to faster growth of e-Governance and sustainable implementations, the basic issue of data ownership and accountability is not getting the due attention it deserves. Data security, authenticity, integrity and reliability are generally left to the discretion of the government employees or private partner staff that operates the systems. Many systems lack traceability mechanisms. The only exception that comes to mind is that of land records, and that is because of the inbuilt traceability procedures in the manual system. A citizen is today exposed to maximum loss and trouble, due to this vulnerability of his/her digital identity. The onus for proving the government records wrong, still vests with the citizen. This calls for a revamp and the need to bring in the necessary reforms for fixing Data Ownership and Accountability in all e-Governance initiatives.

- Governance and especially e-Governance involves collection, aggregation, storage, transfer, dissemination and use of sensitive personal often confidential information concerning the various stakeholders – citizens, government departments, commercial establishments and organizations. The information ranges from land records, income and expense details, assets and financial position to business processes and trade secrets.
- General security issues
 - Activities such as spamming, identity theft, phishing etc. Also, the information systems are increasingly leading to a gender digital divide besides the existing digital divide.

ii) Interoperability and Standards

- Integration of technology across the e-Government application spectrum especially in the case of G2G applications, thereby eliminating duplication of work and reducing cost by ensuring common databases are used (e.g. using the same database to authenticate issue of passport).
- There is a lack of adopted policy on key issues such as Open Standards, Open Source, and Indian Source in terms of sustainability, costs, security and independence and e-Governance standards. These issues will have a deep impact on not just the cost of the systems but also the sustainability of the solutions as well as impact on wider IT adoption in India.

iii) Enterprise Architecture and Computing Strategies

- Requirement of an Enterprise Architecture Model: There is no focus group working in NIC and/or PMU of DIT on the all-important aspect of EA for e-Governance. In the absence of the same, the MMP implementations are likely to go forward in divergent technological architectures, resulting in lack of fundamental requirements of interoperability, security, business-focus, etc.
- Grids computing has come a long way abroad especially in some of the well developed countries like Australia etc. It has unfortunately not developed much in a country like India where it can be of great value. Grid computing will not only unlock hitherto under/un-utilized computing resources but will also help to bridge the digital divide. This concept can be implemented across community projects and in e-Governance.
- Use of existing business domain applications where applicable:
 - Adoption of Enterprise Applications (ERP, SCM, CRM etc.) in public sector in India has now got established, particularly in the PSUs/PSEs, and to some extent in the government organizations at the central, state and local bodies levels.
 - Notwithstanding the significance of such developments over the years, there is very little understanding of the value that has been brought to these organizations and its stakeholders/beneficiaries due to adoption of Enterprise Applications. The limited understanding that is available is mostly through a handful of case studies which are focused more on the implementation and its benefits, rather than an attempt to understand the process of deriving such benefits in the context of the entire organization. Hence, it would be extremely useful to analyze and discuss the impact of Enterprise Applications on the capabilities, performance and value of the public sector and government organizations. Such discussions could have a directional impact on various e-Governance initiatives.
- This issue would benefit:
 - Existing users/organizations to focus on constructs/processes that will help them derive greater value from their implementations.

- Prospective users/organizations to understand the merits of Enterprise Applications and the process of its impact on Value. This would lead to larger number of successful adoptions and have a directional impact on various e-Governance initiatives.
- Solution Providers (both the implementation agencies as well as software vendors) in successful and impacting implementations of enterprise applications as an efficient mechanism for e-Governance.

6. Sociopolitical Implications of e-Governance

Some of the important points to be considered are

i) Implications on Demographic, Economic, and Technologically Diverse Groups

- Recognize senior citizens as an increasingly significant segment that can contribute for good governance and also good governance implies concern (the harrowing tales of their becoming disposed are on the increase) for them. Remedy misalignments between economic reforms and political reforms for good governance.

ii) “Digital Divide”

- Half of our family members (in most of the families) still do not use IT enabled services using Internet. They may not have that knowledge and do not want to break the barrier.
- The Rutgers-SKKU Global e-Governance survey is conducted every two years, since 2003. Based on the results of the 2003 and 2005 surveys, there is a growing gap between developed and developing nations that needs to be bridged. Although both categories of nations showed progress in their average scores, the gap between them significantly increased. We recommend developing a comprehensive policy for bridging this divide. That comprehensive policy should include capacity building for municipalities, counties (districts), and states including information infrastructure, content, and applications and access for individuals.

7. Summary of Recommendations on Emerging Guidelines and Recommendations on the Critical Issues

7.1 Capacity and Complete Project Lifecycle Issues

- There is a need for clear and well defined objectives/purpose for the e-Governance projects. This requires political will and an agreed commonality of purpose.
- Through initiatives in the past, a monitoring framework has been created by means of which we are able to make individual ministries/departments aware that there are certain things which need to be done in certain way and also the gaps in the capacities to be fulfilled.
- The major job is to explore the capacity gaps and once this is done we have to identify the skills required. As an example, today if we need a core team within a government department, the skills that are required, need to be identified and a plan needs to be drawn up to source them. In other words, the following questions need to be answered. Are we going to get the required resources in the government or are we going to supplement them from outside? If they are supplemented from outside, the issue of market salaries needs to be addressed. This aspect is not simple at all. Even though the government has worked with the most prominent IT and consulting firms, the required talent with both technical skill domain and knowledge of government are in short supply. This implies that there is a very pressing need for developing a network of academic institutes and relevant syllabuses to train and produce the required talent pool and provide career roadmaps for such trained persons.
- It is necessary to provide financial support for the project planning phase so that the project begins on a sound footing. Standard templates of DPRs, RFPs etc. will help in ensuring that the minimum requirements of inputs and details at the planning stage are known in advance; but government departments and agencies will require to appoint consultants to carry out these exercises professionally.
- A key point to address is the methodology by which e-Governance projects are implemented in such a way (perhaps through public-private-partnerships) so that irrespective of the mode of implementation, strategic control is retained within the government.

- Another key challenge is the ability to retain the motivation levels of the e-Government professionals – to address the issue of maintaining interest even when priorities and processes are changed based on political compulsions.
- There is a need to study failures in implementation to avoid repetition of ineffective actions.

7.2 Enterprise Architecture Model, Integration and Interoperables

- There is feeling that government creates parallel structures when faced with a problem of implementation without a fundamental rethinking of whether this will lead to additional confusion and ineffectiveness. Possibilities of augmenting capacities within the original structures rather than create parallel structures within the government need to be looked into carefully.
- We need to check if the technology is flexible enough to have process optimization, and have standard architecture. Can we have standards based on scalable, consistent, and modular systems, which can be regulatory and compliant with various compliances?
- Enterprise Architecture model can be divided into four components – business process architecture, service architecture, technology architecture and data information architecture. The infrastructure should be reliable, scalable, and easily manageable. Visualization, consolidation and security should be standard desired parameters of the architecture.

7.3 Socio-Political Implications

- We should empower the people and see that they express their wishes. There is a need to create a situation, such that social economic activities can be taken up and the social divide can be removed.
- Social level e-Governance should lead us to achieve social inclusion. For instance 14%-20% of tribals are not anywhere within the e-Governance activities. e-Governance must help us in answering the most vital questions that the society is facing at anytime.
- The biggest problem is to resolve unemployment problem and we need to explore how governance can help in this.

- Health is another area of importance and e-Governance using models like tele-medicine need to expand.
- A good example is the electronic voting machines which have become indispensable in a short span.

We need tools for social version, social inclusion, social harmony, political harmony, political integrity and a great political focus. The reach of technology to cover all the sections of society should be taken up in the same manner as the social movements. This movement should cover the awareness generation and educating the people on the usability and the benefits. All the necessary precautions have to be taken to curb the resistance from certain quarters and also simultaneously educating/spreading the technology use. Only a social movement can make this possible for a social transformation in the use of technology.

The second most important movement which is more complementary to the social movement is the political movement. India has pockets of technology and its use especially in the area of e-Governance. 'Political Will' does play an important role in bringing a political movement.

Digital divide in the nature of the widening gap between the developed and the developing nations and also between states within the Indian nation is another issue of e-Governance. In India, the states are on either end of the two extremes. Bridging this divide through policy support, infrastructure and capacity building is the need of the hour. There is an immense possibility of bridging this divide in our country. In the rural sector, for instance, the prices of agriculture produce like tomatoes, onions etc., can be made available to the farmers. Middlemen continue to get the maximum out of the agriculture products even today, which can be corrected through the use of technology. Secondly, input procurement through bulk marketing, bulk purchase, the impact of corruption and red tapism can be avoided. Educating the rural masses through social and political movements can certainly bridge the digital divide.

The setting up of kiosks – 1 lakh in number – is at the advanced stage of implementation across the country. It is a combination of many services which breaks down the barriers of technology access and reach. This should take care of the digital divide and the political will as well. Invest in people rather than in technology and processes, and create 'Political Will' through intense work in terms of integration.

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THREE

*Challenges and Issues in e-Government Project Assessment**

Piyush Gupta

Electronic Governance (e-Governance) has received a tremendous interest world over. Significant amount of money is being put into making e-Governance a reality. A number of Projects are being taken up at various levels; it therefore, becomes important to make reasonable means of assessment to see whether the projects have achieved or are going to achieve their planned goals. Proper assessment of these projects gives us crucial learning on the kind of changes needed to be done to make them successful. This paper is based on the research work being done by the author. The paper puts across the key issues and challenges in assessing e-Governance projects and proposes a model which has been piloted in one of the assessment studies at the national level in India.

1. Introduction

There are various assessment frameworks developed, especially with a focus to address e-Governance (e-Gov) projects. These have been developed from different perspectives and mainly address the needs and objectives being important to the institutions undertaking the assessment study. An assessment exercise involves a tedious process, in terms of capacity, time, and resources; if the intention is to assess an e-Gov project thoroughly. e-Gov projects involve a number of stakeholders, whose expectations from the project needs to be addressed.

There are three kinds of situations that require evaluation in e-Gov. One is the environment; second is evaluating the performance of an e-Gov programme

* Paper presented and published as part of the ICEGOV 2007, December 10-13, 2007, Macao.

or project; and third is the overall impact of e-Gov on general government functioning, economic development and citizen servicing [1].

2. Understanding Stakeholders

While looking at the challenges and issues, we need to be clear as to what is being assessed and toward what end. One of the prime objectives of assessment is to identify the success and failure factors of the project, for its various stakeholders. At this stage we list potential key stakeholders and consider different dimensions of their perspectives and indicators for assessing the success factor of an e-Gov project.

- a. *Service users (i.e., the end customers) point of view*: Cost of availing the government service; time for delivery of service; convenience of availing the service; compliance of RTI Act (Right to Information); transparency in Government functioning.
- b. *Government point of view*: ROI (Return on Investment); Immediate impact on service users; Internal efficiency – process reforms; Impact on internal employees; sustainability and long term overall impact.
- c. *Funding Agency point of view*: ROI and business model; immediate impact on service users.
- d. *Public-private partner point of view*: ROI and business model; compliance to service levels; enhancement of service and reach.
- e. *Other stakeholders point of view*: At national government level from replication perspective; academics (arriving at what is optimal assessment).

The IIM-Ahmedabad (India) in their study related to impact assessment has identified the following dimensions of outcome for the project [3]:

- a. *Client Stakeholder*:
 - i) Economic (Direct and Indirect)
 - ii) Governance (Corruption, Accountability, Transparency, Participation)
 - iii) Quality of Service (Decency, Fairness, Convenience, etc)
- b. *Agency (including partners in implementation) Stakeholder*:
 - i) Economic (Direct and Indirect)
 - ii) Governance (Corruption, Accountability, Transparency, Participation)

- iii) Performance on key non-economic objectives
- iv) Process improvements
- c. *Society (Government) Stakeholder:*
 - i) Economic (Direct and Indirect)
 - ii) Governance (Corruption, Accountability, Transparency, Participation, Responsiveness)
 - iii) Development goals
 - iv) Attitude to computerization of government agencies for service delivery.

3. Issues and Challenges

Classification of the various expectations and views of assessment increases the challenge in targeting a holistic and comprehensive assessment. An interesting issue to look at would be to selectively choose some of the views/dimensions and focus exclusively on them while assessing projects, and achieve the desired objectives of assessment. This paper mainly discusses the key issues and challenges for performing the assessment.

3.1 Who should do the Assessment?

Presently it is being stressed that an external agency should do the assessment in order to get an unbiased view. This agency is primarily dependent on the project owners for all the project related information. The issue is, why not develop a self-assessment framework? In fact, by providing a self-assessment tool the project owners shall be in a better position to assess the projects on an on-going basis. Moreover, they have the assessment indicators and attributes as yardstick for assessing the projects right from the project conceptualization phase; thereby developing efficient and holistic e-Gov projects.

3.2 Constraints Driving Project Assessment

3.2.1 Adequate Time for Assessment

In order to get a really good and useful assessment of the project, sufficient time not being devoted for the assessment exercise is a challenge to be addressed. It is important to understand that a lot of data and information needs to be collected or provided for an assessment. However, in reality, adequate seriousness is not given to this exercise by the top policy level officials; and junior officials

are given the responsibility to coordinate the assessment exercise. In absence of quality data and information about the project, the assessment does not provide the correct view of project and thereby, the whole assessment exercise merely becomes another routine chore.

3.2.2 Lack of a Comprehensive Assessment Framework

One can look at various assessment models being adopted for the e-Gov projects, which are developed on basis of the objectives set for that specific assessment. Different assessment institutions identify indicators on different dimensions of the project and its stakeholders. Thus, one assessment study report would not give a complete understanding of the project. There is a need to develop an assessment maturity model, maybe based on the Gartner e-Gov maturity model, and identify only the basic level indicators.

3.2.3 Non-Availability of Base-Line Data

It is extremely important to have the data on the functioning of the services prior to implementing the new system, in order to see the improvements over previous systems. The base line data is basically the as-is processes studied at the project conceptualization phase. In most of the projects, it has been seen that the base line data was not captured; hence it is taken as a perception of the stakeholder, thereby giving an incorrect assessment of the impact made by the project.

Lack of high visibility for assessment reports: It has been seen that most of the time the assessments are done as part of some mandatory requirement of the project and once the said task requirement is completed, the report is shelved and forgotten. In case there is high transparency and visibility given to the assessment report, it will provide sufficient learning for the project owners.

Funds required for holistic assessment: As we have seen earlier that a holistic and comprehensive assessment should require varied degree of expertise. This would also involve quite a lot of time/resources for the surveys, travel, interviewing, study of secondary data, and analysis. Normally, an in-depth and holistic assessment study would require quite a lot of funding, which is normally unavailable.

3.2.4 Other Challenges

There are some more following similar issues and challenges pointed out in a study done by IIM, Ahmedabad [2] on impact assessment for e-Gov projects.

- a. Often evaluation studies had been done by agencies that may be seen as having an interest in showing a positive outcome.
- b. Different studies of the same project showed very different outcomes, thus indicating a lack of credibility of the results.
- c. Part of the reason for different outcomes was the use of very small samples and lack of rigor in sampling in collecting data from clients of the systems. The results could therefore not be easily generated over the entire population of clients.
- d. The studies evaluated the functioning of the computerized system but were not able to assess the difference made by ICT use, as the need for counter factuals was ignored.
- e. Finally, since different studies did not use a standard methodology, it was difficult to compare the outcome of a project with other projects.

4. Existing Assessment Models

The author studied various assessment models/frameworks related to e-Gov projects. Some of them are:

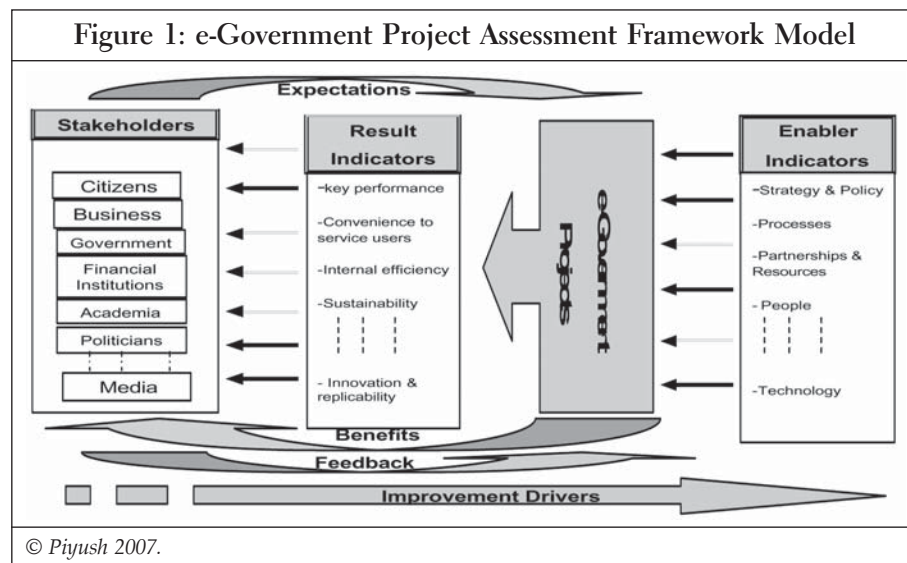
- e-Government Assessment Framework (EAF), India
- eGEP – The e-Government Economics Project, EU.
- Impact assessment model, IIM-Ahmedabad, India
- VAN-DAM model, Australia.
- A Public Value Framework, UK.

As part of on-going research work, the author studied best practice assessment models from the industry – the CII-EXIM Bank Award for Business Excellence [3]. This model is based on universally accepted standards and practices that are found in the European Quality Award, US Malcom Baldrige National Quality Award, Japan Quality Award and Australian Quality Award. The model conveys that excellent results with respect to performance, customers, people and society are achieved through Enablers – leadership, policy and strategy, people, partnerships and resources, and processes. It might be difficult in the beginning to get used to seeing things in terms of results and enablers, that inculcate a structured way of looking at indicators and their attributes, so as to move towards a better assessment framework.

4.1 e-Government Assessment Framework (EAF), Government of India

The Department of Information Technology, Government of India along with IIM-Ahmedabad and NISG created the Framework for assessing e-Gov projects under various dimensions [4]. The projects were categorized into small, medium and large, based on the investments. The EAF broadly consists of the following attribute classes for evaluation:

- a. Service-Orientation – class consisting of 3 sub-groups namely, Efficiency, User-convenience, and Citizen-centricity.
- b. Technology class consisting of 5 sub-groups namely, Architecture, Standards, Security, Scalability, and Reliability.
- c. Sustainability class consisting of 3 sub-groups namely, Organisational, Commercial, and Legal Sustainability.
- d. Cost-effectiveness class.
- e. Replicability class consisting of 3 subgroups namely, Functional, Technological, and Commercial Replicability.



4.2 e-GEP – The e-Government Economics Project

The e-GEP is European Union initiative to research into new instruments that evaluate and monitor the costs, benefits and outcomes of e-Government [5]. Since the project spans over five years (2005-10), the project has changing criterion for itself. e-GEP will produce a general Measurement Framework for

the analysis of e-Gov socioeconomic and governance impacts, with the strong scientific underpinning of Economic study. The framework is built on three drivers: efficiency, democracy, and effectiveness, and henceforth includes giving value to the quantitative benefits as well as the qualitative ones. There are as many as 92 Impact indicators identified.

5. Proposed Model

The author has recommended a cyclic assessment framework model, which encompasses the need leading to improvements in the project. The key components of the model are briefly elaborated below:

- *Stakeholders*: An e-Gov project is meant to deliver benefits to its various stakeholders. There would be the internal and external, direct and indirect stakeholders. A stakeholder would be an individual or an organization that is impacted or associated with the said e-Gov project. In such case, it becomes important to conduct a stakeholder consultation in the beginning while conceptualizing the project, in order to understand their needs/services from the government. Similarly, the needs out of the project for the internal stakeholders are also consulted in the beginning.
- *Expectations*: All projects are intended to meet the needs of its stakeholders; therefore, it becomes imperative to assess the project to meet their expectations. The new assessment framework model lays emphasis on listing the expectation indicators, which are measurable from the various stakeholders' perspective. The expectations might differ even for similar category of project (e.g., G2C Rural or Urban, G2B), depending on the country and its geographical area of implementation.
- *Benefits of the Project*: The expectations are taken into consideration for conceptualization of the service requirement and accordingly built into the e-Gov project development to deliver the benefits to its stakeholders. The benefits are the front-end component of the project which are visible to the stakeholders, and could be in terms of impact, or return on investment.
- *Results*: The project in terms of the benefits delivered to the stakeholders can be measured by specific result indicators.

- a. The dotted lines in the model indicate the variation of expected results, depending on the category of project, country and its geographical area of implementation.
 - b. The model emphasizes on assessing the result indicators, which will be required to be listed and prioritized based on its importance in the project. However, it is also important to understand that all the result indicators cannot be assessed while doing a specific focused assessment study on the project. This is so, as each indicator could require a different approach and methodology for measurement. The point of concern is to identify the result indicators which are specific to the study owner perspective, and which can be completed keeping into consideration the set of constraints.
- *Enablers*: The results are driven by Enablers at the back-end, which would indirectly be responsible for delivering the said outputs.
 - a. The enablers push the project to deliver results, which pass onto the stakeholders.
 - b. The enablers would not yield direct results. e.g. conducting a training course is an important enabler however, the result also depends on the environmental setup he/she is working in.
 - c. The dotted lines in the model indicate the variation of enablers driving the results, depending on the category of project, country and its geographical area of implementation.
 - d. There could be two approaches for identifying the enablers. One could be a set of enablers which are linked to each of the result indicator. The second approach would be to list the broad set of enablers which drive the project for delivering the results. These in turn are further divided into sub-attributes which are then measured on a particular scale.
 - e. The new model illustrates the second approach and lists the key set of enabler indicators, which would further be measured through specific sub-attributes.
 - *Feedback*: The model further stresses on the feedback mechanism as part of the outcome of the assessment. This should be supplemented by creating an awareness and communication strategy for all its stakeholders.

- *Improvement Drivers*: It is crucial that the learnings should flow back for project improvements, and strengthen the weak components. The assessment and feedback act as the important drivers for improving the existing project and build capacity for better conceptualization of new e-Gov projects.

The author applied the basic Result-Enabler model for one of the e-Gov project assessment exercise for awards at the national level in India viz. “CSI-Nihilent e-Gov Awards 2006-07”. The broad set of generic indicators identified is listed below:

- Selected result indicators include:
 - Key performance
 - Convenience to service users
 - Internal efficiency (to Government)
 - Innovation and Replicability.
- Selected enabler indicators include:
 - Strategy and Policy
 - Technology
 - Partnership and Resources
 - People
 - Process
 - Leadership.

Each of these indicators was further drilled down to arrive at a set of 3 to 5 attributes for the assessment. The set of indicators were identified keeping the time constraints and objectives of the awards. Subsequently, we identified five experts in e-Gov domain and asked each one to give weights to the indicators and attributes. This was evaluated using AHP (Analytic Hierarchy Process) defined by Dr. Thomas Saaty [6]. AHP is an advanced method for supporting decision-makers in structuring decisions, quantifying intangible factors, and evaluating choices in a comprehensive and rational framework. The AHP provides a structured framework for setting priorities on each level of the hierarchy using relative comparisons, a process of comparing each pair of

decision factors at a given level of the model for their relative importance with respect to their parent.

After application of the AHP model the final set of weightages were arrived for the indicators and attributes. This result-enabler framework was used for assessment of the projects and sent to the project owners in advance so that they could do a self-assessment under the identified indicators and attributes, prior to the assessment teams. However, at this point it can be shared that the feedback of the approach was appreciated by both the assessment teams and the project owners, since the model gave them a focused assessment of the project.

6. Conclusion

e-Gov projects at present are being assessed from varied dimensions, mainly from the point of view of the owner of the study. It is quite challenging to undertake an assessment study in a holistic manner which could address the expectations of all the project stakeholders. Therefore, there is a need to develop a broad assessment framework model which could give a direction to the assessment and learnings which can go back into the project. At the same time it is very important to develop self-assessment models, which could be used at the conceptualization level itself, of the project. This paper shares the experience as part of the ongoing research by the author and its present status.

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FOUR

Approach and Methodology for Project Assessment – CSI-Nihilent e-Governance Awards 2007-08

Piyush Gupta, R K Bagga and Pranay K Vasishtha

This paper explains the method followed for assessing e-Government projects under CSI-Nihilent e-Governance Awards 2007-08. This is built on the learning from the earlier experience of Ashok Agarwal and his team (see Ashok Agarwal et al. (2007)) in evaluating e-Government projects for CSI-Nihilent e-Governance Awards 2005-06 and the previous attempt by the team for CSI-Nihilent e-Governance Awards 2006-07.

The exercise of assessing e-Government Projects for the awards is a great experience, where a great deal of learning-by-doing happens. The framework for evaluation adopted in the previous year awards exercise has been changed to accommodate an easier process for input giving from the project owners' and a greater scope for self-assessment has been provided for. The meta-theoretic thinking follows the thought process of last year's assessment process. For the benefit of the reader, this paper contains that as well. The assessment framework is based on the research in progress by the authors.

1. Introduction

Electronic Governance (e-Governance) has received a tremendous fillip in India since the Government of India announced National e-Governance Plan (NeGP). Significant amount of money is being pumped into making NeGP a reality,

towards which each of the states of India has started making its own e-Gov roadmaps. A number of e-Government projects are being taken up at various levels. It therefore becomes imperative to be able to make reasonable means of judging whether the projects taken up are on course to achieve (or have achieved) the objective for which they were taken up. If the projects are on track to achieve the objects, what is it that can be learnt from them, and if they are not on track, then what kind of changes need to be made for the necessary course correction, assuming the project is still underway. If the project is already shelved, it becomes a source for learning what needs to be avoided in the process of conceiving, designing as well as implementing the e-Gov projects. It is with this interest that the Department of IT, Government of India, with the help of IIM-A and NISG, worked out the e-Governance Assessment Framework (EAF 2.0).

While one can say that the EAF 2.0 acts as a good beginning to start moving towards having a structured manner of assessment, it was well acknowledged by the authors who made EAF 2.0 that it needs improvement. Though this remains the broad concern for a thorough research, our interest currently has been to find ways and means to come up with a good project assessment framework for the CSI-Nihilent e-Governance Awards. The assessment framework for the year 2006-07 was drafted with an approach which centered around “Results-Enablers” (the details of which are also part of this paper), and this year, the approach has been continued but with an implementation that is different from the previous one, in some respects.

For the previous years’ awards, an improvement made is to have nominations through an online form. The design of the form was inspired by the models followed in CII-Exim Bank Award for Business Excellence which works using a Results-Enablers based classification of the criterion for evaluating businesses and from the internationally well-known Stockholm Challenge. The previous year had three stages of inputs received from the project owners’ nominating their projects – 1) Filling an online form that would be used for preliminary screening; 2) Data submitted for “Results-Enablers”; 3) A paper which went into the creation of a Compendium on e-Governance Initiatives edited by the authors. This is cumbersome and it is felt that the relevant data can be captured in one go, which is what is the design of the form this year, which asks the nominees to fill the data for questions in a manner where the collection of the answers of all the questions shall make a paper on the project concerned. This data was split into relevant Indicators of Results and Enablers and is used for evaluation.

Thomas Saaty's Analytic Hierarchy Process (AHP) is applied on two hierarchies – one each for Results and Enablers. The implementation strategy used is to the previous year's approach and is also explained here, in this paper with a running example. This book also contains the data received from the nominations and is compiled as papers in the rest of the chapters.

2. Requirement of Frameworks for Assessment under Constraints

As mentioned in the previous section, the increased focus on realizing the NeGP, where there is a huge outlay of over Rs.35000 crores over the next span of years, emphasizes the need for having frameworks that provide accurate appraisals about the e-Government projects, to avoid diversion of scarce resources to unfruitful directions. Further, since replication of similar kinds of projects has to be undertaken across the country, it calls for a greater need for the assessment frameworks that help one to learn the factors resulting in the success or a failure of a project. This also provides for a feedback to the stakeholders involved in the project regarding the health of the project.

Assessment exercise involves a tedious process if the intention is to assess an e-Government project thoroughly, meeting the desired objectives, like: the success as defined by the extent to which it achieved the purpose it was designed, whether the project is replicable or not, among others. This is because each of the e-Government projects involves a number of stakeholders from whose perspectives the project needs to be looked at, and further it involves a number of parameters and attributes which adds to the amount of effort required in order to make for a reasonably comprehensive assessment. With this in mind, a detailed assessment (DA) framework was envisaged by the EAF 2.0. In the EAF 2.0, the e-Gov projects with large outlay are characterized into categories – G2C (U/R), G2B, and G2G – in order to make way for separate and customized assessment frameworks for the apparently different motivations that the projects in each of these categories have. So, for a comprehensive assessment as per the EAF 2.0, there were frameworks given for each of the categories, like the DA for G2C (U/R) among others.

It may not necessarily be required to make a DA of projects in all cases, and it may not always be possible to have sufficient resources to do a DA – so there was another tier of assessment in the EAF 2.0 – a Summary Assessment (SA). SA is done using a subset of assessment parameters and attributes from the DA. The SA is to be conducted using data collected from secondary sources, which

help form a base for evaluation. Further, it suggested that inputs from small representative sample involving all the stakeholders of the e-Gov project be taken, in order to arrive at the desired outcome, which is to provide “broad insights into the ground realities of the project and provide inputs to sharpen the understanding of the project objectives, identification of stakeholders, control groups, affected groups, etc., and help us refine the data collection instruments.” The point of interest as far as SA as envisaged by the EAF 2.0 is that it could be completed within 2-5 days per project, whereas a DA would require around 4-6 weeks per project.

Now, consider the case that there are around 100 e-Gov projects across the country to be evaluated and rated. The time allocated for assessment exercise is around 4 months and assuming that a team of 10 people are involved apart from some more people helping them – it is clear that the format to be used, given the EAF 2.0, would be some kind of a SA. In such a situation a DA is not possible within the said constraints. Further, if there is another constraint that there is not a possibility of taking the views of the representative sample of all the stakeholders and one is to make an evaluation out of the information and inputs from only one of the stakeholders – and that too the project owners – this presents a tricky position. An SA should be so designed so that its results are not in contradiction to the results of a DA. Slight deviations may be held acceptable.

Therefore, there is a need for assessment frameworks which provide tractable means of assessment that gives an “acceptable” assessment specific to the features chosen to be assessed in spite of constraints such as the ones mentioned above. It is to be noted that while the original problem of assessment itself is not studied in detail and there is a lot that requires to be done – we would like to posit that it makes sense to look at this problem of assessment under constraints because that is a matter of reality faced by the teams which work on giving Annual Awards for e-Gov projects. Any progress in arriving at what is “acceptable” above would be desirable. This shall be obtained from the learning from the experience. CSI-Nihilent e-Gov Awards offer a nice platform to learn from the experience of assessing e-Gov projects.

3. Types of Assessment

Assessment of e-Gov projects can be of various types. Each assessment begins with an outline as to the intent behind the assessment. It is this intent which results in the differences in the kinds of assessment. The type of assessments

which could be visualized can be of a variety of forms – and most of which could be in terms of different descriptions to the same kind of assessment (in reality) – but the manner in which one puts it – makes the sense of assessment different – hence we have mentioned them separately.

One could think of different assessments depending on the extent of detail one would go in order to assess, as we see in the differentiation between DA and SA in the EAF 2.0. On the other hand, difference in assessment could be attributed to the manner of going about assessing – that is to say, assessment could be done by the use of questionnaires, through statistical methods, or use historical analyses or by identifying best practices or a combination of all these methods. Assessments could be, as shall be detailed in the next section, in terms of the manner in which various stakeholders look at the project, or consider a combination of all or a section of the stakeholders. Assessments could be different in terms of who is doing the assessment – one could have a self-assessment done by the project implementation team, or through an independent third-party assessment or a self-assessment done using the framework suggested by a third-party. Assessments could be different in terms of the aspect of the project that is being assessed – one may assess – say, the service component of the project, or from the overall impact that the project has resulted in, or solely from an economic perspective – which is more on the lines of return on investment or a multi-criteria approach which factors in each of these aspects.

Assessment of e-Gov projects might have to consider some of the aspects which are external to the projects but which are extremely important for the success of the projects – such as the e-Readiness component. In a sense, assessment of an e-Gov project should give sufficient weight to the e-Readiness factor as well, without which it may not make much sense to assess the project. This becomes necessary in order to identify the exact causes of successes or failures of a particular project. This brings another aspect which differentiates an assessment – the reason as to why an assessment is being done – one could do an assessment for the sake of identifying how the project could be replicated in a different environment, or one could do an assessment in terms of identifying whether the project is worth pursuing or not.

Since e-Gov projects come in various flavors, assessment cannot be in one-size-fits-all mode. A uniform assessment framework cannot be applied to a

new project, say 6 months old and a 2 year old project. Both would have different dimensions, even if it has to be assessed from the same stakeholder's perspective. At the same time a uniform framework will not be able to assess G2C, G2B, G2G and G2E projects along with the urban and rural implementation dimensions. As such assessment needs to be done differently, keeping the domain specific indicators and attributes into consideration.

4. Study of Existing Frameworks

The team as part of another research work, studied various assessment models. However for the purpose of this paper three are discussed here, viz. CSI-Nihilent e-Gov Awards 2005-06, Stockholm Challenge and CII-Exim Bank Award for Business Excellence.

The approach used for the CSI award for previous year used a framework of AHP (see Thomas L Saaty (2005)). AHP is a powerful and flexible decision-making process to help in setting up priorities and arrive at the best decision where both qualitative and quantitative aspects are needed to be considered. Specific parameters have been finalized using EAF 2.0 as a base and suitably modified based on the feedback received and learning achieved during the assessments done earlier. The following observations found with respect to the existing model are listed here:

- Goal-oriented approach not followed while factors for assessment are chosen.
- Few of the factors are not measurable and are based on perception of the assessor.
- Few of the sub-factors require the end beneficiary consultation; otherwise it only gives project-owner perspective.
- The assessment is constrained by time and resources to capture all aspects of e-Gov project and carry out detailed assessment. Therefore, the manner of assessment does not justify ranking.
- Scope for objective self-assessment was not there.
- Most of the data collected was only in the form of supporting documents, which made it difficult to extract relevant information.
- There needs to be structured format for collecting data from the project applicants, so that maximum data is captured from original sources.

Stockholm Challenge is an internationally reputed ICT awards for the best ICT applications for people and society. They follow a nomination procedure for the Awards that make use of online forms with questionnaires which are to be filled. The nominations are then evaluated by a distinguished set of experts from various domains from across the globe with dedicated set of evaluators for each project category. One of the significant aspects here at Stockholm Challenge is that they assess only those projects that “show measurable outcomes and impact”. The jurors look at the criteria such as the empowerment of people by their increased role in democratic governance, creation of equal opportunity, sustainability of the project, impact on the project target groups, promotion of entrepreneurship by the project, and the number of features that inspire replication. An added criterion for the latest awards is the presence of multi-stakeholder partnerships and their successful running. The nomination form asks for basic information about the project by requesting for targeted information which shall be processed to shortlist a set of projects for further scrutiny.

CII-Exim Bank Award for Business Excellence has a Business Excellence Model which is based on universally accepted standards and practices that are found in the European Quality Award, US Malcom Baldrige National Quality Award, Japan Quality Award and Australian Quality Award. The model conveys that excellent results with respect to performance, customers, people and society are achieved through Enablers – leadership, policy and strategy, people, partnerships and resources, and processes. The model has the logic known as RADAR (Results, Approach, Deployment, Assessment and Review) of the EFQM Model at its heart. This logic expects that once the required results are determined through the policy and Strategy, one has to plan and develop approaches to deliver the results and deliver them by deploying the approaches, following which one has to assess and review the approaches as well as their deployment to learn from what more can be done and in the process determine the results for the next cycle.

5. Approach used for CSI-Nihilent e-Governance Awards 2007-08

Assessment Framework for the CSI-Nihilent e-Gov Awards 2007-08 follows the lead of previous year’s framework which is primarily inspired from few of the major existing models for awards and assessment, such as CII-Exim Bank Awards for Business Excellence, Stockholm Challenge Awards, UK e-Government National Awards, e-Governance Assessment Framework (EAF Version 2.0). The Assessment Framework builds on the framework worked out for the

CSI-Nihilent Awards 2005-06 which is detailed in Ashok Agarwal *et al* (2007). The assessment is done in the following sequence in four steps as detailed in this section:

Submission of project information through an online form ® Clubbing the relevant data into various indicators under Results and Enablers ® Preliminary scoring for the data submitted for screening projects ® Field visits to short listed projects ® Scoring of Result-Enabler indicators after field visits ® Project presentations of further shortlisted projects ® Consolidation and final rankings based on the Result-Enablers scoring before and after field visits + Presentation scores.

5.1 Step I

The first step is the data collection part, where a website was created to provide for online submission of data for nominations. All projects were to be submitted through an online form provided with a questionnaire. The questionnaire is inspired by Stockholm Challenge, which tries to incorporate some of the values that we have stressed on – in terms of providing a platform for self-assessment for the project owners who nominate their project. It also has a self-assessment statement which requires to be submitted as to why this project is worth receiving an award. The Online Form which was used for the data collection is given in the Appendix A. The Online Form is divided into three parts – Part A: Result Indicators; Part B: Enabler Indicators; Part C: Self-Assessment Statement.

The online Form limits the answers provided for each of the question by setting an upper limit on the number of characters within which the answer is to be provided. This results in condensed input on the project as a part of nomination and it puts the onus on the nominee to provide with the relevant data so as to go through the Step I of evaluation. It also gives a way of considering the completeness of information provided by the nominee, thereby eliminating entries of all those projects which have not taken sufficient interest in filling the online Form. This way of extracting just the relevant information for evaluation has been a recommendation provided from the experience of work on the previous year awards. This year, the attempt has been to provide with a Form which caters to capture the relevant information regarding the project in a single shot.

Once the data is received, there is a preliminary scoring of the data received on the basis of *interest shown in filling the Form, the correctness and the relevance*

of the data provided to the questions posed. This method is definitely not fool proof to capture only the good projects from the list of nominations. There were definitely cases where a couple of projects were found to be below-par and have become part of the second phase evaluation of the assessment exercise. But the fact that majority of the projects thus selected for phase II evaluation makes us conclude it to be a good way to begin with – to bring down the total number of projects for greater scrutiny from the total number of nominated projects.



The rest of the chapters in this book give a glimpse of the short listed project information submitted as part of the project nominations. For the purpose of the readers of this book, the information under the Result and Enabler indicators has been taken.

5.2 Step II

In the second step of assessment, the data submitted to the questions under Part A and Part B of the online Form have been regrouped into four Results and four Enablers each.

This Results-Enablers approach is inspired by the model used for the CII-Exim Bank Awards for Business Excellence. In step II, evaluation of the information provided was done, independent of verification of the ground situation about the project. Before we elaborate on this, we give the Results-Enablers approach first.

There are significant deviations from the manner in which we shall be using the Results and Enablers as opposed to their use in the model of CII-Exim Bank Awards for Business Excellence. To begin with RADAR logic does not apply to the e-Government projects as most projects do not undergo the process specified, to provide for ways and means to have a well-defined assessment procedure, and for review of what has happened. The idea of Results as what is achieved and Enablers as what is done to achieve Results is the core idea which is taken. This aspect is combined with the plan to apply AHP on hierarchies built on Results' and Enablers' Indicators.

The notion of a division on the lines of Results and Enablers gives a meta-theoretic justification of the kind of indicators chosen, e.g., in the EAF 2.0, for evaluating e-Gov projects which otherwise may not be easily justified, other than by empirical or other experiential means. Though it might be difficult in the beginning to get a global common picture of seeing things in terms of Results and Enablers, we feel that it inculcates a structured way of looking at indicators and their attributes, so as to move towards a better assessment framework. This method may not be sufficient to answer all the concerns and issues pointed out in an earlier section of this paper, but could act as a good beginning for a model that builds on earlier framework. The empirical reason to feel that Results and Enablers shall be a beginning is that viewing the various aspects required to be assessed as the Results or expectations of each of the stakeholders' from the project and what is to be done to achieve those Results as the Enablers can form a strong base for assessment. In the evaluation – both what has been done, and what is the outcome of what has been done is of equal importance with respect to the view on the project from the perspective of the various stakeholders. Hence, scores for both Results and Enablers as achieved by a project are evaluated out of 100 and added up to get the final score for a project. That is to say, that equal weights are given to Results and Enablers. Further, as we stated earlier, as opposed to the approach used in the previous years' awards, the data collection process for project evaluation has changed this year and by having a Presentation from the user, we intend to allow for a greater scope for self-assessment as the Presentations are expected to justify the self-assessment statement.

An AHP framework with separate hierarchies for Results and Enablers has been identified and the scores are weighed separately and added up to get final scores. The hierarchical frameworks for Results and Enablers are then summed

up in the end to arrive at the final scores to arrive at the standings of the various projects. The process of implementing the AHP on Results and Enablers is similar to what has been explained in Ashok Agarwal *et al* (2007).

The Result and Enabler indicators respectively were further re-classified into four sets of attributes for the purpose of applying the AHP model.

Attribute Sets under Result Indicator

1. Goals and Objectives
2. Beneficiaries: Services provided, geographical spread, project milestones/roadmap
3. Time and cost savings
4. Project outcomes, lessons learnt, scope for replication.

Attribute Sets under Enabler Indicator

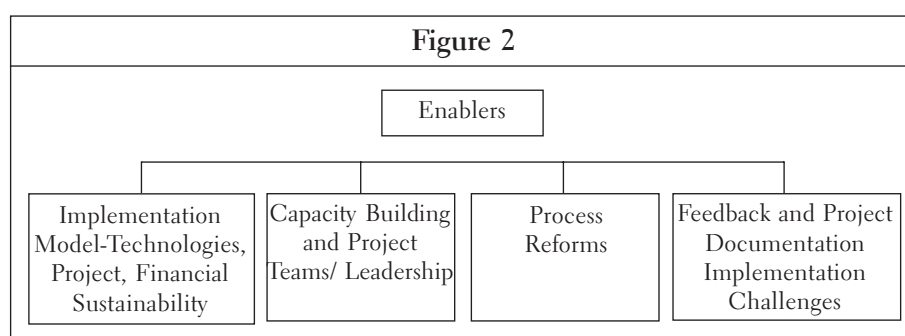
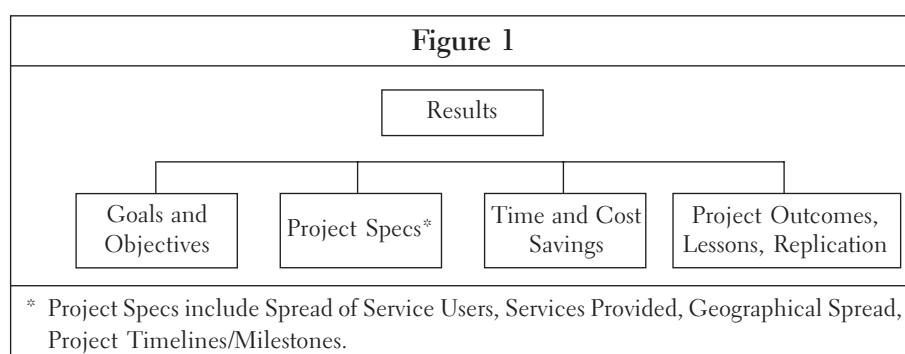
1. Implementation Model – Technologies, Project Financials/Sustainability
2. Capacity building, change management, project ownership by the departments, leadership, governance structure, project teams (dedicated full time)
3. Process or legal reforms
4. User feedback mechanism, project documentation, implementation challenges.

The hierarchies for Results and Enablers are given in the Figures 1 and 2. The explanation of each of the Indicators of Results and Enablers is given in the online Form in Appendix A.

One important consideration to be seen is that the Enablers cited here do not talk of e-Readiness quotient. E-Readiness could be looked at as a first level Enabler for the conception of projects to be built over it, whereas the Enablers considered here are with respect to and specific to the success of the project concerned.

As has been noted earlier, the attempt has been to consider a set of *measurable attributes* and do the evaluation. Unlike the previous years' awards, the attributes for each of the Indicator under Results and Enablers have not been fixed for this year's evaluation. In some cases for the above indicators, such as Time and Cost Savings, one may consider Time Savings and Cost

Savings as two different attributes, but that may not be so for all the Indicators, e.g., Process Reforms. Last year, we tried fixing the attributes, with the knowledge that they may not capture all the different dimensions of the project concerned and by deliberately narrowing down the scope of assessment. This year, by not doing so, we wanted to see the difference in terms of the data that shall be submitted for assessment. By not giving the attributes, and leaving it at the Indicators level, there is a scope now for the project owner to submit the various interesting aspects of the project concerned under the various broad heads of Indicators. This year's approach may be, in a sense termed as hybrid approach, for we can indicate attributes considered, but they are not treated as such, as part of the hierarchies for the Results and Enablers as is evident from the Figures 1 and 2.



The interpretation of what Results are and what Enablers are with respect to a particular project has not been fixed, and was left open for interpretation. This has resulted in information received on the Results and Enablers from the project owners which is of varying degrees of satisfaction. Sometimes, it turns out that the information provided may not be appealing, but actually the project is, and this could also be attributed to the fact that the official providing

the information has not perceived the Results and Enablers as is suitable to the project properly in the case. To the extent possible, we are trying to explore ways to make the perception of Results and Enablers simpler. This year's attempt at not going down to the attributes may be considered one such attempt. It is a genuine possibility that the information provided may not capture the imagination of the expert evaluating it, for – the expert cannot comprehend the reason why a provided piece of information was cited as a Result or an Enabler.

5.3 Step III

Step III of evaluation was a Field Visit to the projects by a team of experts to validate the information provided by the project owners and score them on the Results and Enablers.

For the reasons provided in the previous section, the Results and Enablers model requires active intervention of the experts to provide for an accurate assessment of the project, despite the fact that the project owner may not be able to put things in perspective about the Results and Enablers or the case where the information provided itself is not easily comprehensible. In order to simplify the evaluation process during the field visit, the re-classified Result and Enabler indicators used in Step II were used. The list is given below with a brief explanation of the expectation.

- 1) *Goals and Objectives*: Preferably, measurable/time bound goals. (What are the success factors for the project?)
- 2) *Beneficiaries*: Services provided, geographical spread, project milestones/roadmap
- 3) *Time and Cost Savings*: All savings are with respect to the end users and to government in delivering the said services in the project
- 4) *Implementation Model*: Technologies, project financials/sustainability, budget and recurring expenses
- 5) *Capacity Building*: Change management, project ownership by the departments, leadership, governance structure, project teams (dedicated full time)
- 6) *Process or Legal Reforms*: Reduction in the process steps for delivering particular service from the previous process. Legal reforms brought in, maybe through government orders or change in Acts

- 7) User feedback mechanism, project documentation, implementation challenges
- 8) Project outcomes, lessons learnt, scope for replication.

Though the process of field visit was initially thought to be a validation process of the information received for Results and Enablers, it is much more than that, as the experts' get to interact as well as directly meet the important stakeholders of the project and find out their views on the projects. The experts may have to exercise their imagination and judgment to capture the project's worth within the framework.

The scoring for the Results and Enablers, was by applying AHP, and shall be discussed in the next section. The AHP implementation strategy, as mentioned earlier, is similar to that detailed by Ashok Agarwal *et al.*

5.4 Step IV

Final Step in evaluation is that of Project Presentations of the projects which are short-listed following the scores obtained in the Steps II and III including the score for the self-assessment statement.

For the project presentation, the scoring is done on the Results-Enablers Indicators as well as that of the self-assessment statement that shall be defended by the project owners during their presentation. The scoring of self assessment statement is done straight out of 25 points in each case.

6. Implementation Strategy for AHP

Having formed the respective hierarchies for Results and Enablers, a team of experts were requested to assign weights to each of the indicators of Results and Enablers out of 100. This was factored down to 20 to suit the scale which was prepared by Ashok Agarwal *et al.* for scoring in AHP.

Using this, the relative weights table of AHP is obtained, following which normalization is done on the table by dividing each cell by the sum of the elements of the column in which they are present. Then the weights are obtained by averaging out each row of the normalized matrix.

Having obtained the weights for the indicators of Results and Enablers, scoring of each project is done by asking the experts to rate the relevant project with respect to the data submitted for the corresponding indicator. This scoring was done by using grading scheme where the grading is as follows:

A+ = 10 pts; A = 8 pts; B+ = 6 pts; B = 4 pts; C = 2 pts.

Once the letter grades are received, they are converted to the corresponding points and then each of these scores of the indicators is multiplied by the weights for the corresponding indicators obtained by applying AHP to get a score for each of Results and Enablers out of 100. Sum of the scores of Results and Enablers is taken and factored down to 100 to get the final scores for the project on applying the Results and Enablers framework.

7. Illustration of AHP Scoring Method

Initially the experts are asked to give weights to each of the indicators of Results and Enablers out of 100.

Figure 3: Sample Weights for Results

Figure 3: Sample Weights for Results

Weightages for Indicators of RESULTS

Please Fill the cells under the Head "For 100" with the respective weights out of 100
Please Do NOT fill the Cells under "For 20" head.
Note that your sum out of 100 is equal to 100

Sl.No.	Indicators	For 100	For 20	Weights
1	Goals and Objectives	40	8	57.14286
2	Project Specs *	20	4	14.28571
3	Time & Cost Savings	20	4	14.28571
4	Project Outcomes+ Lessons	20	4	14.28571
	Current Sum	100	20	
	Sum Should Be	100	20	

* Project Specs include Spread of Service Users, Services Provided, Geographical Spread, Project Timelines/ Milestones

Corresponding to the scores received (scaled down to 20), the following pair-wise comparison among the indicators of Results is obtained; this is done so as to use the same measuring scale as was used for AHP implementation used the previous year. The weights are computed and are shown towards the right. The manner in which this is come about is shown below.

The pair-wise comparison of indicators is brought out based on the measuring scale. This is computed by taking the scores given by the experts (out of 20) and by taking differences between them, two at a time starting from the first indicator – Goals and Objectives.

A table of differences is computed, which is later transformed to the table with pair-wise comparison of indicators by changing the differences to the corresponding weights as per the table in next page.

The measuring scale is as per Table 1, where for each of the difference of values from -20 to 20, corresponding weight is given.

Table 1: Measuring Scale to Arrive at AHP Scores									
SCALE		DIFF	-20	-19	-18	-17	-16	-15	-14
		WTS	0.1111	0.1111	0.1111	0.1111	0.1111	0.1111	0.1111
-13	-12	-11	-10	-9	-8	-7	-6	-5	-4
0.111111	0.125	0.125	0.142857	0.142857	0.166667	0.166667	0.2	0.2	0.25
-3	-2	-1	0	1	2	3	4	5	6
0.333333	0.333333	0.5	1	2	3	3	4	5	5
7	8	9	10	11	12	13	14	15	16
6	6	7	7	8	8	9	9	9	9
17	18	19	20						
9	9	9	9						

Table 2: Pair-Wise Comparison among Results-Indicators				
	Goals and Objectives	Project Specs	Time and Cost Savings	Project Outcomes, Lessons learnt, Replication
Goals and Objectives	1	4	4	4
Project Specs	$\frac{1}{4}$	1	1	1
Time and Cost Savings	$\frac{1}{4}$	1	1	1
Project Outcomes, Lessons learnt, Replication	$\frac{1}{4}$	1	1	1

From the above matrix, we obtain a normalized matrix by dividing each element of the above matrix by the sum of the elements of the column to which they belong.

Table 3: Normalized Matrix for the Results-Indicators and Weights					
Goals and Objectives	0.571429	0.571429	0.571429	0.571429	57.1429
Project Specs	0.142857	0.142857	0.142857	0.142857	14.2857
Time and Cost Savings	0.142857	0.142857	0.142857	0.142857	14.2857
Project Outcomes, Lessons learnt, Replication	0.142857	0.142857	0.142857	0.142857	14.2857

The corresponding weights of each of the Indicators for Results are given in the last column in the above matrix. The weights are an average of the values of each row of the normalized matrix.

We now repeat the same procedure with the Enablers to give a glimpse of how the sample weights look.

Figure 4: Sample Weights for Enablers					
Weightages for Indicators of ENABLERS					
Please Fill the cells under "For 100" head with the respective weights out of 100 Please Do NOT fill the Cells in Orange. Note that your sum out of 100 is equal to 100					
Sl.No.	Indicators	For 100	For 20	Weights	
1	Implementation Model -	25	5	20.54101	
2	Capacity Building & Project	25	5	20.54101	
3	Process Reforms	15	3	8.658597	
4	Feedback & Project Documentation +	35	7	50.25939	
Current Sum		100	20		
Sum Should Be		100	20		

Corresponding to the scores received (scaled down to 20), Table 4 shows the pair-wise comparison among the indicators of Enablers.

Table 4: Pair-Wise Comparison among Enablers-Indicators				
	Implementation Model- Technologies, Project Financials/ Sustainability	Capacity Building and Project Teams/ Leadership	Process Reforms	Feedback and Project Documentation + Implementation Challenges
Implementation Model- Technologies, Project Financials/Sustainability	1	1	3	1/3
Capacity Building and Project Teams/ Leadership	1	1	3	1/3
Process Reforms	1/3	1/3	1	1/4
Feedback and Project Documentation + Implementation Challenges	3	3	4	1

From the above matrix, we obtain a normalized matrix by dividing each element of the above matrix by the sum of the elements of the column to which they belong.

Table 5: Normalized Matrix for the Enablers-Indicators and Weights					
Implementation Model- Technologies, Project Financials/ Sustainability	0.1875	0.1875	0.272727	0.173913	20.541
Capacity Building and Project Teams/ Leadership	0.1875	0.1875	0.272727	0.173913	20.541
Process Reforms	0.0625	0.0625	0.090909	0.130435	8.6586
Feedback and Project Documentation + Implementation Challenges	0.5625	0.5625	0.363636	0.521739	50.2594

The corresponding weights of each of the indicators for Enablers are given in the last column in the above matrix. The weights are an average of the values of each row of the Normalized matrix.

Once the scores are received, the weighted scores for each of the indicators of Results and Enablers are obtained. Note that the scores arrived for each of Results and Enablers' indicators is by applying the corresponding weights for the points given to them and by going up the hierarchy created for each of them. (See Figure 1 and 2)

The overall weighted sum of Results and Enablers is added to get the final scores on applying the Analytic Hierarchy Process (AHP). This score forms the maximum share of the final scoring.

8. Final Scoring

The final scores of the projects assessed was made by giving major weight to the Results and Enablers scores before and after the Field Visit, and Project Presentations and *a fixed weight for the self-assessment statement before and after project presentation.*

The final weights are as follows:

Table 6: Weights Applied for Overall Project Assessment			
Category	Nomination Details in Online Form	Field Visits	Presentations
Weightage	30	35	35

The final scores were arrived at by taking a sum of the 3 set of weightages.

Having obtained the final scores, the scores were extensively deliberated over two days meeting amongst the Selection Committee members and a consensus was reached before finalizing on the award winners.

An important point that was thought of, but could not be done in the process of the assessment exercise was to normalize the scores provided by different experts. Owing to practical constraints, different experts have visited different projects and their scoring patterns were not the same. It is suggested that during field visits, having one expert common to all projects would be a suitable way for ensuring there is no skewed scoring, as that can help in normalizing the scores given by different experts.

This concludes the overall assessment process adopted for the CSI-Nihilent e-Governance Awards 2007-08.

9. Concluding Remarks

Having set out with a broad set of meta-theoretic considerations and following the previous years' CSI-Nihilent e-Governance Award experiences, we have tried to work towards addressing some of the issues in the e-Gov project assessment exercise. Here we shared our experiences on the project assessment methodology adopted for the CSI-Nihilent e-Governance Awards 2007-08.

Given the constraints of manpower, time, as well as financial considerations, we had to lace our effort with a number of decisions which were not in line with our initial set of considerations. One definite positive point that we felt, and is as well-being acknowledged by some of the project owners is that the process of working for the CSI-Nihilent e-Governance Awards 2007-08 – be it the online Form filling, or coming up with a write-up or providing information for the Results and Enablers has resulted in creation of good documentation which was not earlier present. The field visits by the experts was seen as a value

addition to the overall evaluation process and validated the information submitted by project owners. In addition, it provided an opportunity to get a first hand feedback on the project impact from its stakeholders. However, the challenge remains – time and resource constraints for these field visits.

The Results and Enablers model was felt to be easy to perceive, and this requires to be put for wider discussion. One of the observations for most of the nominated projects was lack of clarity on the goals to be achieved, and there were no clear measurable goals. Our ongoing work is to enlist attributes that may come under each of Results (what is achieved) and Enablers (what is done to achieve) so as to characterize the assessment criteria for projects of different kinds and from different stakeholders' perspective. The same approach for assessment based on the key Results and Enablers has been extended to other award categories viz. State and Department. However, much will depend on the extent of clarity and awareness to be developed amongst the government officials and consultants who are involved in e-Government project conceptualization.

*(Piyush Gupta, General Manager (CB and KM), NISG, Hyderabad, and
R K Bagga, Advisor (Outreach), IIIT, Hyderabad, and
Pranav K Vasishta, IIIT, Hyderabad.)*

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APPENDIX A**Project Nomination Form**

Criteria
Part A – Result Indicators
1. Goals and Objectives (List measurable goals and objectives, especially in terms of duration in which the expected goals are to be achieved)
2. Spread of Project Service Users (List all users who are intended to be benefited from this project – internal and external)
3. Services Provided (List total no. of services provided by the department as part of its responsibility; Categorize all services delivered by the e-Gov project to specific users; and the growth in number of services over a period of year/s)
4. Geographical Spread of Project Implementation (This is in terms of offices, departments, districts, state level and service centers as part of project plan; also indicate overall total geographical spread to be finally covered versus covered as of now)
5. Project Timelines and Milestones (These may, preferably be given from project design to implementation, pilot to roll out, highlight the achievement of key milestones)
6. Direct Cost Savings to Avail Services (This refers to the direct costs incurred by the users for availing selected services in the existing system as compared in the manual system. In case, a 3rd agency study has been done, kindly attach the said report as reference documents)
7. Direct Cost Savings to Deliver Services (This refers to the direct costs incurred by the government to deliver selected services to the users in the existing system as compared in the manual system. In case, a 3rd agency study has been done, kindly attach the said report as reference documents)
8. Direct Time Savings to Avail Services (This refers to the actual time spent by the users for availing selected services in the existing system as compared in the manual system. In case, a 3rd agency study has been done, kindly attach the said report as reference documents)
9. Direct Time Savings to Deliver Services (This refers to the actual time spent by the government to deliver the selected services to the users in the existing system as compared in the manual system. In case, a 3rd agency study has been done, kindly attach the said report as reference documents)
<i>Contd...</i>

<i>Contd...</i>
10. Replication (within the state/any other part of the country) 11. Key Project Outcomes (Outcomes need to be listed in terms of (a) Sustainability (b) Usage (c) Usefulness (d) Satisfaction (e) Empowerment) 12. Key Lessons learnt (These could be referred as project improvements)
Part B – Enabler Indicators 1. Implementation model (This refers to the whether the project is Government owned, PPP, any other model) 2. Technologies (High level technology architecture) 3. Capacity building (Governance structure, project teams, training, change management, policies, standards) 4. Process Reforms (process related back-end/front-end; legal reforms) 5. Project Financials/Sustainability (Capital, and annual recurring expenditures and business model, funding, revenue generation, if any; indicate nos.) 6. Project Teams and Leadership (List the Governance structure; list full time and part time project teams; top leadership support) 7. Service users Feedback (Indicate the type of service users feedback mechanism) 8. Project Documentation (List of project documentation available to the project owners) 9. Implementation Challenges (List key Challenges and how were they addressed)- 50000 words
Part C – Self Assessment Indicators Why this project should be selected for the Award? – 2500 words.

PART II

GOVERNMENT DEPARTMENTAL EFFORTS

FIVE

Kerala Motor Vehicles

S Anantha Krishnan

1. Key Performance

Advantage over Manual System:

- Computer generated Certificates issued
- Manual records removed
- Higher accountability
- Reduction in time required for data entry in manual records
- Randomly generated Registration numbers reduces time required to allot numbers
- System support for booking and tracking of Fancy number applications
- Storage and Retrieval of all vehicle and tax data in database
- Reports generation and query searches possible
- Tracking of applications through various stages of processing
- Higher barriers for fraudulent issue of RC books
- Learner's License issued immediately
- Efficient and transparent administration of online test for applicants
- Repository of a large, scalable databank of questions
- Automated driving test date allotment.

Based on a number of constraints like availability/capacity of MVIs, non-working days, working hours, preferences of applicants, absenteeism etc.,

reduced back-end procedures and automatic archival and retrieval of data benefits. Learner's Licenses are issued instantly to the public. Issue of optimal driving test date after factoring conduct of online Test. Even ordinary citizens can use the module CALLS Test, a randomly selected comprehensive test from wide database of questions. Abolishing of time consuming manual processes — accurate tax and fee calculation due for implementation at any counter, any service; the citizen can approach any counter in the office for any service such as remitting fee, tax, cess etc., and for submitting the application. The acknowledgement slip with the due date will be received from the counter itself. The long queue in front of the counters at the offices is eliminated. The public can get the details about the various services and all forms can be downloaded from the website. The vehicle details of a particular vehicle and the license details with photograph of a particular person are available and those are very helpful to the Government enforcing recruitment agencies like police, Public Service Commission, Employment Exchange etc. The dealer can upload the data online to the concerned office for registration of a new vehicle, which ensures the accuracy of data and speedy generation of Registration Certificates. The allotted number of the newly registered vehicle will be available in the mobile phone of the registered owner immediately, after the allotment as an SMS service.

Major achievements of the department and the role of ICT:

- **Introduction of e-Governance:** The most important achievement of the department in the recent past is the implementation of the FAST Project (Fully Automated Services of Transport Department) in the entire department. Head Office, 4 Zonal Offices, 18 Regional Transport Offices, 42 Sub Regional Transport Offices and 17 Check Posts are computerised and all services to the public are being rendered through the computer. The project has helped the department to render services more speedily and transparently.
- **Official website:** An official website www.keralamvd.gov.in is launched and in which, the details about the various services are available and all forms can be downloaded. The vehicle details of a particular vehicle and the licence details with photograph of a particular person are available and those are very helpful to the Government enforcing recruitment agencies like police, Public Service Commission,

Employment Exchange etc. The dealer can upload the data online to the concerned office for registration of a new vehicle which ensures the accuracy of data and speedy generation of Registration Certificates. Various online applications will be accepted through the net and the e-payment facility will be started on getting sanction from the Government, which is under process.

- **KSWAN Connectivity:** The KSWAN (Kerala State Wide Area Network) connectivity between the offices and the data center has been established in some offices. The work is under progress in all other offices and expected to be completed within one month. As the connectivity is established, the back log data entry from a particular office with the data available in any other office can be avoided which ensures the speedy disposal of application.
- **‘Any Counter – Any Service’ system:** “Any Counter – Any Service” system has been implemented recently in all the offices to enhance the convenience to the public, for availing various services of the department. The public can approach any counter in the office convenient to them for any service and get the service done. This system ensures more efficient and satisfactory service to the public by avoiding unnecessary procedures and undue delay in processing applications, Revenue collection due to the proper accounting and verification thorough the automated (ICT) software SMARTMOVE, the revenue collection is increased and Motor Vehicles Department is the 3rd highest revenue earning department of the Government of Kerala.

2. Citizen and Business Centric

(This refers to the department’s efforts towards G2C and G2B initiatives; list the key projects with a brief in not more than three lines)

Brief: The G2C services with advanced features are available through the official website, Common Service Centers and KIOSK provided in all the offices and through the GPRS facility mobile phones. The following are the important G2C services provided by the department.

- **Learners’ License Test:** A citizen can submit his application for Learners’ license test.

- A citizen can practise the Learners' License mock test. This session is also helpful for refreshing the road rules and regulations to the expert drivers all over the country.
- **Status of application:** Status of various applications submitted by a citizen and the progress of the action taken on his application through Internet and mobile phone.
- **Test date change:** Online facility is available to change the date of driving license test.
- **Online facility for the vehicle dealers:** Application for Registration of vehicles can be uploaded by the dealers online.
- **Allotted Registration numbers:** Daily allotted Registration numbers can be viewed over the website and the information about the allotment is provided to the applicant's mobile phone through SMS.
- **Fancy numbers:** Range of the Registration numbers which can be reserved in each office can be viewed through the website.
- **E-Payment facility:** E-payment facility to remit fee and tax through online is under progress.
- Driving License particulars and vehicle registration particulars can be downloaded from the website after remitting fees through e-payment.
- **Forms to download:** All the forms of the department for getting service can be downloaded from the website.
- **SMS facility:** SMS facility is provided for getting information about an application or the vehicle.
- **Services through the Common Service Centers:** The IT Mission under the Department of Information Technology, Government of Kerala has constituted "Friends Janasevana Kendras" in all the District Head Quarters in the state, as Common Service Centers (CSS). The Motor Vehicles Department is one of the participating Departments in this CSS. The citizens have the facilities to remit tax, fees, cess, etc., in this CSS. The remittances will be periodically updated to the department's central database.
- **Touch Screen Computer:** A KIOSK is provided in all the offices and all the G2C services through website are available online.

3. Government and Employee Centric

This refers to the department's efforts towards G2G and G2E initiatives, list the key projects with a brief in not more than three lines. The department has also taken up a project to make one of the advanced technology for G2G services also. This includes—Driving license and vehicle details can be made available for various departments like Police, Excise and Sales Tax etc., through website. A module can be introduced for audit of all the department offices in the State, which will enable the officers to audit each officer to audit each office by sitting in the Head Quarters. E-Payment facility to the National permit holders all over the country, which will be a great advantage to the State Government Treasury. SMS facility for the enforcement wing of the Department to check payment of Vehicle tax. Information about the G-Form vehicles is available on the website to help enforcement agencies to monitor activities of suspected vehicles. Progress of action in Revenue Recovery cases can be monitored by the department if the Collectorates are equipped with such facility. All India Tourist Taxi works which are intended for circulation can be transmitted over the net among the members of STA, for approval to avoid delay. Collection statements, Statistical statement etc., of every office can be instantly accessed by the Head Office. Data Center transferred the data of all offices to the Data Center database and information is made available after 10 minutes. By using Central Data Base, one office can be accessed by another office, which avoids repeated backlog data entry, eliminates chances of mistakes and malpractices. Transfer of data between “Friends Janasevana Kendra” and the respective offices through the data center. In the functional side, the department is planning to have interconnectivity between all the offices and between other states, automated law enforcement system, vehicle tracking system, punishment for violation of traffic laws etc.

4. Integrated Government

Citizens can view their driving license vehicle related data, or can submit their application for learner's license or gather any information about the services rendered by the department through the official website from their home or cyber café, or a WAP enabled device. File status can also be viewed over the net. The department will give the facility to the citizen to remit tax, fees etc., by means of e-payment immediately, on getting permission from the Government. Various applications like issue of Learner's License for additional

endorsement in driving licenses, removal of driving licenses, Conductors' license application, Driving License particulars, RC particulars etc., will be accepted through the net, when e-payment facility is permitted. The Department is planning to give some of the services, like issue of DL particulars, RC particulars, text order for conductor license Drivers Badge etc. over the net at the time of submitting the application and remitting the fees through E payment facility. In such cases, the applicants need not come to the office. A touch screen kiosk is also provided in all the offices for the use of public. The department is sharing the data with other enforcement agencies like Police, Excise, and Sales Tax etc., and with recruitment agencies like Public Service Commission, Employment Exchange etc.

Apart from the above, due to the implementation of the ICT driven programmes, the delays in processing the applications can be avoided to a great extent and the department could get a better image from the public. The atmosphere in the office is changed to a modern concept with dust free good looking environment which increased the efficiency of the staff. We acquired the accuracy in data which helps correctness and speed in generating reports for the queries from Government and Public.

5. Innovation and Best Practices

Many challenges were there that the department had to overcome while implementing the ICT programmes and projects. First and the most important challenge was to procure good application software. At the end of the 90s, the department realized the need for computerization and started to procure software. NIC, Kerala unit and Keltron had tried to develop one such software, but they were unsuccessful and the project lagged for many years. After several discussions, the department identified a good team from the NIC and a few members from the department in the year 2000. As such, good software 'SMART MOVE' is developed. Second was the procurement of necessary hardware. Using the Government fund allotted for the purpose, we could procure hardware for one office and the project was implemented in one of the offices.

Training of the Staff: The staff was not in a position to use the software initially. The software development team itself gave the training to the staff of the first office. With the suggestions and co-operation of the staff, further

modifications were made in the software, and the co-operation made the same project a grand success.

Replication of the project to other offices: The department identified into ECIL as a service provider and entered into a contract with them for the replication of the project. With the help of ECIL, good infrastructure could be provided giving the offices a new look and feel with its transformation into a well-computerized office with new furniture.

Renovation of Buildings/Finding suitable buildings: Some buildings where offices were functioning required renovations and some others had to be shifted to other premises. It required a lot of time and manpower. Back Log Data Entry 'Kudumbasree' was identified as the agency for Back Log Data Entry which was a cumbersome task due to large volume of data.

Mass Training Programmes of the entire staff: The NIC has given training to the ECIL staff on the software and to prepare them as trainers. Then, the ECIL staff did arrange many training programmes and they in turn gave training to the entire staff.

The present challenges after implementation: The Motor Vehicles Department is governed by Central Motor Vehicles Act, Central Motor Vehicles Rules, and Kerala Motor Vehicle rules, Kerala Motor Vehicles Taxation Act and Kerala Motor Vehicles Transaction Act and Kerala Motor Vehicles Taxation Rules. All the activities of the department are based on the above Rules. Hence, the software is also based on the Rules. Frequent changes in the Rule require modification in the software also. An increase in the tax or fees can be managed by the software very easily without a modification of the software. It is managed by the updation of the data through its module. But, if a work is redefined, or the calculation criterion of the tax is redefined, the corresponding module has to be rewritten. Power Supply is another challenge. We have procured generators, and UPS even though the power problem still exists as a challenge. Networking State wide Area network is not yet completed and thereby the work to make a consolidated database for the entire state is still in progress.

6. Policy & Strategy

The Department was formulated with the objective of regulating the use of Motor Vehicles in public places and ensuring safety and efficiency in the

transport system for catering to the needs of the travelling public as well as the transportation of goods for industries and agriculture. Collection of revenue for meeting the expenditure for the regulation of traffic and construction and maintenance of roads are also important objectives of the Department. The Motor Vehicles Department is regulated by the Government of Kerala, in terms of policy-formulation and its implementation. The Department is administered by the Transport Commissioner who is the Head of the Department. The main functions of the Department are administration and enforcement of Motor Vehicle Laws, collection of tax on Motor Vehicles under various categories, registration of the vehicles, licensing of drivers and regulation of use of motor vehicles in the State in accordance with the powers conferred on the Department under the provisions of the following Acts and Rules. Administration of Motor Vehicle Law and Enforcement.

- Motor Vehicles Act, 1988 (Central Act 59 of 88)
- Central Motor Vehicles Rules, 1989
- The Kerala Motor Vehicles Rules, 1989
- The Kerala Motor Vehicles Taxation Act, 1976
- The Kerala Motor Vehicles Taxation Rules, 1975, 1.5.

The implementation of the Motor Vehicles Act and Rules involves:

- Enforcement of MV laws
- Issuing Driving Licenses.
- Issuing Conductor Licenses
- Registration of motor vehicles
- Inspection of motor vehicles for road worthiness
- Ensuring compliance of pollution standards
- Issue of Permits
- Taking steps for ensuring road safety
- Providing traffic signs and signal lights.

Motor Vehicles department is one of the significant revenue earning departments of the State. The main source of income of the Department is tax from vehicles. The Motor Vehicles Department is the 3rd highest revenue earning department of the Government of Kerala. The motor vehicles tax is compensatory in nature for the use of roads. It also envisages meeting the expenditure on administration and regulation of use of motor vehicle. Tax is collected under Kerala Motor Vehicles Taxation Act and Rules. Another source of income is fees for various services and compounding of offences under the Motor Vehicles Act and Rules. Tax is collected through Regional and Sub Regional Transport Offices. Revenue is also generated through the Motor Vehicles Check posts. The revenue collection by the department 2007-2008 was 851.62 crores. Licensing of drivers, registration of motor vehicles, permitting of transport vehicles, enforcement of motor vehicles laws, ensuring road safety, collection of Tax etc., are the major functions of the department. The most important achievement of the department in the recent past in e-Governance is the implementation of the FAST Project (Fully Automated Services of Transport Department) in the entire department. Head Office, 4 Zonal Offices, 18 Regional Transport Offices, 42 Sub Regional Transport Offices and 19 Check Posts are fully computerised and all services to the public are being rendered through computer. The project has helped the Department to render services more speedily and transparently. Software Smart-Move has been developed for automating all activities and services of Motor Vehicles Department. “Any Counter – Any Service” system has been implemented recently in all the offices to enhance the convenience to the public for availing various services of the Department. The public can approach any counter for any service in the office convenient to them and get the service done. In the official website www.keralamvd.gov.in the department has published the details about the various services available from the various offices of the department. Any person can gather information about the procedures for getting driving licenses. He can download all the forms required for getting the license. Similarly a person can gather information about the procedures for having a vehicle registered and can download the necessary forms for registration. The website emphasizes the necessity of driving licenses, registration of vehicles and permit. Information about motor vehicle taxation laws in the state and power of the government to

collect tax by way of revenue recovery from the defaulters are also specifically mentioned in the website. Details of all the driving licenses issued in the state are available with the photograph of the license holder. In addition to the driving license number one should enter his date of birth to view the details of his/her license. The date of birth is acting as a password, which restricts unauthorized persons to view a citizen's license. Employment Exchanges, Public Service Commissions, Enforcement Departments, other state or other country employees in public sector or private sector can use this facility to verify the authenticity.

7. Infrastructure

The department was formed in 1958. To improve the functional efficiency, a four-tier system was introduced namely the Head Office, Zonal offices, Regional Transport Offices at district levels and Sub Regional Transport Offices at Taluk levels. In addition, to regulate the inter-state transport services Motor Vehicles, Check Posts were also established at borders with neighbouring States. The Department is headed by the Transport Commissioner who is assisted by an Additional Commissioner and two Senior Deputy Commissioners at the Head Office which is the Commissionerate. In addition, one Administrative officer, one Finance Officer, one Law Officer and one Statistical Officer on deputation from Government Secretariat are there at the Head Office to assist the Transport Commissioner. Apart from this, a Technical Advisor is there to advise the Transport Commissioner and Government. The Zonal Offices are headed by the Deputy Commissioners, the District Offices by the Regional Transport Officers and the Sub Regional Offices by the Joint R.T.Os. The Check Posts are controlled by Motor Vehicle Inspectors. At present, the Department has the Head Office at Thiruvananthapuram, 4 Zonal Offices, 18 Regional Transport Offices (of which 14 are located at District Head Quarters and 3 in rural towns in the Districts of Trivandrum, Ernakulam and Kozhikode and one in Trivandrum exclusively for KSRTC) and 42 Sub Regional Transport Offices at Taluk level. There are 19 Motor Vehicles Check Posts in the State. There are altogether 1741 employees in the Department. Category wise strength of the staff is given below.

Sl. No.	Category	Strength
1.	Senior Officers at Head Office	12
2.	Zonal Officers	4
3.	Regional Transport Officers	18
4.	Joint Regional Transport Officers	62
5.	Senior Superintendents	31
6.	Junior Superintendents	49
7.	H.A./H.C/P.R.O	117
8.	Fair Copy Superintendent	1
9.	Typists	93
10.	Clerical Staff (LDC,UDC)	614
11.	Supporting Staff (Attender, Peon, Driver, P.T.S etc)	340
12.	Motor Vehicle Inspectors	124
13.	Assistant Motor Vehicle Inspectors	276
14.	Total	1741

The department has set up a Core Group (Project Implementation Team) consisting of officers in the department having specified computer education and competence to monitor the functioning of the computerized operations of the department and liaise with the subordinate offices, NIC and the Service Provider (ECIL). The department has to manage more than 45 lakhs of driving licenses and also control more than 40 lakhs of motor vehicles with a limited number of 1741 staff in the entire department in the state.

8. Technologies

At the end of the 90s the department realized the need for computerization and started to procure software. NIC, Kerala unit and Keltron had tried to develop one such software, but they were unsuccessful and the project lagged for many years. After several discussions, the department identified a good team from the NIC and a few members from the department in the year 2000. As such good software 'SMART-MOVE' is developed. Software Smart-Move has been developed for automating all activities and services of Motor Vehicles Department. Smart-Move Developed in VB 6.0/SQL Server Server/Client: Windows 2000/2003/Xp Hardware Requirement: Pentium Machine with Minimum 256 MB RAM SMART-MOVE is a comprehensive package automating all the citizen-centric procedures and obviating the necessity to maintain manual records. The following manual records will be replaced by

the implementation of this package: All Registration records, Tax Collection Registers, All Permit Registers, All License Registers Register of Agents. The application is organized around modules and relevant functions that enable the department to logically assign work to the various personnel engaged in their respective functions. The following security features are incorporated in the computerised system: Fingerprint verification for login into the system, Menu level control, Three level user authentication for file processing, Encoded Bar Code for Driving License, Conductor License and Registration Certificate Photographs, Signature and Finger print data stored for each Driving License holder. History of all-important data is maintained and can be verified at anytime. RTO database is kept in synchronization with the database in data center using web services. This is scheduled to happen every 30 minutes. Public can know the status of each file at any point of time, Vehicle Details and Tax paid details are available in the web. Tax can be calculated for any class of vehicle. Public can change the driving test date allotted to them. Daily allotted registration numbers can be viewed over the website. Separate Check post module is implemented in all the check posts in Kerala, providing all services in the check post like, Temporary Permit, Short-term Tax, Extension of Validity Permit, Special permit, Check report etc. While taking the permit, the fee, tax and permit are printed simultaneously for the speedy service which eliminates the queue and blocks near the check posts with the vehicle. All post received in the office are computerised. The applicant/petitioner can keep track of the files in the office. For this the software is IDEAS (Implemented with the help of IT Mission of the Department of Information Technology, Government of Kerala). The Pay Roll System of the department staff is computerised. For this the software is SPARK (Implemented with the help of IT Mission of the Department of Information Technology, Government of Kerala). The official website is developed by NIC in Joomla site, an open source product.

9. People & Leadership

The department is under the Ministry of Transport, Government of Kerala. The Department is headed by the Transport Commissioner who is assisted by an Additional Commissioner and two Senior Deputy Commissioners at the Head Office. Presently, the Minister for Transport is Sri. Mathew T Thomas and the departments are headed by Shri. S Anantha Krishnan, IPS, Additional Transport Commissioner and Shri. Alex Paul, Secretary STA and Sr. Deputy

Transport Commissioner whose leadership and valuable advice and suggestions raised the department to the top level for the utilization of the advanced technology of the IT. The Motor Vehicles Department, Kerala, has been very much successful in the implementation of ICT driven projects in all its offices in the state. For every such project, there are two major activities.

- I) Good software
- II) A good implementation system.

I) Good Software

The department has entered into a Contract with National Informatics Center Kerala State Unit, for the development of software. As a joint effort of the Motor Vehicle Department persons and the NIC Technicians, good software has been developed.

While developing the software, the team has realized their commitment to the

1. Public,
2. Government and
3. the staff.

1. **Commitment towards the Public:** Every office in the public sector is for providing services to the public. Staff pattern of the department was lastly revised in 1975, considering the vehicle population at that time. After that, the vehicle population has increased exponentially. Now, the department is carrying out its entire work with a limited number of staff. As such, the general public has to face much delay and hardships. While developing the software, the team considered these aspects, and has developed software that can provide better service to the citizens.
2. **Commitment towards the Government:** The Motor Vehicles Department is a major revenue earning department in the State. Motor Vehicle Tax, Fees, and Compounding are the major income earning factors in the revenue department. Due to the shortage of the staff and the lack of proper and timely action, there are chances of tax and fees evasion. The software team has given due consideration to the accounting and verification procedures by automating them and, the scope for tax cess evasion is reduced to a great extent.

3. **Commitment towards the staff:** The development team had realized that, even if a good software is made by them, it will not be much useful unless the staff has easiness in using it. So, much importance was given to the easiness of using the software. Hence, the team analysed all the work and has developed the software in a single database and, all the work has been incorporated in single software SMART-MOVE. With the software the department could achieve its dream of “ANY COUNTER – ANY WORK” in its full aspects. Fees for all the services relating to driving licenses, conductor licenses, transport vehicles, non transport vehicles, permit etc., can be remitted in any of the counters, in the front-office. In the same counter, Motor Vehicles tax, whether it is transport or non transport will also be accepted. Applications for all services or all queries can also be processed in the same counter. Good software is developed and thereby, the workload of the staff is reduced.

II) A Good Implementation System

After the successful implementation of the software in one of the offices, the department has made an implementation policy after consultation with several agencies like, NIC, WIPRO, Technical Committee of the Government, etc., and entered into a contract with the Electronic Corporation of India Ltd. (ECIL). Thereby, the department can replicate the implementation immediately to all its offices. Printing and supply of stationery for the use of computers, maintenance of Hardware, are also given importance in the contract.

Project Contact Details

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Department of Food, Civil Supplies and Consumer Protection

B S Ananth and Somasekhar Kesava Ayyagari

1. Key Performance

Paddy Procurement and Milling is the complete computerization of food grain supply chain from purchase of paddy from farmers at Minimum Support Price (MSP) through Primary Agriculture Cooperative Societies (PACS), its storage at storage centers of Marketing Federation (MARKFED), custom milling by registered millers and receipt of Custom Milled Rice (CMR) at the receiving centers of CG State Civil Supplies Corporation (CGSCSC) and Food Corporation of India (FCI). The project involves computerization of 1532 purchase centers, 50 MARKFED storage centers, 70 CGSCSC CMR receiving centers, 35 FCI receiving centers, all the 16 food controllers' offices at the district collectorates, all the District Marketing Offices of MARKFED, all the District Managers Offices of CGSCSC and headquarters of MARKFED and CGSCSC. In Chhattisgarh 31.5 lakh tonnes paddy was procured from 7.8 lakh farmers during November 1st, 2007 to Feb 15th, 2008. Special importance has been given to on-the-spot generation of cheques on computers, which resulted in on-the-spot payment to more than 7 lakh farmers. The impact of this system is very high and may be written in brief as below:

- 7.8 lakh farmers have received computer generated cheques on the same day towards payment to the sale of paddy. Earlier, it used to take 3 to 6 days to give cheques to the farmers.
- Computerization resulted in ensuring uniform and transparent procedures in mill registration and business with millers throughout the state.

- Real time reconciliation of stocks has been possible and possibility of fraud has been minimized.
- Web application led to micromanagement of inventory, resulting in quicker milling, less damage to rice and paddy, and substantial savings. Unified Ration Card Database and issue of PDS commodities to FPS Unified Ration Card database have been prepared. The ration cards are printed using the database. Since the entire ration cards database has been computerized, shop-wise allocations have now been automated. Per card allocations are fed into the computer at the State level. Shop-wise allocations are calculated by the software. All Fair Price Shops (FPS) are required to give declaration of their stocks and sales in the previous month before issue of PDS commodities. These figures are entered in the web application at CGSCSC warehouses. Based on allocation, stock and sales figures of FPS, the actual amount of PDS commodities to be issued to the FPS is calculated by the software, and a delivery order is issued on the web application. After the issue of the delivery order, a truck challan is issued indicating the truck number, driver's name, quantity dispatched etc. The truck challan is also generated using the web application. The computerized database of ration cards and making it available on web for social audit, helped in identifying fake ration cards. More than one lakh cards have been identified and cancelled due to this effort.
- Automatic calculation of allotment by a computer eliminates irregularities and bribe in granting allotment. Chhattisgarh could successfully eliminate these irregularities.
- A study says there is sometimes 14 days delay in communicating the allotment figures to the end point i.e., FPS. The system eliminated the delay, the allotment details are reaching the same day to the end point. The problem is common in all states and hence, can be replicated.
- The system reduced the delay in allotment of detailed communication and provided information for efficient monitoring.
 - Citizen Participation website: This web-site also provides a method of citizen participation in monitoring of PDS. Citizens can register their e-mail ID or mobile numbers on this website for participation in the monitoring of PDS. It is possible to register for more than one FPS. Whenever PDS commodities are dispatched to an FPS

from the warehouse, an e-mail message and a SMS is sent to all the e-mail Ids and mobile numbers registered for that FPS. This message has the truck number, the quantities of PDS commodities being sent by that truck, and the date and time of dispatch. Citizens participating in monitoring of PDS can then check whether that truck arrived at the FPS carried full quantities dispatched.

- The system is highly appreciated and impact is yet to be seen.
 - Call center and Complaint Monitoring System: A call center with a toll free number (1800-233-3663) is operational for accepting citizen complaints and giving information to the public.
 - Call center has actually made governance nearer to the citizen.
 - Complaint Monitoring System has made complaint redressal faster. Rice Festival on a fixed, pre-announced day in a month, PDS commodities are distributed in a haat bazaar of a village, in the presence of public and nominated government officials. Other benefits to BPL families like old age pension etc., are also distributed on this day, along with PDS commodities.
 - This concept increased transparency and citizen participation.

2. Citizen and Business Centric

G2C Applications PACS Module

PACS module is a standalone module to run at each purchase center. It has the following functionality.

- Registration of farmers.
- Receipt of paddy and generation of cheques for payment.
- Issue of paddy to millers, FCI and storage center.
- **Issue and receipt of gunny bags:** The module was used in 1532 purchase centers. It has direct interface with farmers as the module generated receipt for paddy procured and cheques for payment to farmers. 7.8 lakh farmers received computer generated cheques during KMA 2007-08.
- **Computerized Ration Card Maintenance:** 36 lakh ration card database is created and put on web for public access. Creation and deletion of ration cards is now done through a web based application by district offices.

Citizen Interface Website

1. **Information to Public:** This website has all the information relating to public distribution system including lists of all ration card holders, list of FPS, details of lifting and sales of PDS commodities by FPS etc. The website also has information about other schemes of Food, Civil Supplies and Consumer Protection Department particularly details of paddy procurement. The information on paddy procurement includes farmer-wise information, giving details of the amount of paddy procured from each farmer, and money paid to him. In addition, the website has information on citizen charter and right to information.
2. **Public Grievances:** There is a provision for registering public grievances and giving suggestions. Grievances registered on the website are tracked through a web application. Action is taken on all complaints within time limit, and citizens are informed by e-mail about the result of inquiry. The result of inquiry into the complaints is also notified on the website.
3. **Citizen Participation in Monitoring of PDS and Checking Diversion and Leakage:** This website also provides a method of citizen participation in monitoring of PDS. Citizens can register their e-mail id or mobile numbers on this website for participation in the monitoring of PDS. It is possible to register for more than one FPS. Whenever PDS commodities are dispatched to an FPS from the warehouse, an e-mail message and an SMS is sent to all the e-mail Ids and mobile numbers registered for that FPS. This message has the truck number, the quantities of PDS commodities being sent by that truck, and the date and time of dispatch. Citizens participating in monitoring of PDS can then check whether that truck arrived at the FPS with full quantities dispatched. They can even get PDS commodities unloaded and stored in the FPS in their presence. They can remain present at the time of sales of PDS commodities. If commodities do not arrive at the FPS in full quantity within reasonable time, citizens can register their complaint at the website which is then attended to immediately.
4. **Call center:** A call center with a toll free number has been started from 21st January, 2008. The toll free number is 1-800-233-3663. It can be dialed from anywhere in the State of Chhattisgarh. At present, the service is available from 8 in the morning till 10 in the evening. Citizens can dial the toll free number and can register a complaint or give a suggestion.

Every complaint is given a number. The citizen is immediately given this number for future reference. Complaints have been classified, and time limits have been fixed for inquiry into each type of complaint. The complainant is given the approximate time required to inquire into his complaint at the time of registration. The complainant can get information by calling the call center and giving the number of his complaint. Results of inquiry into complaints are also shown on the citizen website. The call center also provides information on various schemes implemented by the Department. G2B Applications Online Mill Registration and mill module. During KMS 2007-08, miller's registration was made compulsory. A miller was supposed to fill an application on web from any Internet point, take a printout of the filled in application form, sign and submit the same in the district food office. The details of physical verification are entered and registration is done using the web application. Miller can know the status of his application through the web. All registered mills have been given user id and password so that, they can see their business details from time to time through Internet. A miller using his credentials, can now upload scanned copy applications for getting permission, extension of agreement date and change of purchase center or storage center through Internet without going to the food office. The applications' status is monitored and SMS Alerts are to given FPS owners. FPS owners used to get information regarding the allotment, 5 to 7 days delay after allotment is released by the food officer. After the allotment is known, the FPS owner used to prepare DD and get PDS commodities issued, which used to make the lifting delayed, effecting the distribution. This service gives automatic SMS alerts to all cash FPS about their allotment as soon as it is released.

3. Government and Employee Centric

G2G Applications: This project has 8 different modules connecting different government organizations.

PACS Module: 31 lakh Metric Tons of paddy have been procured from more than 8 lakh farmers at Minimum Support Price (MSP) from November 1st, 2007 to February 15th, 2008 through this computerized system. Computers were installed at all the 1532 purchase centers belonging to 1380 PACS. Procurement of paddy through farmers and issuance of paddy to millers,

movement of paddy to FCI and storage centers of MARKFED are done through this module. Payment to farmers has been made through computer-generated cheques immediately after purchase and on the spot. PACS are mainly located at village panchayat level and Internet connectivity is not available at most of these locations. Hence, standalone module has been developed and data transfer from web to the system and *vice versa* has been done thorough 250 motor cycle riders.

MARKFED Storage Center Module: A standalone module (later converted to web module) to receive paddy from purchase centers and issue the same to FCI and miller. MARKFED maintains 50 storage centers in the state for temporary storage of paddy. The operations of the storage centers have been computerized with a stand-alone module. The data transferred from the web to the server and *vice versa* is done through web services using VSATs installed at these centers. Reconciliation of receipt at storage centers and issue from purchase centers has been automatic. A web module has been developed for manual reconciliation of unidentified issues.

Food Controller Module: District food controller/Officer with the approval of the district collector conducts physical verification of the mill and registers whether the mill details mentioned in the application are found correct. This module allows registration of mills, granting of permission for milling (ANUMATI) based on which DMO issues paddy for milling. DMO Module District Marketing Officers of MARKFED are responsible for executing agreement with the millers granted permission by the district collector. The module allows generating delivery orders to lift paddy from purchase centers and storage centers for milling. The DOs are generated against bank guarantee/ FDR or advance deposit of rice at CGSCSC/FCI CMR receiving centers. The DOs generated through this module are transferred to purchase centers through RUNNERS and through a web service to storage centers.

Runners Module: Paddy procurement centers are mainly located at village panchayat level and connectivity is not available at most of the places. A system of motorcycle riders is created, who everyday post electronic data from procurement centers and upload it on website through NICNET connected computers at block levels. This innovation of bringing data with the help of motorcycle riders where connectivity with Internet was not possible, has resulted in near real time process computerization. Through this module, runner can

upload data file obtained from society and download delivery order details for a given purchase center. Both the transfer files are encrypted with 'salt' to check data alteration during transit. CMR Receipt module for CGSCSC and FCI Web based module to receive CMR from millers as per the agreement made by DMO through his module. CGSCSC and FCI receive milled rice from millers after milling the paddy given by MARKFED. The acknowledgement of the rice shall act as security for the millers to get paddy. The details of acknowledgements generated at these centers shall be immediately available in DMO module. The data transfer is done through automatic FTP. The software does not allow receipt of more than the agreed quantity of rice. Later, the module has been converted to web module to allow receipt of rice at more than one center against one agreement.

Unified Ration Card Database and automatic calculation of allotment:

In April 2007 the State decided to make a unified computerized database of ration cards. An order was issued cancelling all existing ration cards, and new ration cards were made using computer software. Since new ration cards were made using computer software on a central server, a unified ration cards database was automatically created. These ration cards have two unique identifiers—a numeric code and a bar code printed on the ration card. All the details including the name of the head of the family, his caste, address, entitlements, ration shop etc., are all printed on the card from the database, and every family gets a custom made ration card. The maintenance of the ration card database is now done through a web-based module.

Process computerization of issue of PDS commodities to FPS by CGSCSC: Every month PDS commodity issue begins with the submission of a declaration and demand draft by FPS. All Fair Price Shops (FPS) are required to give declaration of their stocks and sales in the previous month before the issue of PDS commodities. These figures are entered in the web application at CGSCSC warehouses. Based on allocation, stock and sales figures of FPS, the actual amount of PDS commodities to be issued to the FPS is calculated by the software, and a delivery order is issued on the web application. After the issue of the delivery order, a truck challan is issued indicating the truck number, driver's name, quantity dispatched etc. The truck challan is also generated using the web application. Thus information regarding allocations, stocks, issue and sales for each FPS is now available on the central server.

Complaint Monitoring System: This sub-system is to monitor complaint redressal mechanism. Complaints received through citizen interface website and call center will automatically reach the inbox of the officers concerned. The application provides to nominate an enquiry officer, capture the report submitted by the officer and enter action taking details. Different reports help top management to ensure quick action on the complaints received. It also gives necessary information to the call center operator to communicate the status of a complaint to the citizens when demanded.

4. Integrated Government

This department has been successful in implementing an integrated workflow application involving six different government organizations covering the whole food grain supply chain without leaving any gaps. The connected organizations are Department of Food, MARKFED, CGSCSC, FCI, CCB and PACS. PACS (1532 in number statewide) run a standalone application to procure paddy, issue paddy to millers, FCI and MARKFED storage center. It generates cheques for payment to farmers and other related documents. This module requires Delivery Order details generated at DMO Module to issue paddy to millers. At the same time, the procurement details and stock position at different procurement centers are required on web. PACS have no Internet connectivity. An innovative method of data transfer through runners (which is described in the section innovation) is adapted to exchange data from web to PACS computer and *vice versa*. Miller fills an online application through Mill Module on Internet, takes a printout and submits at District Food Office for mill registration. District Food Controller registers the mill and grants permission using his web module. The permission details are available in MARKFED DMO Module to enter into an agreement with the miller and generate Delivery Orders (DOs). The generated DOs are available at MARKFED storage center through web service and PACS through runners. The agreements made at MARKFED DMO are available at CGSCSC and FCI CMR Receiving Center Module so that, the center can receive CMR as per agreement and issue acknowledgement. These acknowledgement details are again available at MARKFED DMO to generate DOs against the advance CMR deposited. The agreement completion details are available to food controller so that permission can be granted to miller. Ration card database created by department of Food is used to automatically calculate monthly allotments to different FPS. The allotment

details are available for CGSCSC distribution center module for sending PDS commodities to FPS. The lifting details from different distribution centers are available to the department of Food for monitoring purposes. Thus, all the organizations involved in food grain supply chain—from procurement of paddy to distribution of rice to FPS—are connected through different modules and sharing data. This is a notable achievement of the department.

5. Government Efficiency

- Time gap in giving cheques as payment for the paddy procured from farmers is reduced. It is the GOI scheme to procure paddy from farmers at Minimum Support Price (MSP) to ensure that, farmers get proper price for their produce. In Chhattisgarh, the state government procures paddy from farmers through MARKFED and PACS. The payment to farmers is made mostly through cheques except in 3 tribal districts for values less than Rs.5000. Earlier to computerization, there was a delay of 3 to 6 days to prepare the cheques and give to the farmers. During Kharif season 2007-08, cheques are generated through computers on cheque roles and the generation of cheques was instant. 7.8 lakh farmers were benefited during the season by receiving computer generated cheques.
- **Centralized miller data base and uniform procedures:** Computerised millers registration was introduced in this season to check execution of agreement with fake millers. Giving permission for milling, execution of agreement and generation of delivery orders are done through web-based application. In the manual methods, it was very difficult to ensure that uniform procedures are followed in all the districts. Computerization resulted in ensuring uniform procedures throughout the state.
- Process reengineering has been done after a complete study of paddy procurement and milling in consultation with all stakeholders including State Government, Markfed (The agency for procurement of Paddy), CGSCSC (The agency which uses rice), Food Controllers in the districts, District Cooperative banks, PACS, and rice millers
- Real time reconciliation of stocks has been possible and possibility of fraud has been minimized
- Web application leads to micromanagement of inventory, resulting in quicker milling, less damage to rice and paddy, and substantial savings

- Centralized Ration Card Database consisting of about 36 lakh ration cards details is available. The data is accessible to public on web for transparency sake. Village-wise, FPS-wise ration card holder's complete details can be seen on web. It resulted in identifying fake ration cards
- Automatic Calculation of monthly allotments eliminated irregularities and malpractices in granting allotments to FPS. Giving allotment to FPS and communicating the details up to FPS level is achieved in 2 hours as compared to 7 to 15 days earlier
- Computerized receipt and issue of PDS commodities at distribution centers resulted in effective monitoring of lifting and increased transparency
- The improved system resulted in more than 99% lifting before the target date of 4th of every month
- The SMS alert system, citizen interface website is encouraging citizen participation in monitoring of PDS
- Complaint monitoring system increased the speed of action on different complaints due to close monitoring
- Call center operating to accept complaints on department of food has many success stories in controlling diversion
- **Transparency Increased:** We believe that transparency is the only solution to check corruption. Thus, as a matter of policy, most of the reports generated through the system are made accessible to general public at cg.nic.in/khadya.

The following details are available on web or through SMS for citizen access and social audit.

- **Ration Card database:** About 36 lakh ration cards have been prepared through computers in 2007-08. The data is available in a database which is a base for the computerization of PDS. The data is made accessible to public on web. Public can access the following:
 - a) Village-wise, ward-wise or FPS-wise details individual ration card holders along with his name, father's name and type of ration card.
 - b) Village-wise, ward-wise number of beneficiaries.
 - c) FPS Inspection and action taken details.

- **Fair price shop details:** 10400 FPS details are available online
- **FPS wise allotment details:** Allotment of commodities for PDS schemes are automatically calculated by the system. Allotment for other welfare schemes like Mid Day Meal, ICDS, Hostels etc., are entered by District Food Controllers every month. FPS wise number of cards and allotment of different commodities for the selected month are available online for public view
- **Lifting details are available online:** The quantity of commodities reaching FPS from Distribution Centers is known as lifting. Delays in lifting are one of the big challenges that the department faces. For day-to-day monitoring of lifting by different districts and distribution centers, lifting details are made available online
- **Sales details of individual FPS:** FPS owners are supposed to submit an affidavit every month with the details of the sales actually made against the allotment for that month. The sales quantities are used to calculate entitlement of quantities that will actually be issued to the shop, keeping in account the previous month's balance quantities available in the shop
- **Details of 'Rice Festival':** Rice Festival is an innovative step taken by the department to check diversion. It is nothing but distribution of PDS commodities to the beneficiaries in the presence of public and nominated government officials on pre-specified day in a month. The details of the ration card holders benefited in the rice festival are available on web
- **Details of paddy procurement:** Chhattisgarh procures more than 3 lakh Metric Tons of Paddy on Minimum Support Price (MSP) every year from more than 7 lakh farmers over a period of 3 months. Paddy procurement is done in 1532 procurement centers in remote areas of the State. The process of paddy procurement involves purchase of paddy, payment to farmers, storage of paddy and its conversion to rice by milling. All these operations are computerized in 2007-08. The following details are available online for increasing transparency
 - Details of 7.8 lakh farmers that sold paddy to different societies
 - Procurement of paddy by different societies and its transport to FCI, Miller or Storage center
 - Details of stock at storage centers

- Payment details to farmers
- Mandi Purchase Details
- Rice procurement—CMR and levy Details of CMR and levy rice received by CGSCSC centers
- Act and control orders of the department
- Details of registered mills, permission granted for milling and agreement executed
- Complaint lodging and its status
- SMS alerts whenever trucks are dispatched to FPS to registered users.

6. Innovation and Best Practices

There are examples of innovative use of ICT in the project, which are described below.

- **Adopting Motor Cycle Riders for data transmission.** PACS are generally in remote locations where Internet connectivity is not available. An interesting innovation has ensured data transmission on a daily basis to the central server. V-Sat based Internet connectivity is available in Chhattisgarh at block headquarters in the offices of Janpad Panchayats. Motorcycle riders have been hired to bring data everyday from procurement center computers to block headquarters, where, they upload the data on the central server through the Internet. Similarly, any new version of software or other information is downloaded from the server at the block level by these motorcycle riders, and carried to the procurement centers. This innovation has resulted in having near real time data without having Internet connectivity
- **Truck Dispatch Information to Citizens through SMS Citizen Interface** website provides a method of citizen participation in monitoring of PDS. Citizens can register their mobile numbers on this website for participation in the monitoring of PDS, by selecting one or more FPS. Whenever PDS commodities are dispatched to an FPS from the warehouse, an SMS is sent to all the mobile numbers registered for that FPS. This message has the truck number, the quantities of PDS commodities being sent by that truck, and the date and time of dispatch.

- **Rice Festival (Chaval Utsav):** On a fixed, pre-announced day in a month, PDS commodities are distributed in a haat bazaar of a village, in the presence of public and nominated government officials. Other benefits to BPL families like old age pension etc., are also distributed on this day along with PDS commodities. This concept increased transparency and citizen participation
- **Truck photograph to server with latitude and longitude of truck position.** An application in J2ME has been developed and loaded in a GPS enabled mobile phone with camera to be used at a warehouse. When a truck with rice and other commodities reaches the warehouse for delivery, the truck is photographed using the application and sent to the server. The truck and receiver's photograph along with latitude and longitude reaches the server. Server side program compares the latitude and longitude of truck with latitude and longitude of the warehouse to ensure that the truck is in the warehouse premises at the said date and time. This innovation helps to check diversion.

7. Policy & Strategy

- Mill registration made compulsory
- **Computerized procurement at PACS made compulsory.** Special approval from Managing Director is required for manual procurement at PACS which will be given only for 3 days at a time
- Computer Generated Delivery Orders and Delivery Memos etc., are made legal
- Government Order was issued to cancel all manually created ration cards and to give legality only to the computer generated ration cards
- FPSs were earlier in private hands which resulted in high diversion. FPS were first deprivatized and given to Panchayats, Cooperative Societies, and SHGs etc. Even this reform is not directly related with technology, it proved to be a very good step towards checking of diversion
- Submission of a declaration with the sales details of the month has been made compulsory under EC Act. Based on the declaration, stocks available at FPS are calculated. The quantity of stocks available is subtracted from the allotment and the balance only is allowed to be issued. This checks piling up of excess stocks at FPS

- Allotments were previously given by Food Controller under the supervision of the District Collector. By an officer, ordering the granting of allotment has been automated. The system has been accepted with some initial resistance
- Computer Generated Delivery Orders and Truck Challans are made legal. Special approval from managing Director is required to issue manual delivery orders or truck challans.

Strategy Adapted

- Whole food grain supply chain from paddy procurement from farmers to rice distribution to FPS is computerized without leaving any gaps. Data is captured as and when they are generated
- National Informatics Center, a Government of India enterprise is selected as ICT partner for design, development and implementation support. NIC is providing ICT support to the project as internal part of the department rather than external agency. This strategy helped improve sustainability of the system
- **Connectivity has been given highest priority.** VSAT network has been established with 200 VSATs connecting all paddy storage centers and CGSCSC distribution centers. Broadband connection and other connectivity has been obtained wherever available as a redundancy
- Number of workshops has been conducted from the project initiation stage, as a matter of strategy to involve the field officers in the development and make them owners of the system
- **Full Dress Rehearsal:** To create the confidence and test the system in the real environment, ‘full dress rehearsal’ of the system was conducted from October 20th, 2007 to October 29th, 2007 where, all operations—procurement of paddy, movement of paddy, mill registration, grant of permission, issuance of DO and receipt of CMR, took place with dummy data.

Strategy adapted to reduce corruption in the department. In a country like India, the Government’s influence on the lives of the citizens is considerable. After independence, the major cause for the improvement in the lives of citizens is Government’s efforts. Union as well as state governments spend thousands of crores through different schemes to improve the lives of common man in the country. Even though there is an improvement in the lives of citizens after

independence, the magnitude of improvement is not matching the funds spent, due to leakages in the funds because of corruption in the system. One can see real improvement only when corruption can be avoided or minimized in the delivery mechanism. ICT should be used in the system so that, corruption can be minimized. Then the question is ‘Can technology stop corruption?’ The answer is obviously a big NO. Technology cannot directly stop corruption. But, transparency can stop corruption. Technology helps increase transparency in the delivery system. Hence, even though ICT alone cannot stop corruption, we believe that, we can reduce corruption by following the three step strategy described below. Even though, independent survey has not been done, it is visible from the system, diversion and leakage has been reduced after computerization. The strategy can be adapted in many e-Governance applications where the main objective is to check corruption.

Step 1—Creates transparency in operations so that, every citizen can very easily know what is happening and what is supposed to happen. Transparency is created in this project by computerizing all operations involved in paddy procurement and providing all information on web and some sensitive information through SMS to interested citizens.

Step 2—Provide most convenient way to give feedback or lodge complaint for a citizen so that, he can lodge a complaint whenever some discrepancy is found. Call Center with a toll free number (1800-233-3663) is used to provide a convenient way to lodge a complaint. A citizen can lodge a complaint through web also.

Step 3—Build confidence in public that complaints lodged through the system will be attended to. Complaint Monitoring System is used to monitor complaint redressal mechanism so that, confidence is built in public in the system.

8. Infrastructure

Connectivity

- Connectivity has been given the highest priority. VSAT network has been established with 200 VSATs connecting all paddy storage centers and CGSCSC distribution centers. Broadband connection or other connectivity has been obtained wherever available as a redundancy. VSAT have been taken on lease from BSNL at a rate of Rs.4000 per month. SWAN in Chhattisgarh may take one or two years time to come up. As soon as SWAN is operational, the VSAT lease shall be discontinued.

Hardware

- At each of the 1532 Procurement centers, one computer and 2 printers are set up (one for cheque printing). As there is no connectivity, data transfer is done through runners
- At each of the 50 MARKFED storage centers, 2 computers and two printers are set up. VSAT is used for connectivity
- At each 35 CMR receiving centers of FCI, one computer and one printer are set up. VSAT is used for connectivity
- At each 120 distribution centers of CGSCSC, one computer and one printer are fixed. VSAT is used for connectivity
- At 16 District Food Controllers office, 16 DMOs office, 16 DMs office and headquarters, computers with Internet connectivity and laser printers
- Five servers are set up at NIC—two database servers, one application server, one backup server and one FTP server are fixed.

9. Technologies

5 Servers are set up at NIC CGSC with Windows 2003 enterprise edition as OS and MS SQL Server 2005 as RDBMS. One server is application server. Two servers are database servers. One server is backup server where database backups are ftped automatically. One server is for FTP. Runners are supposed to FTP backup of databases from procurement centers. The system is fully web-enabled with backend MS SQL server 2005 and Front end ASP.NET. At all the 120 CGSCSC Warehouses, 16 District Food Controllers Office, 16 District Manager's Offices, CGSCSC headquarters and directorate of food, VSATs were installed for connectivity by taking on lease from BSNL. All the VSATs were put under MPLS, so that, access of web application becomes accessing through intranet. MPLS increased speed of access considerably. Broadband or other connectivity also obtained at these places as a redundancy wherever available. 4 High-end Servers are maintained at NIC Chhattisgarh State Center:

- Application server
- Database server for PDS
- Database server for ration card database
- Backup server with hourly backups from production servers.

SMS Toolkit in Java was used to develop application using GPRS Modem to give automated SMS at different events. GPS, GPRS enabled Mobiles loaded with an application in J2ME were given to warehouses to record truck receipt. The in-charge is supposed to take a photograph of the truck and receiver, using the application loaded in the mobile. The application sends photographs along with latitude and longitude to the server. The latitude and longitude are compared with the latitude and longitudes of the warehouse to check whether the truck has been photographed within the premises of the warehouse or not and accordingly alerts persons concerned, through SMS. GPS based truck tracking is under pilot implementation. Every truck transporting PDS commodities is fitted with a GPS instrument. The GPS sends longitude and latitude of the truck position using GPRS SIM to the server every two minutes. The data is analysed to find the truck's position, speed etc. If the truck diverts from the route or stops for a longer time in the geo fenced area (like mill premises etc.), the system gives SMS alerts to the concerned. The PACS are mainly located at village panchayat level and connectivity is not available at most of these centers. Hence, a form based stand-alone module has been developed for online purchase of paddy and issue of paddy to millers, storage centers and FCI. The application is in c# with backend as MS ACCESS. Paddy receipt to farmers, cheques and delivery memos are printed on computer at real time. Special importance has been given to on-the-spot generation of cheques on computers, as it reduces the delay in payment to more than 7 lakh farmers. An interesting innovation of data transmission through motorcycle riders has ensured near real time data transmission from purchase centers to the central server and *vice versa*. V-SAT based NICNET connectivity is available in Chhattisgarh at block headquarters in the offices of Janpad Panchayats. 250 Motorcycle riders have been hired to carry data everyday from procurement center computers to block headquarters, where they upload the data on the central server through the Internet. Similarly, any new version of software or other information is downloaded from the server at the block level by these motorcycle riders, and carried to the procurement centers. All operations carried out by the district level offices such as collector office, DMO of MARKFED and DM of CGSCSC as well as headquarters are computerized through web-based applications using ASP.NET as front end and MS SQL server as back-end. At each of 50 storage centers of MARKFED, 2 computers were installed with a form based module to receive and issue paddy. The transfer of data used web services. 70 Custom Milled Rice (CMR) receiving centers of

CGSCSC and 35 CMR receiving centers of FCI are initially loaded with a standalone module to accept rice and generate acknowledgement report. The data transfer between these centers and server is done programmatically through 'FTP' without manual intervention. Later it has been converted to web based application when good connectivity is ensured at these centers. At all the 65 CGSCSC Warehouses, 50 MARKFED Storage Centers, 16 District Food Controllers Office, 16 District Manager's Offices, CGSCSC headquarters and directorate of food, VSATs were installed for connectivity by taking on lease from BSNL. All the VSATs were put under MPLs, so that access of web application becomes accessing through intranet. MPLs increased speed of access considerably. Broadband or other connectivity are also obtained at these places as a redundancy wherever available.

10. People and Leadership

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Ms. Anamica Verma

Ms. Jyoti Soni

Ms. Shalini Agrawal

11. Self-Assessment

This department is an obvious prospect for getting award because of the following features.

- The department has been successful in computerization of whole food grain supply chain—from paddy procurement from farmers to distribution of rice through FPS—without leaving any gaps
- The department could successfully convince 5 different organizations (PACS, MARKFED, CGSCSC, CCB, FCI) to be part of the computerization
- This computerization is not an MIS to capture data after transaction has taken place for generating reports. But, it is the process computerization where Delivery Orders, Delivery Memos etc., are generated through the system in real time
- 7.8 lakh farmers were benefited with this computerization by receiving computer generated cheques without any delay
- The system was successfully implemented in Chhattisgarh which is a tribal dominated state and not so advanced as per the social indicators where, as computerized procurement at PACS was not even attempted at other advanced states
- Successful use of runners for transfer of data from server to PACS and *vice versa* is unique to this project
- The department successfully used the technology for the benefit of farmers and BPL families in rural areas
- All operations of Public Distribution System—Ration Card Database, allotment, procurement and issue of PDS commodities—are computerized without leaving any gaps
- 36 lakh poor families (70% of the total families of Chhattisgarh) are benefited with the PDS computerization
- Transparency and citizen participation in monitoring of welfare schemes has reached to a considerable level in this system
- Different technologies have been used—.NET based web application, web services, GPS based truck tracking (in pilot stage), J2ME application in GPS enabled mobile for truck photograph and position capturing, Java based application to send SMS. Call center

- Complaint Monitoring System, Citizen Interface website has made the government nearer to the citizen
- The whole system was developed by National Informatics Center using locally hired programmers.

Project Contact Details

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Directorate of Treasury Accounts & Pensions

M S Paikara, SBJ Cladius and Rama Prasada Rao Devarakonda

1. Department

Directorate of Treasury Accounts & Pensions (DTAP) controls all the treasuries, sub-treasuries, divisional joint director offices in the state besides providing support services to various governments, non-private departments for their financial accounting needs. The administrative department for DTAP is Department of Finance where budget preparation, policy decisions and other administrative procedures take place. DTAP & Department of Finance reports to the Principal Secretary (Finance), Government of Chhattisgarh. DTAP is also responsible for proper financial management through the treasuries, sub-treasuries in the state duly observing the budget limits communicated to various DDOs across the state through BCOs (Budget Controlling Officers) in different heads of accounts, and monitoring supply, stock and indenting of judicial and non-judicial stamps to treasuries for onward supply to registrar offices, licensed vendors as per the requirements.

Divisional joint director offices receive pension cases of state government employees submitted through respective DDOs within the division. These offices process the case, fix and issue the orders for the payment of gratuity, pension and commutation to the treasuries with copies to AG office, DDO and pensioner.

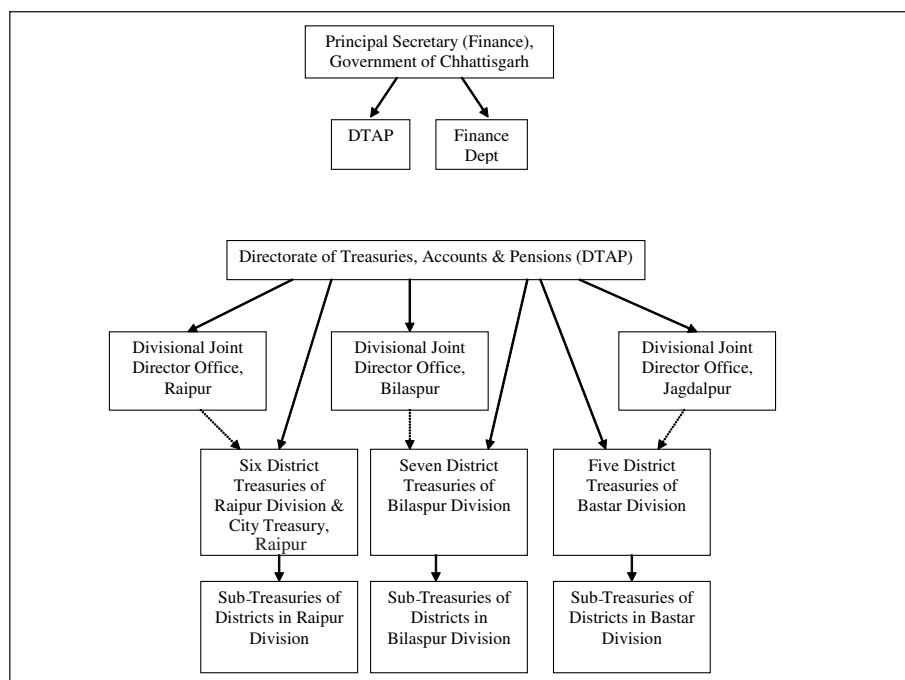
Activities of Treasury or sub-treasury:

- Facilitates withdrawal of funds by DDOs to the limit of sanctioned budgets (for budgeted bills)
- Releases monthly pensions to pensioners of various categories *viz.*, state civil, freedom fighters, ex MLAs, ex MPs

- Accounts monthly government receipts received through banks
- Submits monthly account to AG Office which in turn reports to the government
- Supplies the judicial and non-judicial stamps on demand to registrar offices, licensed vendors in the district and maintains proper account and reports to the directorate and the government on periodical basis.

While Treasury officer heads the Treasury at district level, sub-treasury officer heads the sub-treasury office and reports to the concerned Treasury officer of the district treasury. Collector/District magistrate acts as the Chief Treasury Officer at the district level while Tahsildar is the chief sub-treasury officer at sub-treasury level. Treasury/Sub-treasury also preserves and maintains the accounts with respect to valuable articles *viz.*, ballot boxes, jewellery, cash, examination papers deposited from time to time by various offices under the instructions issued by the respective Collector/DM or Tahsildar.

There are 3 divisional joint director offices at Raipur, Bilaspur and Jagdalpur, 19 Treasuries out of which 18 are District Treasuries and one is city treasury at Raipur and 45 sub-treasuries. The sub-treasuries report to the respective district treasuries and the Treasury Officer of the district treasury is responsible for maintaining the accounts at sub-treasuries along with those of district treasury.



2. Organisation Chart

3. Key Performance

- **e-Kosh (Process Automation at treasuries):** The processes of Payments, Receipts, Deposit Accounts, Works Account, Daily and monthly accounting are automated. The payments process includes bill entry, detail entry, bill passing of various types of bills—budgeted and non-budgeted, cheque preparation, cheque delivery, generation of TCS statement for reconciliation at bank, generation of required reports and disposal of cheques that were received from bank and monthly monitoring of cheques paid, unpaid and lapsed. Receipts accounting includes incorporating the daily data into treasury system after validating with the scroll sent from banks. Daily data is put into the system through—soft copy received from banks (60%), by transfer adjustments from payments (35%), e-challan (<5%) and manual data entry (max 1% in case of small sub-treasuries). Deposit Accounts is the activity of maintaining balances of authorized departments where both payments and receipts are done through same heads of account. Daily accounting and monthly accounting is to be done after integrating all sub-treasuries' data into the corresponding district treasury data duly following all validations
- **e-Kosh online (Interface for Treasuries, departments and general public):** This web-enabled software provides access to other web-enabled modules viz. Budget Management System, Employee Database, Pension Management System, CPS Administration, LoC system besides providing update information on payments, expenditure, receipts and budget allotment. The data pertaining to employees of state government under the categories of Permanent/Temporary/Contract and Contingent is captured and maintained in central server on oracle database. The data comprise personal information, initial appointment information; present posting details, nominee-details besides details of transfers, promotions, and disciplinary cases from time to time
- **LoC system:** This System facilitates Divisional Joint Director to issue LoC to works departments in accordance with the sanctioned budgets and watch the expenditure periodically. Subsequent issue of LoCs could be controlled based on the expenditure as per previously issued LoC

- **NPS or CPS administration system:** This G2E and G2G application captures employee contributions towards contributory pension scheme (New Pension Scheme) through Payroll data submitted at Treasuries/sub-treasuries and maintain accurate accounting at state level for future use
- **e-Challan** facilitates bank account holders (SBI) to pay the government taxes saving considerable time besides ensuring secure payment. Dynamic e-form was designed for paying taxes of all departments. Users can make real-time payments using Internet from anywhere and on 24/7 basis. This system ensures proper accounting of heads of account eliminating manual errors while posting on the challan
- **Pension Management System:** Pension processes ranging from acceptance of case from DDO to calculation of pension, issue of orders, monitoring of backlog database, monthly pension payments from banks is done simplifying the job of Joint Directors and Treasuries
- **e-Karmachari or Employee Database:** The data pertaining to employees of state government under the categories of permanent/temporary/contract and contingent is captured and maintained in the central server on oracle database. The data comprise personal information, initial appointment information; present posting details, nominee-details besides details of transfers, promotions, and disciplinary cases from time to time.

Statistics:

Number of Departments: 52

Number of DDOs facilitated across the state: 3800

Number of Employees: 258796

Number of Employees covered in NPS so far: 24457

Total number of Pensioners: 75000

Number of cases processed from JD offices since 2006: 20000

Monthly Averages:

Number of bills submitted in treasuries: 55780

Number of bills passed per month: 54580

Number of cheques issued per day: 27440

Number of receipts: 173450

Yearly Statistics:

Annual budget for 2007-08: Rs.18919 crores

Expenditure for 2007-08: 15570 crores

Revenue saved for government: Rs.3349 crores

Receipts accounted during 2007-08: 18462 crores

Number of LoCs issued to works departments in 2007-08: 597

Number of e-payments through e-challan in current Financial Year 2008-09: 150

Total amount accounted to government through e-challan: Rs.500 crores.

4. Citizen and Business Centric

G2C: Pension management, e-Kosh online

- Pensioners across the state are now able to find the status of their case in JD office while it is under process
- Lodge grievances for necessary redressal
- Monthly credit of pensions by banks can be viewed
- General public can access budget, expenditure and receipts related information

G2B: e-Challan

- Online Internet bank account holders among tax payers use this system for payment of government taxes
- Users are classified as Corporate and retail users
- Interface with State Bank of India is worked out accordingly and single interface is provided to the users
- e-payment related information is provided to users, treasuries and departments for necessary use
- This system ensures secure transaction of huge financial figures besides saving considerable time of tax payers which was to be spent standing in long queues in banks

5. Government and Employee Centric

G2G: e-Kosh online (Treasury Interface), e-Kosh online (Citizen Interface)

- 107 Budget Controlling Officers of 52 departments allot budgets online to district level and sub-district level DDOs
- Information on expenditure and receipts is accessible by the departments for necessary monitoring and realization
- Divisional Joint Director Offices use LoC system to issue online LoCs to works departments and monitor the corresponding expenditures
- Interface is provided to AG office for accessing treasury-related information for necessary reconciliation
- DDOs across the state get Monthly Expenditure Reports and other required reports from the system
- Departments access employee related information for necessary use

G2E: e-Karmachari or employee database accessible through e-kosh online

- Employee database consisting about 220000 employees of all departments is built
- Salary credits of employees are achieved every month through payroll interface to treasury system from various treasuries and sub-treasuries
- GPF account number of employee is cross checked with AG database for ensuring proper credits of GPF subscriptions.
- About 20000 cases of discrepancies w.r.t GPF numbers found and being solved in coordination with AG office
- Information on employee transfers, promotions, disciplinary cases, deputations, nominee details for GPF, GIS, Pension etc., is captured.

6. Integrated Government

Departments use e-kosh online for allotting budgets to district level and sub-district level DDOs. Expenditure drawn by DDOs and receipts is captured at central server through treasury software. Departments access the information on expenditure and receipts for necessary monitoring and realization. Backend workflow is tightly integrated for the modules of Pension Management System,

e-kosh (Treasury part), e-kosh online, LoC system, e-challan, Employee database and NPS system.

7. Government Efficiency

Efficiency of treasuries increased. Account compilation time reduced to 2 to 3 days at the maximum while it was a hectic job of minimum 10 days earlier. Considerable man-hours is saved and being used to extract some other important work. Over withdrawal of funds is completely avoided. Accounts with AG office is getting tallied with near accuracy while earlier up to 20% tallying was the maximum possibility.

8. Innovation and Best Practices

- VSAT based intranet of treasuries established for achieving the objectives
- All the previously existing non-banking treasuries are converted to banking treasuries for efficient handling of banking related transactions
- Budget controlling officers were requested to make online allotments to DDOs and sub DDOs at central server. Thus budget data is maintained at central server only and software takes care of accessing this data from treasuries/sub-treasuries while bill passing online
- Software related issues are centralized to maintain uniform pattern across the state
- Distributed databases with distributed environment set-up in a cost-effective manner. Data related to payments, receipts and others that is of use at the state level only, is captured through software at the central server
- Uniform coding mechanism is evolved to uniquely identify DDOs and treasuries for better integration
- Coding mechanism is introduced to identify every bill and challan of any treasury or sub-treasury in a unique manner for better-centralized maintenance of information
- Receipts data accepted in soft copy from banks is ported into treasury system saving data entry time at treasuries. Treasuries verify and update head of account only while financial figures not disturbed

- Data from sub-treasuries is merged into district treasury database on a daily basis for compiling district account on a regular basis and to avoid delay in information transmission to higher levels
- Cheque printing is made on pre-printed stationery eliminating possible manual mistakes while preparation of cheques
- Uniform payroll package is implemented in all government offices
- Manual salary bill formats are replaced with software generated bills, to reduce posting errors and saving considerable data entry time
- Employee database is maintained with a long-term objective of calculation of pension liabilities, elimination of possible multiple withdrawal of salary bills and to benefit employees by keeping information transparent
- Employee's salary payment is linked to treasury system. GPF A/c is to be compulsorily verified against database provided by AG office. This has resulted in rectification of GPF A/c numbers of about 20000 employees solving the problem of missing credits at AG office which maintains the GPF information
- Employee's data whose salary is not drawn for more than 3 months for necessary action by departments
- The first initiative for NPS (CPS) scheme is taken up in the state since April 2006. It is ensured that the salaries of these employees are drawn from treasuries/sub-treasuries only after thorough validation of PAN number, DDO code with central server data so that, the subscriptions of employees are credited properly
- e-Challan in coordination with SBI is introduced to facilitate corporate and retail online bank account holders to make government tax payments online using Internet
- All the officials are encouraged to post the problems on a common platform provided through project management portal, which in turn is accessible to all other users. This facilitates any one to verify the forum for a possible solution
- Besides, e-mail facility is provided to all the locations as an additional facility for reporting the problems and for general communication
- Implementation of uniform version at all locations is ensured through version management system.

9. Policy & Strategy

Treasury is the age-old system being observed from British times. As the time goes by, the work is becoming increasingly tedious that manual management has become almost impossible. Further, there has been a difficulty of putting effective control on budgets. Due to lack of centralized budget control system, there had been a possibility of over withdrawal of funds and misappropriation of heads of account was a regular case. Capturing of expenditure and receipts information on a daily basis was the most tedious task due to spread of the system and unconnected locations. The manual system is time taking, depended heavily on discretion of the Treasury Officer and the accounting system was tedious and riddled with discrepancies. To tackle the weak point of the system, government decided to adopt state-of-the-art technologies to implement e-Governance in the treasury system to achieve transparency, accuracy in accounting, speedier flow of information and budget control. The project 'e-kosh', an online treasury system was taken up in this direction.

After successful testing and implementation of the pilot phase of the project, from November 2004 to March 2005 in two districts, government has decided to implement the project in all the treasuries and sub-treasuries from April 2005. As a result, all the manual processes are translated into electronic processes. All the reports are electronically generated replacing completely the previous manual registers. Over a period of time, to facilitate the departments and employees in a better manner, other e-governance initiatives like LoC system, employee database, NPS scheme, e-challan were successfully taken up and well-integrated into the treasury system.

The government had been strong in the policies since the beginning. number of discussions are held among the departments, finance department and the implementing agency i.e., the Directorate of Treasury Accounts & Pensions and the consultant NIC to evolve the strategy and design a suitable system. It was directed to stop the manual system completely to ensure system dependency for all activities. Certain amendments have also been taken place in the existing treasury manual to ensure effective implementation of the project.

As a policy matter, the following decisions have been taken from time to time to achieve more transparency, smooth implementation, better benefits to the target groups.

- All the previously existing non-banking treasuries are converted to banking treasuries for efficient handling of banking related transactions
- Departments ensured online budget allotment to DDOs and sub DDOs discarding the earlier manual practice
- DDOs were instructed to stamp the head of account in a clear visible manner on the bills while submitting at treasuries
- DDOs were asked to uniform payroll software developed by NIC and submit the soft data along with physical bills at treasuries/sub-treasuries.
- Departments have been asked to ensure compulsory registration of employees in the employee database
- Employee database is linked with AG database to ensure GPF A/c numbers submitted by employees matched with AG data
- Decision was taken to implement New Pension Scheme (CPS) accounting system by capturing employee contribution from salary data submitted at treasuries w.e.f 1.4.2006. This decision helped in accurate maintenance of CPS accounting and smooth and accurate consolidation at the state level.

10. Infrastructure

To initiate the process automation at the treasuries, the infrastructure set-up was given utmost priority. Congenial atmosphere is created to work with computers in all the treasuries, sub-treasuries, JD offices and the Directorate, by facilitating proper seating arrangements, arranging machines for every working seat at an expense of less than 10 crores and provision of the required training. Necessary civil and electrical works are taken up for creation of environment at each place. The appearance of treasuries and sub-treasuries has changed with the modernization initiatives taken up by the government. Based on the volumes of transactions treasuries are classified in to three categories: class-1, class-2 and class-3. On the hardware side, all the treasuries are equipped with one sky blaster VSAT, two servers (one for standby purpose), two 5-KVA UPS systems in fail over mode. Further 20 client machines at class – 1 treasuries, 15 at class-2 and 12 at class-3 treasuries are provided. At DTAP the data management center is equipped with 3 high end 2U rack mounted servers, client machine at each working place, dedicated training hall with 20-25 clients is established for facilitating the departments to allot online budgets, updating

employee database, NPS database and other requirements. At sub-treasuries three client machines are provided only where one serves the purpose of mini server.

11. Technologies

As the system is to be cost-effective and set up at different levels, it is designed carefully keeping in view both the expenditure and comfort at locations. The details are as follows:

- Oracle 10g Database enterprise edition, supported with Linux AS operating system was set up at the directorate for the centralized maintenance of data, etc.
- Web technologies like PHP, JAVA, JSP, ASP.NET are used at the central server for providing online information requirements to treasuries, divisional joint director offices and departments
- Oracle 10g Standard edition one database at all treasuries and free edition of Oracle 10g Express Edition at sub-treasuries is implemented to serve the backend database needs saving considerable expenditure for the department. Front-end software is designed in Visual Basic which is uniform across the state.

12. People and Leadership

The project is having excellent support from both political leadership and department of finance which is the top level policy-making structure. In its way ahead, department encouraged the software development team consisting members from Directorate of Treasuries, NIC and finance department to study different implementation and cull out excellent features of the systems there, submit the project report incorporating the features. Accordingly, the implementation at Punjab, Haryana, Madhya Pradesh and Karnataka have been studied and report was prepared incorporating best features of respective systems. In fact, it is the finance department that has given all its support and encouraged the team to replace the earlier proposed system where maximum cost was Rs.2 to 3 crores with the current project initiative at a cost of Rs.11.54 crores keeping in view the long-term benefits. The political leadership also was keen to go for a good system and ensured timely sanctioning of budgets for making the project a reality. In another way, when the pilot project covering

two districts was initiated by the Hon'ble Chief Minister in November 2004, in a much celebrated function, the then hon'ble minister for finance, spontaneously announced that the rollout of the project would take place from April 2005. The department and software development team had to work on their toes to make the announcement a reality.

13. Self-Assessment

The department deals with treasury accounting, LoC system, pensions where all these activities are computerised and being implemented successfully. This model stands as the only successful model (online bill passing with budget control) among all the treasury implementations when compared to other states. Due to the budget control mechanism adopted, about Rs.3000 crores and Rs.3349 was saved for the government in 2006-07 and 2007-08 respectively raising the revenue levels to the same extent. As per the visits made by teams from other states, it is understood that Chhattisgarh model is unique and combining all the activities even when compared to that of other developed states.

Roadmap

- Implementation of Electronic Clearing System to facilitate crediting of salaries drawn through treasuries into the employee's bank account and to reduce printing of even number of cheques and to save cheque stationery. It is expected that 50% of the cheque stationery is used for printing salary cheques.
- Implementation of e-Payroll to facilitate DDOs to prepare online pay bills of employees and submit the validated data of both bill and employees online to treasuries. Treasuries just need to verify the numbers and physical records. This facility eliminates the need of uploading the soft data at the treasuries and hence, the need of maintaining data in local servers. Considerable time is expected to be saved at the treasuries that is being spent on uploading of data, verification of bills for errors etc.
- **e-Bill Submission:** This is to facilitate DDOs submit online bills to treasuries with due validation of bill data in all respects. DDOs can digitally sign the data and take the hard copy of the bill and send to treasuries. By keying in the reference number of the bill, treasuries can download the required data online and process the bills. A lot of validation and verification time is expected to be saved besides faster processing of the bills.

- **Calculation of pension liabilities:** Work is in progress in coordination with banks to ensure monthly pension scrolls from banks are received in time and to rectify employee database as per requirements to forecast the pension liabilities on state over a period of time. This data is expected to provide sufficient inputs to government for necessary planning of expenditure on a long-term basis.

Project Contact Details

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EIGHT

Department of Rural Development

K Raju and M Padma

1. Key Performance

The Department of Rural Development, Government of Andhra Pradesh is focusing on proving the efficiency and effectiveness of public administration by coming close to citizens by providing government information and services through ICT interventions. The website www.rd.ap.gov.in provides information about structure, functions and services of the Department and has links to related websites, wherein, the concerned schemes are implemented through the work flows of customized software applications.

The sole aim is to:

- Increase efficiency and effectiveness, and to enhance transparency and accountability in the delivery of government services through the use of information technologies
- Improve the internal workings of government to be externally oriented and more customer-focused
- Facilitate collaboration and the sharing of information within and between government agencies
- Reduce significantly transaction costs leading to savings
- Encourage participation and empowerment of citizens including the disadvantaged groups and, communities in the rural and remote areas (grass-root level) through closer interaction with the government
- All this has led to the overall impact of the citizens getting connected to the department more easily

- Achieving efficiency in public service delivery through faster dissemination of department's information to a larger audience
- Reduction of the cases of corruption as accountability and transparency is increased and the Department's activities are easily monitored
- Providing equal opportunity to access information which is provided, regardless of one's physical location and physical disability
- Breaking the barriers of bureaucracy experienced generally in the government offices as the hindrances caused by those in 'power' are removed and the services are offered regardless of one's background
- Reach all the people who need government services regardless of their location, age, status, language
- Interdepartmental exchange of information
- Convergence of related services thus leading to significant reduction of transaction costs, time, space, and manpower
- Enhancing the internal efficiencies. Implementation of this system has enabled employment of a large number of rural youth as computer operators, instilled a sense of accountability in the administration and instilled confidence amongst the rural poor in demanding due entitlements.

2. Citizen and Business Centric

- **Rashtra Grameena Abhivridhi Samacharam – RAGAS software:** RAGAS is a wage seeker centric and solution-focused initiative, which seeks to empower people, particularly the disadvantaged. Standalone software application placed at all the 1098 Mandals of 22 rural Districts of Andhra Pradesh to implement three area development-related premier programmes of the Department of Rural Development, Watersheds, Comprehensive Land Development Programme (CLDP) and National Rural Employment Guarantee scheme (NREGS-AP). The job cards registration, the work estimates, wage payments and funds handling are carried through software. The daily transactions are uploaded to central server and the information is available in the respective websites with the URLs—Watersheds (<http://www.nrega.ap.gov.in/Watershed/jsp/>), CLDP (<http://www.nrega.ap.gov.in/CLDP/index.jsp>), NREGS-AP (<http://www.nrega.ap.gov.in/>).

- **Social Security Pensions – SSP software:** The ICT solution is used in social security sector in order to provide an optimal tailoring of social security benefits in a financial feasible way with special attention for prompt, efficient and high-quality services to the beneficiaries. It facilitates regular payment and monitoring of the disbursement so as to maintain transparency, thus is an effective anti corruption initiative. The transaction details are captured in the Districts and uploaded to the website with the URL – <http://www.ssp.ap.gov.in>
- **Smart Card Project:** Timely disbursement of Social Security Pensions and wages to the target group with zero leakages is the avowed aim of the Government of Andhra Pradesh. To achieve this, the Government has initiated the Smart Cards project in partnership with banks and financial institutions for prompt payment of Social Security Pensions (SSP) and wages to NREGS (National Rural Employment Guarantee Scheme) labour leveraging technology, by using smart cards. This not only enables reliable identification of beneficiaries of the schemes through finger-print validation but also, promotes Financial Inclusion. The URL for seeing NREGS payments through smart cards is <http://nrega.ap.gov.in/Nregs/smartcard.jsp>
- **Employment Generation and Marketing Mission – EGMM software:** This software captures the training and improvement of skills of the economically and socially underprivileged rural poor from remote areas with a bottom-up approach, tailored to move the rural poor from the unorganized to the organized labour market. The URL for the website is <http://www.egmm.ap.gov.in>
- **Aam Admi Bhima Yojana – AABY software:** Through this software Indira Jeevitha Bima Pathakam—AABY is implemented. The scheme is a Group Insurance Scheme for the benefit of Rural Landless Agricultural Labourers through Life Insurance Corporation of India. Through this scheme, the poor have access to relevant and affordable insurance and are protected from risks on death/disability. Children of the poor are financially supported for education through scholarships. The website contains member, village, mandal, district, gender, castewise details. It projects members profiles and generates all types of analytical reports basing on age and other parameters. It also contains list of children

eligible for scholarship with details like their class, schools and place, status of payment of scholarships etc. It gives information of call centers like call center numbers and all the insurance Anchor persons' numbers. The URL of the website is <http://www.aaby.ap.gov.in>

- **Social audit:** Social audit is an independent evaluation of the Rural development programmes like RAGAS at the grass-root level. It brings out the strengths and weaknesses in great detail by providing a formal forum for articulation of the issues of the primary stakeholders and accountability of those responsible for implementation. The social audit findings and the action taken are captured and web enabled. The website will be put in public domain shortly.
- **SHG software:** 90,97,139 members are organized into 7,29,522 SHGs in 34,269 Village Organizations (VOs) and 1086 Mandal Samakhya (MSs). In addition, there are 126 Mandal Vikalangula Sangams, 17 Chenchu Mandal Samakhya and 15 Fishermen Mandal Samakhya. Zilla Samakhya have come into existence in all the 22 districts. The SHGs in AP, constitute around 25% of all 27,99,850 SHGs in India. All their activities are proposed to be carried through the workflows in the software and visible in the website. Performance monitoring of different initiatives by SHGs, Performance monitoring of different SHGs, Transparency and visibility reducing corruption and leakages, Grading of SHGs by setting certain parameters, review of loans, utilization of funds, and impact against each SHG are some of the benefits flowing from the website. This website will be in public domain very shortly. Fast and accurate information flows to the beneficiaries.

3. Government and Employee Centric

All the above 7 e-governance projects serve as the best decision support systems apart from generating transaction-based monthly progress reports, which are of immense use to the implementing department as well as other welfare departments that need this data to plan their activities. However, two initiatives are made exclusively for G2E and G2G.

- **HRMS software:** The objective of developing the HR system is to professionally manage all the contracts and bring in transparency in implementing all the HR processes from Manpower Recruitment to Exit

Management. HRMS software deals with the contractual agreement of all the staff recruited for implementing the RD Programmes. The web-based HR services enable the FTEs, the Unit Reporting Officer, DDO etc., to avail various HR services at their respective work units in/ for Generating FTE contracts, Access to Service register, Access to Roster register, Access to career advancement list, Generating monthly pay orders, Generating Pay slip, Generating HR analytical Reports etc.

- **FAS software:** FAS software is the customised accounting package developed to maintain accounts in the Commisionerate, Department of Rural Development, Project Directors' office of DWMA (District Water Management Agencies) and DRDAs (District Rural Development Agencies). This is being implemented in the Commisionerate, and DWMA offices. Shortly, it will be implemented in DRDAs and will be web-enabled.

4. Integrated Government

- In RAGAS, synergies are achieved across service delivery channels, enabling the sharing and re-use of data for more proactive service delivery. The pay orders are given to post offices to deposit the wages in the wage seeker accounts. Photos are captured from Civil Supplies database that have captured the iris of citizens to issue ration cards. The information in the website is used by other welfare departments like Scheduled Castes welfare, Backward Class welfare, Scheduled Tribes welfare departments, and horticulture and irrigation departments to monitor and plan for convergence.
- The insurance policies in AABY are directly downloaded by the Insurance department for processing the claims and thus avoiding the delays of manual transfer. This is the first time that LIC has introduced electronic-claim settlement system for speedy disposal of the claim. A dedicated satellite office has been created by LIC for this purpose and shall have regular access for downloading the documents. It is a public domain which can be accessed by any individual (common man) to track the status of claim settlement process not only the Government & LIC. It is a technological intervention, which the rural community is in a position to utilize the services of Information & Technology to the optimum.

- In smart cards Projects, Collaborative partnership is established between the Government and banks/financial institution. The Government of Andhra Pradesh has partnered with 7 banks. M/s Little World, M/s FINO and Integra are the service providers.

5. Government Efficiency

The Department of Rural Development's vision is to eradicate rural poverty and secure better quality of life to the rural poor. The challenges lie in harnessing the innate potential within the poor and enabling the poor to manage the natural resource for sustainable development. Enhancement of skills of the poor, access to credit, technology and markets has proved to be critical to economic empowerment of the poor. The above e-governance initiatives reflect the Department's strategies and approach to poverty reduction with a commitment to provide transparent accountable governance.

RAGAS software: RAGAS is a powerful tool in the hands of the stakeholders who can browse information about entire gamut of activities under the three programmes. It aims to demystify work estimates, reduce drudgery of paper work, make the work available on demand by maintaining a shelf of works and monitor the works through measurement books and muster rolls. It also aims at funds management by tracking wage payments, material payments and administrative costs. It facilitates social audit and right to information. It is a robust web-based monitoring and review tool. Fulfilment of 100 days guarantee for every household can be monitored. Every work and every rupee spent on EGS can be tracked. All the MIS reports required by the district, state and central administration are readily available, reducing the effort of preparation of such reports and increasing the accuracy of data RAGAS has helped in reaching out to 2,45,99,635 people (as on 12.9.08) who applied for work in 65,000 villages covering 275,000 sq km. Payment of minimum wages to every worker is being monitored and it is ensured that women are not discriminated in calculating their wage entitlement. The delivery of entitlement of every worker is monitored and fraud is prevented by making every business process simple and transparent. Worker population is spread over 275,000 sq km. Availability of funds is crucial to provide work and make wage payments. Daily monitoring of funds position at all locations helps to identify and replenish funds in nearly 1000 locations on a timely basis, thus leading to enhanced coverage of under-served population. Paying bribe to Government functionaries/

agents is practically nil and whenever it is paid, it is exposed during the social audit leading to recovery and transfer to the rightful owner.

SSP software: The ICT solution has ended the clumsiness of the delivery system and reduced misrepresentation and fraud by building a comprehensive client database. The ICT solution has also brought in checks and balances to ensure proper working of the processes. All the key processes are captured in the software work flows. By the 20th of every month the District Collector issues a release order generated through the software. Then proceedings and acquittance lists are generated. The DRDA sends them along with cheque to the pension-disbursing agency, i.e., the MPDO office. The Mandal Parishad Development Officer (MPDO) in turn gives the cheques and acquittances to the designated functionaries to disburse pensions in the village. The designated authority disburses pensions on 1st of the month at the notified venue, which is mostly a government building in the village. For all those beneficiaries who were not present in the village on 1st, the disbursement is done again on 5th. On 5th evening, the acquittances along with Utilization Certificate and undisbursed amount is returned to the Mandal Office. Temporary migration or death of a beneficiary is marked in the acquittance. DRDA receives the acquittances and undisbursed amount from the whole of the district by 8th. The data in SSP Software is updated and uploaded by the 15th of every month. District Collector issues financial approval to the pensions in the proceedings generated only through SSP s/w live data base containing names of the pensioners' mandal/municipality wise. No money can be disbursed without this approval. As and when new pensions are sanctioned, the sanction proceedings of the MPDO/Municipal Commissioner have to be communicated to the DRDA. The DRDAs update the data base with the particulars of newly sanctioned pensions. In all such cases supplemental financial approval for each Mandal/ward is generated by the computer and communicated to the Mandals/wards after obtaining approval of the District Collector. The G2C ICT solution is helping the rural poor to leapfrog some of the traditional routes to development by improving access to information and making the delivery system work better. As the information on pensions and the 5.27 million data base is in public domain, misrepresentation of the fact can be detected thus leading to removal of ineligible persons. It is enabling right targeting.

Smart Cards Project: Payments are delivered within 4 days of transfer of funds to banks. Citizens have welcomed the model because, it offers tremendous convenience to them by bringing banking services at their doorsteps.

Because of the customers biometric and keys inserted on the card, it is not possible for anyone to read the customer's account details without authentication. This has eliminated proxy payments. This has helped especially the old to access their money without any third person knocking it away. Single card for all the Government benefits is preventing the same benefits reaching the beneficiary twice. This is helping the Government to cater to large beneficiaries unlike before, wherein, a small group cornered the benefits. Bogus beneficiaries are eliminated in a foolproof manner. Death vacancies and permanent migration cases have come to light as banks give information about the pensions not disbursed. This has eliminated the bogus entries. The banks are using this as an opportunity to extend their services up to the village level as part of total financial inclusion.

EGMM software: Tracking each trainee until his recruitment has helped to trace the impact of the programme in providing employment to the economically and socially underprivileged rural poor from remote areas.. The data base has worked as the best decision support system to plan for the priority sectors of trainings, wherein, there is maximum scope for trainings.

AABY software: The software enables the Government's mission to empower the Community to play an active role in insurance operations, to reduce people's vulnerabilities through social security measures like Indira Jeevitha Bima Pathakam—AABY and to protect their income and asset base, by creating an enabling environment. Social Audit: Social audit has led to efficiency in building awareness of schemes and their entitlements. Social Audits act as an effective mechanism to resolve problems, perceptions towards officials, ability to approach officials to register complaints.

HRMS software: The contract employees' service matters are taken care. They can download their salary slip, know when their next salary hike is due and know about the emoluments of their colleagues, thus enabling them to voice forth their grievances. The Department is also able to efficiently manage the HR issues of the contract employees.

FAS software: FAS is ensuring Collection, Collation and Compilation of Financial Data. It helps in the decision-making activities to be more practical and result-oriented. Effective Fund Management of all schemes implemented in the Department is now possible.

6. Innovation and Best Practices

RAGAS software: When similar schemes were implemented earlier, in the absence of any extensive use of ICT, it was very difficult to address the matters of concern like lack of funds, lack of accountability and transparency. So, funds required for operating and maintaining the system are made available by the administrative component of the NREGS funds. For acceptance and understanding of all stakeholders to ensure that its benefits flow to the society as a whole, communication campaigns are run at the villages and knowledge sharing workshops arranged. At least one critical transaction at every stage passes through computers making it difficult (but not impossible) to steal from the poor. A cumbersome process of preparing estimates has been simplified duly saving several person months of unproductive time which otherwise the field officials would have had to spend. The payment cycle has been significantly reduced to less than 15 days. In the manual process calculating the measurements or the outturn per group will take at least a day, and taking their attendance, calculating the wage is cumbersome leaving scope for errors. Preparing work estimates in 65,000 villages is a tedious task. The software has a work estimate module for nearly 100 types of work. The input for the estimate is greatly simplified allowing even a para-technical person to collect the data. Once the data is entered into NREGS-AP, the estimate for the work will be generated including designs and drawings. This tool has drastically reduced the drudgery of manual preparation of estimates and demystified the concept of preparation of engineering estimates. This solution becomes the most efficient tool to prepare estimates for a large number of work spread over a vast geographical area, thus enabling the government to open work wherever and whenever the wage seekers demanded. Payments to wage seekers are being made entirely through agencies like banks and post offices ensuring that the right amount reaches the worker. The pay slips, generated along with pay order, are distributed to individual wage seekers informing about their payment details, thus preventing them from being misled by any middlemen. Equal wages are ensured among men and women through system calculations and direct deposit in their bank accounts. The wage seekers can go to banks/post offices and withdraw money or save it in their account, as required. Management systems, records and work processes are in place to provide the necessary data to support the ICT solution. In fact, the registers or support documents are compatible to the UI screens of the software and thus facilitate user friendly screen entries for generating job cards, estimates and pay orders.

SSP software: Social Security is one of the important dimensions of the development process. The welfare measures are intended to secure for the citizens adequate means of livelihood and raise the standard of living. In order to secure dignified life to all such vulnerable people, Social security pension scheme is envisaged. But, the earlier structure for implementation of social security scheme was flawed and was replete with operational difficulties. There were several examples of pension not reaching the target group. The ground reality was not captured in the monitoring format. The entire allocated amount was accounted as disbursed even though there were several death vacancies or temporary migrations. For months together the pension amount was not released for distribution and even when released was not distributed as per a schedule. The pensioners were put to hardship not knowing when the pensions would be distributed. Thus, lack of information resulted in the pensioners running around the offices, thus, adding to their plight. The middlemen took advantage of the situation and misled the pensioners. The names of the pensioners were not known widely. So, there was every chance of an ineligible person getting the benefit without others knowing about it. There was also scope for adding fictitious names and middlemen benefiting out of it. Leakages, lack of transparency, limits of the supervision and enforcement capacity of the authorities have all contributed to the sub-optimal implementation of the social security scheme. Major challenges faced by the Government has been lack of transparency and the resulting non-accountability in managing the massive social protection scheme. The focus has been to create an enabling environment to facilitate transparent disbursement of pensions. The ICT solution seeks to overcome the flaws and provide quality service to the pensioners. ICT solution has brought in the transparency and accountability which was missed earlier when the social security scheme was implemented manually. The generation of sanction proceedings and acquittances has led to prompt payment of pensions which was shrouded in uncertainty. Tracking of undisbursed funds through the software has improved the financial health. The receipt of pension can be checked as payment details are available in the web. The vacancies are listed enabling any eligible person to apply. The pensioners now get paid on 1st of every month which was not the case when the data base was manual and scattered.

Smart Cards Project: For the payment through Smart cards, proper resource planning and innovative financing mechanisms are evolved. Here, banks are roped in, to fund the smart cards as part of total financial inclusion and the banks are seeing this as a long-term business opportunity.

EGMM software: All trainings are free of cost to benefit the rural unemployed youth, as an initiative of the government. As the database of the trainees is maintained, the same person will not be trained twice in the same sector, thus preventing the wastage of resources. At the same time, his skillsets are adequately mapped with employment opportunities.

AABY software: The Zilla Samakhyas CBO federations promoted by SERP have shouldered the responsibility of conducting awareness, enrolment of members, data entry and claim settlements. The responsibility of Bima Mithras is to visit and handover an amount of Rs.5000 as a solatium to meet the exigencies, to the bereaved families within 24 hours of the demise of an 'Aam-admi'. This intervention is the first of its kind in the entire State. The remaining Claim amount is processed within 10-20 days through online/electronic submission of the documents. Social Audit: The villagers themselves are empowered to audit the works carried out in their village. This has increased their confidence in questioning the performance of a programme if it is not implemented in the right way.

HRMS software: For administering the RD schemes over a period of time, the staff drawn from the Government departments and as well the open market has been exponentially increasing. To ensure quality service delivery and achieve the programme objectives, these personnel are required to be attracted, retained and managed in professional ways on contemporary standards. In this context, the department designed and developed HR systems for all the contract staff through web-enabled system. The MOUs with the contract employees are generated through the software.

FAS software: This software has ensured complete record of Financial Transactions with arithmetical Accuracy, showing trial Balance and Financial Statements at anytime. Control over expenditure is established within one month of deployment.

7. Policy & Strategy

The Department is committed to computerise all the backend processes in a phased manner to provide e-governance. A proper regulatory framework is put in place to enable secure information exchanges within and between government, and citizens. All business processes have been engineered in such a way that delivery of every service is through the software and based on actual transaction.

The information available in the websites is exhaustive and if the stakeholders need any further information, they mail the requirement to the data center, wherein specific queries are run and reply is got. The software has been developed using the most commonly and popularly used technologies. Proper documentation of requirement specifications, design and code has been made available for easy maintenance of the software. The business strategy is prioritized to build on strengths, resolve weaknesses, exploit opportunities and avoid threats.

8. Infrastructure

RAGAS software: At the Mandal Level the following hardware is set up—

- Standard desktop configuration: Intel Pentium IV or equivalent with 512 MB RAM and 40GB Hard disk
- Laser printer
- UPS
- LAN with 4-port hub
- Wireless mobile card or NET ONE (BSNL) connectivity... At the state level data center – ProLiant DL380G4, 2CPU boxes, 4GB RAM/ 600 GB HD.

The server hosting RAGAS application with NREGS-AP, watersheds and CLDP, also has HRMS websites placed on it. The SHG software will also be shortly hosted on this server. The Department servers kept within APSWAN hosts RD, AABY, SSP and Social audit websites. The web version of FAS software will shortly be hosted in NIC server.

9. Technologies

1. RAGAS software
 - Web Application using J2EE, JSP
 - Database: Oracle 10 g
 - Application Server: Oracle 10g
2. Social Security Pensions
 - Web-based application

- Windows 2003
 - ASP.net
 - SQL Server
3. EGMM software
- Web-based application
 - Windows 2003
 - ASP.net
 - SQL Server
4. Aam Admi Bhima Yojana (AABY)
- Web-based application & Windows 2003
 - ASP.net, Csharp
 - SQL Server
5. Financial Accounting System (FAS)
- Web-based application
 - Windows 2003
 - Java
 - SQL Server

10. People & Leadership

In deploying the varied software applications in the Department, the genuine commitment from political leaders, the private sector and civic organizations is garnered. For over more than a year, a strong political will has seen through the transformation process in its internal operations as well as with regard to its interaction with the society. Frequent stakeholders meetings and workshops have led to knowledge-sharing and removal of any apprehensions that may scuttle the projects. Positive attitude is built through periodic motivation and orientation from the ministry and higher-ups. Knowledge and skills are periodically upgraded to all the stakeholders whenever there is version change or a change in implementation processes. General resistance to change and

information-sharing is overcome in the initial stages through formal, informal interactions and by making use of software compulsory in service delivery. The personnel at the cutting edge level are selected with diligence and trained through class room, field and immersion modules to enhance their competence and sensitize them to customer-orientation and overall commitment. The evolutionary change of the institutional arrangements is handled before implementing the software applications. All the employees responsible for programme implementation have also been trained/oriented in operationalising business processes and using outputs for efficient delivery of services as well as championing change management. To guide this transformation process, appropriate management and co-ordination mechanisms are put in place. An officer, trained by IIM- A, India, in handling e-governance projects, is made in charge of major ICT solutions to coordinate at all levels and also to guide the other e-governance initiatives taken up in the Department.

The team at various levels includes

Dr. G Chinna Reddy, Hon'ble Minister for Rural Development

Mr. K Raju, IAS, Prl Secretary, RD

Mr. T Vijay Kumar, IAS, CEO, SERP

Ms. A Santhi Kumari, IAS, Commissioner, RD

Dr. M Padma, Joint Commissioner, (IT, M&E)—Advisory and co-ordinating role in all e-governance projects in the Department besides being the officer in charge of the RAGAS software initiative and in charge of the NREGS part of the smart card initiative.

RAGAS software

Mr A Samuel Kumar, i/c Director, EGS

Mr Venkat Rami Reddy, Joint Commissioner, CLDP

Ms K Nirmala, Joint Commissioner, Horticulture & Plantations

Mr Kishan Das, Joint Commissioner, Watersheds

Software provider: Tata Consultancy Services (TCS)

SSP software and Smart Card

Ms Anita Ramchandran, Director, SHGs, i/c of SSP & Smart Card Projects

Mr S S Raj, Special Officer (SSP)

Mr Ganti Srinivas, Officer I/c of SSP software

Mr M Satyananda Kumar, Team Leader, SSP software

Ms T Ramalakshmi, Asst, SSP

Mr A. Rajendra Prasad, Retd. Banker as Smart card Project Consultant

Ms A Madhavi Rani, Team member, Smart cards

Mr M Rajesh Babu, Asst., Smart cards

Service provider for SSP: M/s Binary Software Solutions

Service providers for smart cards: M/s Little World

M/s. FINO Limited

M/s Integra Micro Software Services (P)

EGMM software

Ms Meera Shenoy, Executive Director,

Ms Lakshmi, Addl. CEO, EGMM

Service Provider: M/S Binary Software Solutions

AABY software

P.Chinna Tataiah, RPD, SERP, I/c of AABY

Service Provider: Progment Software Technologies Pvt. Ltd.

Social Audit

Ms V Karuna, Director, SPIU, i/c of social audit project

Service Provider: Byrraju Foundation

HRMS software

Dr K Tirupathaiah, IFS, Spl. Commissioner, RD

Mr R Madhav Rao, Joint Commissioner (Admin)

Ms Ch Shashi Kiran, Asst. Project Coordinator HR
Ms. D Kalpana, Asst. Project Coordinator IB,CB
Ms S Nirmala Sr.Consultant – ASCENT
Ms Shraddha Dhavle Associate Consultant – ASCENT
Mr G Prabhanjan Rao DD Admin – AMR APARD
Mr M S Sastri CDS – APARD
Service Provider: Tata Consultancy Services

FAS software

Ms Lalita, CAO, RD
Mr Subrahmanyam, AO, RD
Ms Kiramnayi, CFM, NREGS-AP
Service Provider: National Informatics Center (NIC)

11. Self Assessment

Department of Rural Development believes that access to avail relevant and timely Government information is a basic right for each citizen. Hence, the RD website projects the latest happenings in the Department to have a balanced knowledgeable citizenship as well as an efficient and effective system of governance. Further the series of e-governance initiatives taken up in the Department once again prove its commitment to provide accountable, reliable and transparent governance that is totally citizen-centric.

RAGAS: RAGAS is a wage seeker centric and solution-focused initiative which seeks to empower people, particularly the disadvantaged when the NREGS was launched, Government's major challenge was how to ensure that the programme reaches every needy citizen who ekes out his/her daily bread through that the day's manual work. So, an effective ICT system is designed. Since the scheme is launched with the ICT solution in place, there were no manual overrides. All processes required to provide wage employment to the poorest of the poor, including timely wage payments are computer enabled through RAGAS software, that facilitates capturing of data as transaction occurs and the data is uploaded to the web daily. Thus, the information seen in the website is not only authentic but also the most up to date information.

The solution is deployed in a computer center which caters to about 20 villages. Each center requires two full time operators who are necessarily taken from the local rural area, trained and deployed. Thus the solution has helped in bridging the digital divide by emerging as a driver to impart and employ local rural youth in the IT industry. As on 12.9.08 the transactions carried are — 1,08,53,327 job cards are issued. 6,31,445 number of works worth 5,46,146.355 lakhs are available in shelf. 4,56,612 number of works worth Rs.30,90,92.94 are completed 4,14,043 number of works worth 51,40,89.68 lakhs are in progress 35,17,97.19 amount is paid as wages to 1,18,53,962 wage seekers of 69,56,252 households creating 42,63,18,750 person days. 15,02,078 works worth Rs.1,36,93,04.29 lakhs have got administrative and technical sanction. 1,18,53,962 wage seekers demanded for work and are given work. Equal opportunities and equal wages: 63,89,855 women got employment as against 54,64,107 of men and got equal wages. 73,284 disabled got employment.

SSP software: The social security pension scheme is an important strategy of the Government in alleviation of poverty. It helps the households in managing risk and fighting the shackles of poverty. The dominant theme of the initiative has been transparency, accountability and timely cash disbursements to the pensioners. The key benefits resulting from such initiatives are timely and advance release of funds to the districts, disbursement of pension on specified dates, proper identification and filling up of death vacancies, monitoring of disbursement through web-based portal, while generating acquittances electronically etc. There has been tremendous reduction in the cycle of release, disbursal and sending of utilization certificate with regard to funds management. The main stakeholders are benefited as they get pensions on 1st of every month, thus reducing income vulnerability. The ICT tool has succeeded in demystifying social security pensions.

Smart Cards Project: The smart card Project was initiated to ensure proper targeting and identification of beneficiaries and prompt and accurate payments to the correct beneficiaries. Chip-based smart card with biometric (finger print based) and photograph as proof of identity is used for disbursement. Till now Rs.28,56,42,737 is paid through smart cards.

EGMM software: Based on the impact of the work thoroughly enabled through the software, 191 training institutes have been set up in sectors ranging from services, construction to textiles, with a focus on tribal and remote areas.

80% of the youth trained have been linked to entry level private sector jobs. Annual salaries are ranging from Rs.45,000 upwards in metros and Rs.24,000 upwards in semi-urban areas in Retail, Healthcare, Hospitality, Security, IT Enabled Services like BPOs, Construction and Textiles.

AABY software: In order to achieve transparency, accountability and efficiency in the implementation of AABY, Web-Based MIS and claim settlement system is established. All Call Centers are connected to this website through internet, wherein all claim particulars and claim documents are uploaded on a day-to-day basis. The entire process of service delivery system is totally administered and monitored by SHGs and they collect Rs.10/- from each applicant. The entire operational expenditure and the administrative cost of the Call Centers like meeting the payments of Call Center operators, Bima Mithras, ZS-Sub-Committee members is met from these services charges. 38 lakh policies are available in the web.

Social Audit: Social audit is conducted involving all the stakeholders. SA is done in all the Panchayats over a 10 day period. On a pre-notified date a social audit public, meeting is held, wherein, village wise SA findings are read out, public testifies, officials respond. Corrective measures are taken immediately. So far, SA process was carried out in more than 33,582 Habitations in 13 Districts. During SA Process an amount of Rs.1.33 crores was recovered from different erring officials belonged to all 15 EGS districts.

HRMS: The web-based HR services enable the FTEs, the Unit Reporting Officer, DDO etc., to avail various HR services at their respective work units in/for generating FTE contracts, monthly pay orders, Pay slip, HR analytical Reports etc., all time access to Service register, Roster Register and career advancement list is ensured.

FAS software: FAS Software has led to timely estimation/determination/provision of funds and efficient use of important and scarce resources. Sums expended are properly accounted for. Timely reporting is providing data for formulation of future plans/projections. Reduced dependency on auditors is felt and easy review of financial status is facilitated.

All the above projects have both political and administrative support. An efficient management team is in place and right from the beginning the focus is on business change and the implementation of methods for achieving

and maintaining this. Culture change and process change is integrated with software deployment. Time lines are fixed and monitored. Day-to-day running of the projects is delegated allowing senior management to focus on the big picture and provide input at key decision points or when an exception arises. Right from inception there is clarity of requirements, objectives are realistic and outcomes well-defined. All stakeholders' views are built in. Services are defined not from a departmental viewpoint but from a citizen's perspective. In fact, the stakeholders' views are continuously taken for upgrading the software. GOAP provides financial support from its State budget to maintain the ICT infrastructure. The gains that Government receives by curbing corrupt practices would more than offset the expenditure involved in the maintenance of the ICT. Thus this initiative is not only a business model but also sustainable. Last but not the least, the ICT solutions give transparency, bringing lot of credibility to the Government's image of making the poor, part of the main stream development and thus, making economic growth truly inclusive.

Project Contact Details

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NINE

General Administration Department (Personnel Division)

Neeta Shah and K George Joseph

1. Key Performance

Savings for the Government:

- Due to online processing of letters and consequent auto-maintenance of data, 472 posts of clerks have been abolished as on 01/08/08 resulting in a saving of Rs.5.45 crores per annum.
- Paper consumption is reduced because of online processing of files.

2. Government and Employee Centric

Activities implemented successfully using IWDMS (Integrated Work-Flow and Document Management System):

- **Online Letter and File Processing:**

During 01-04-2006 to 22-08-2008:

- 1,52,118 letters are entered and processed online
- 86,146 online file processing within GAD (Personnel)
- 14,271 UORs (Files from other departments) are processed online
- **Leave Module:** Online leave processing for employees in GAD and IAS Officers
- **EIS Module:** Database of Employees Information of 225 IAS officers and 139 GAD officers and 3388 State Secretariat Employees

- **Secretaries' Meeting Module:** Online processing of creation, approval and issuance of minutes of State Secretaries' meeting
- **Monthly Review Meeting Module:** Online processing of Data for Departmental Monthly Review Meeting using 16-points module; progress/status is reviewed by Additional Chief Secretary (Personnel) online
- **Payroll Module:** Pay bills are generated online and salary-slip is sent online to all in GAD.

Activities other a IWDMS:

- **Central Record Room Module:** 4,50,981 pages of 4683 files scanned and uploaded as on 21/08/08
- **Central Registry Module:** Computerized Central Registry works as central post office for Ahmedabad and Gandhinagar Government offices.

3. Integrated Government

- **IWDMS (Integrated Work Flow and Document Management System):** For online processing of letters, files, leave, generating salary slip spread all over the secretariat
- **IACMMS (Integrated Access Control Man Management System):** It records in-out movement of employees as well as the visitors in Gujarat Secretariat and it has enabled the department to discard manual attendance registers.

4. Government Efficiency

97% disposal of letters and files aged over 10 days which shows improvement in efficiency.

5. Innovation and Best Practices

- Monitoring of pendency of letters and files using specially customized "Work-Sheet Disposal" (WSD) Report
- Monitoring of usage of IWDMS using Daily/Monthly Login Reports

6. Policy & Strategy

Capacity Building for Implementation of e-Governance (State Level):

- Computer Knowledge made compulsory for Appointments and Promotion (01-10-06)
- Arrangements have been made for imparting computer training to all state government employees. As on 31st July, 2008, more than one lakh (1,07,067) employees out of 4,63,140 have appeared in the computer examination (23.11% of the Government employees). 55,597 employees passed the exam (52% of those who appeared)
- Training centers designated = 266 + 155 private = 421
- Training capacity = 41,628 per annum

7. Infrastructure

- Central Application Servers, Database Servers, SAN (Storage Area Network) and Tape Library for IWDMS are managed by Department of Science & Technology as IWDMS is spread across the secretariat.
- 3 Application Servers, 2 Database Servers, SAN (Storage Area Network) and Tape Library for applications other than IWDMS are managed by the department.
- 248 P-IV desktops in the department to use these applications are connected through wired Ethernet/WiFi and with GSWAN (Gujarat State Wide Area Network) too.
- High End Scanners to scan the letters to inward in IWDMS.
- 2 Projectors for online review meeting, presentations and training.

8. Technologies

- **Operating Systems:**
 - Microsoft Windows 2003 (Enterprise Edition) (For Servers)
 - Microsoft Windows XP (For Desktops)
- **Front End:**
 - J2EE

- Oracle 10g (Application Server and Database Server with RAC)
- Use of Microsoft Office 2003 Indic made compulsory for Gujarati language as state level policy.

9. People & Leadership

Team of the following persons is guided by the Addition Chief Secretary (Personnel) for e-Governance related projects.

- Chief Information Officer (CIO)
- Joint Chief Information Officer (Joint CIO)
- Project Manager (PM).

10. Self-Assessment

As many processes have been computerized to multiply the efficiency of the department, I consider the department (GAD) for the Best e-Governed Department category Award.

- GAD pioneered testing & implementing common modules listed in GR, dated 28-4-08 of GAD/IT Division. EQDS gave quality clearance to these common modules.
- However, in view of the Science and Technology Department's GR, GAD switched over to IWDMS w.e.f. 1-4-2006. 49 common and 14 core applications are intended to be implemented in IWDMS.
- GAD has provided latest Hardwares to its employees and has trained them to work on various software applications very smoothly and efficiently.
- Online Letter and File processing.
- Online Leave Application for IAS cadre and GAD Employees
- Employees database including 225 IAS officers and 139 GAD officers and 3388 State Secretariat Employees.
- Secretaries' Meeting Module for online preparation and issuance of minutes of the meeting.
- Online monthly review Meeting.

- Online Salary Slip
- Digitization of old records
- Computerized Central Registry for Ahmedabad/Gandhinagar Offices
- Elimination of manual attendance registers due to **IACMMS**
- Monitoring is more accurate due to MIS generated.
- GAD has also taken care of capacity building for running the softwares and website updation and maintenance. The Department has team work of CIO, Joint CIO and Project Manager for managing the day-to-day activities/trouble-shooting of established IT System.
- Due to rigorous follow-up at the highest level of the Department, the Department has achieved 97.62% disposal of its letters, files and UORs.
- The Department is also aiming at achieving the stage of less paper concept in its day-to-day work. For this, many more applications like LTC, GPF, MCA, HBA, Online Transfer Processing, Promotion, T.A. Bill, Medical Bill etc.. will be implemented soon.
- As a result of e-Governance activities in the Department, 472 posts of clerks were abolished as on 1-8-08 resulting in saving of Rs.5.45 crores p.a. to the Government.
- Looking to the complexity of the Government work and its work flow, it is very difficult to prepare employees of the Department to gear-up in e-governance activities. However, GAD has set an example by constant follow-up and customization of its e-governance activities and is able to sustain continuity in day-to-day online working and all of its users using the system regularly.

Project Contact Details

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TEN

Board of Revenue

Avneesh Gupta

1. Key Performance

The department is working for farmers of the state and is committed to uplift their day-to-day needs by making land reforms policies. The department has adopted technology in all the areas related to that. Board of Revenue has implemented several e-Governance projects to enhance the efficiency, to reflect transparency in its working. BHULEKH is the project in which all the Land Records of the state in each 312 *tehsils* of 71 districts have been computerized. Farmers are getting extracts of their land records from the single window at grass-root level. The benefit of e-Governance project has reached to the level of grass root class of rural masses. The 2.5 crores farmer's account has been entered into computers and on Internet server to enable access of the records from any geographical location. The stakeholders like Banks, Sugar mills and agricultural agencies are gaining benefit of e-Governance approach of Board of Revenue. Banks are verifying the records while sanctioning loans to farmers. A great impact has been reflected on the masses. Board of Revenue has successfully implemented Revenue SOFT a web-based MIS for all types of information needed on a monthly basis. The paper-based system of sending and receiving data has been abandoned. The project system is working since the last 2 years. This has removed lagging in the data transmission. The department has launched a project for verification of all types of certificates like income, domicile and caste. These certificates are being issued from Tehsils and are important for various stakeholders. So far, verification of these certificates was a tedious process. Through this e-Governance project, anybody can verify these certificates from the website of the Board of Revenue. The department has launched the project to scan and digitized old settlement records

of the revenue record room in all the districts of the state. These records are valuable and need to be preserved for a long time. It's one kind of new technology. The department has computerized all the court cases pending currently. The monitoring of these cases through automated cause list enable litigants to get the justice-in-time, related to their land disputes. E-patravali is the e-Governance project in the department, where, all the files are stored on computer. The tracking of each file is through computer. Each official is answerable for the timely disposal of files. Many other projects include building network of all the 312 Tehsils through 2 mbps link, Data warehousing and mining for various types of analysis.

2. Citizen and Business Centric

- Land Records Computerization—2.5 crores farmers of the state are taking benefit of the system. This has reached the common rural masses while other e-Governance projects have not reached even one level up. These records which have been out on the Internet server, enable the stakeholders like National Banks, Sugar mills and the individual land owner to check the records from remote locations
- Verification of certificates—The flux of 1,00,000 certificates—Income, domicile and caste are being put on web server daily, from where the common citizen can check the authenticity of the issued certificates. Employers, Government, Schools and many more are now verifying these certificates from the Board of Revenue site. It is a pure citizen-centric application working in the state.

3. Government and Employee Centric

- **Karmchari:** The web-based PIS, caring for 70,000 revenue officials for their service, matters. This project is centralized and decentralized both at the same time where appointing authorities, apex level and individuals are taking part to make this system workable. Each individual revenue official is now able to access his/her personal matters like annual entries, GPF, service book, time scales, pensions etc., through the web and can lodge a complaint if any discrepancy is found in the records, leading to great satisfaction among the revenue employees.

- **E-Patravali**—The file and paper tracking system working in the department. The officials are now responsible/answerable for the disposal of each paper which is under consideration. The matters are being disposed in a time bound manner. Efficiency has been increased in the department.

4. Integrated Government

The department has developed a common web portal relating to personal matters of the employees of other departments. The common web portal is working for other departments like Local Bodies, NEDA Sachivalaya Prashashan, IG Registration etc. This is a good example of integrating government. The portal is working at <http://Karmchari.up.nic.in>

5. Government Efficiency

e-patravali is the project where the department has shown the increased efficiency of the employees. The timely disposal of each paper is creating a good impact on the working of the department.

6. Innovation and Best Practices

Three dimensional centralized and decentralized simultaneous development of KARMCHARI application is the new innovation. File tracking system is the best practice in the department.

7. Policy & Strategy

Board of Revenue while implementing e-Governance projects, adopts all sorts of policy-framing, training, security mechanism etc. The major project by which 2.5 crore farmers are taking benefits is based on the ISO certified software, workshops at various level, onsite training of the Revenue officials, operational manuals etc.

8. Infrastructure

The department has 100 computers at the apex level and 2000 computers upto grass-root level to fulfil the requirement. All the levels of this department are networked with ISDN lines and State project of 2MPBPS line (SWAN). Each district has a District data center to pool the data in the form of data warehouse. Very soon, the data mining at the state level through SAN system

will work for state level queries/data analysis. A monitoring cell is working to control all the levels.

9. Technologies

The department follows ISO certification in software development and the guidelines given by NIC time to time, for security in implementing of the system.

10. People & Leadership

Chairman, Board of Revenue UP is the senior most IAS officer who takes care of all the e-governance projects in the department. He himself monitors the progress of all the projects and has a clear-cut vision of the IT projects.

11. Self-Assessment

The Board of Revenue is working for farmers, common citizens and rural masses and serving to these with more efficiency, transparency, making officials answerable through e-Governance projects. When a poor farmer gets the computerized copy of ownership of land in time, with correctly entered area etc., he finds a supportive revenue administration, which is working for him exclusively. The efforts made by the Board of Revenue are remarkable and have left a great impact on the common citizen and other departments too.

Project Contact Details

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Tamil Nadu Water and Drainage Board Integrated e-Governance System (TWADNEST)

Rajashekar A

1. Goals and Objectives

The ‘TWAD Board Integrated e-Governance System (TWADNEST)’ project is an Internet/Intranet based enterprise class of application developed and jointly implemented by the ‘Tamil Nadu Water Supply and Drainage Board’ and ‘National Informatics Center’, Chennai, as part of G2G/G2E e-governance solutions for TWAD Board.

The primary goal of this project is to leverage Information and Communication Technologies to implement total e-Governance in TWAD Board in order to attain improved productivity and transparency within the organization.

The core objectives of the projects are:

- Development of web-enabled application titled ‘TWADNEST’ covering major functional areas of TWAD Board such as Project Monitoring, Financial Accounting, HR Management and Water Quality Management
- Establishing network connectivity among all the 114 TWAD Board offices at various hierarchical levels spread across the State
- Establishing the Network infrastructure at the Head Office of TWAD Board for providing web and e-mail services
- Establishing Data Center and Up-gradation of Hardware with the provision of peripherals for all the offices

- Development of a centralized and comprehensive database on all aspects of Schemes/Finance/HR/WQ Labs with integration among its sub-systems, thus enabling the employees to carry out their day-to-day work effectively through TWADNEST software
- To make information available to all the stakeholders over the Intranet/Internet.

2. Spread of Project Service Users

The 114 offices of TWAD Board at various hierarchical levels, located across the State:

- Head Office – 1
- Regional Offices – 4
- Circle Offices – 16
- Divisional Offices – 93.

Access this web-enabled application using broadband connectivity and leased line connectivity. The web application is accessible at <http://twadonline.tn.nic.in>.

3. Services Provided

Being a G2G/G2E e-governance application, this software mainly focuses on automating various activities associated with the major functional areas of TWAD Board.

The following are some of the essential services provided as part of the Phase-1 of TWADNEST software:

- Financial Accounting Information System
 - Generation of Receipt/Payment Vouchers online for all the 114 offices
 - Generation of Journal Vouchers
 - Auto-Updating of Cash Book, General Ledgers, Sub-Ledgers
 - Monthly Trial Balance Generation
 - Fund Remittance, Fund Receipt, Inter Bank Transfer, etc.

- Schedules
- MIS Reports etc.
- Human Resources Management Information System
 - Online Maintenance of Offices Directory
 - Online Maintenance of Staff Sanction Strength
 - Online Employee Master Maintenance
 - Online Employee Service Records Maintenance
 - Online Generation of Transfers/Postings/Joining/Relieval Orders
 - MIS Reports
- Water Quality Management Information System
 - Online Maintenance of Chemicals Stock at WQ Labs
 - Online Maintenance of Sample Test Results
 - MIS Reports

4. Geographical Spread of Project Implementation

All the 114 offices of TWAD Board, Head Office at Chennai, 4 Regional Offices (CE Office), 16 Circle Offices (SE Office) and 93 Divisional Offices (EE Office), spread across the State of Tamil Nadu access the software.

All these offices are located across all the 31 District Headquarters and taluks, connected *via* broadband connectivity and Leased Line network.

5. Project Timelines and Milestones

Project Period for Phase-1: 2005-06 to 2006-2007

Important Milestones Project Start/Sign on – April 2005

Hardware Upgradation – December 2005

SRS Finalization – March 2006

Development of Phase-1 – October 2006

Pilot Run of Phase-1 – November 2006

Rollout to all offices – April 2007

6. Direct Cost and Time Savings to Avail Services

Being a G2G/G2E kind of application focusing on automating, the functional activities of TWAD Board, the users for this application are the employees of TWAD Board and hence, there is no direct charge involved to avail these services. However, the existing broadband connectivity at each office is used for accessing this web-enabled application.

- Being an online system, the employees are now able to generate the required MIS reports and regular reports instantaneously, which used to take more than a month for consolidation of reports.
- Implementation of this system has enabled the employees to avoid redundant works like data collection, compilation, typing, mailing etc., thereby increasing productivity although the manpower has come down by 50%.
- Earlier, the monthly accounts, employee vacancy positions, report on transfers and postings, service details and other MIS reports were finalized after a month, by collecting data through e-mail, floppies etc., and compiling at the Head Office. Now, after the implementation of the system, all the above reports are generated on the first day of every month.

7. Direct Cost and Time Savings to Deliver Services

The cost of development of the phase-1 of application software “TWADNEST” is Rs.16.10 lakhs involving more than 72 man months of programming work. The cost of procurement of new hardware such as Servers, Desktops, Printers, Scanners and Upgradation of existing Desktops is about Rs.250 lakhs for all the 114 offices of TWAD Board.

Even though the time taken for implementing the above project right from the conceptualization to implementation has taken 24 months, by virtue of web-enabled architecture, the time taken to fulfil the request from the users for all the services forming part of the software is almost instantaneous.

8. Replication

The Phase-1 of this project is fully rolled out in all the 114 offices spread across the 31 Districts capitals and Taluks. As the system is developed based on Government rules & regulations and procedures, the system can be customized for other States in India.

9. Implementation Model

This project is a Government owned project. The entire funding for this “TWADNEST” project was funded by ‘Rajiv Gandhi National Drinking Water Mission’, Department of Drinking Water Supply, Ministry of Rural Development, Govt. of India.

TWAD Board has chosen NIC as their principal consultant for this project. The application software is developed by the National Informatics Center and implemented by TWAD Board. NICS I & ELCOT supplied the required hardware.

Apart from NIC/ NICS I as hardware and software providers, BSNL services were used for establishing network connectivity.

10. Technologies

The software, AJAX enabled, is developed using Java/J2EE technologies with Oracle 10g as backend database and deployed on Red Hat Linux Enterprise Server.

Development Technology

- Java/J2EE Technologies, AJAX, HTML, CSS, XML etc.

Development Environment

- Windows XP, JDeveloper 10.1.3, JDK 1.5,
- Jasper/iReporting 2.0.2

Deployment Environment Hardware

- Server Platform with 64-bit Dual Itanium2 processor of 1.5 GHz having 4MB L3 Cache per processor
- Intel E8870 Chipset/16GB (2x8GB) DDR-SDRAM
- Integrated on M/B dual channel Ultra 320 SCSI controller
- Dual channel Ultra 320 SCSI RAID controller with 128 MB cache with battery backup supporting Raid 0,1,2,3,5 levels
- Fibre channel Host-Bus Adaptor with 2 Gigabit support
- Dual (1 No. Integrated & 1 No. Add-On) server Gigabit Ethernet controllers
- Integrated Graphics controller with 8 MB display cache

- 6x144 GB ultra 320 SCSI Hot pluggable HDDs (10K or higher rpm)
- IDE DVD/CD Writer Combo drive/Ultrium 100/200GB Tape drive Operating System
- Red Hat Linux Enterprise System—ver.4 (64 Bit OS).

Databases and Application Server

- Oracle 10g Enterprise Edition for Linux Web Server
- Apache-Tomcat 5.5.

End-User Environment

Windows XP/Linux with IE/Fire fox Browser

11. Capacity Building

Governance Structure

In order to successfully implement Phase-1 of the “TWADNEST” software, TWAD Board formed State Level Co-ordination Committee to review the project at each stage. The coordination committee consists of top-level officials from TWAD Board and NIC/NICSI.

TWAD Board also formed various core groups to study and approve the SRS documents. Key Resource persons were identified at the Regional and Circle levels to give instant local support to Users of the system.

Project teams apart from the development team from NIC, various subject specialists and officers from EDP wing of TWAD Board were actively engaged in this project to provide necessary inputs and guidance to the application development team.

Training and Change Management

A series of training programme were organized for all the officials of TWAD Board on this application software. User Manuals were prepared and distributed. Core group of Trainers were formed and with their help, training programs were organized in the Regional Center. As persons are liable for transfer, the training was done on a continuous basis.

12. Process Reforms

Lot of process re-engineering was carried out like the Manual Preparation of Receipts, Sub-Ledger, General Ledger, Trial Balance Reports; Schedules are replaced with System Generated documents/reports. Necessary approvals were obtained to do away with the Manual Ledgers and Files in all 114 offices.

In the HR domain, system generated Joining and Relieve reports, Generation of Transfer Orders, Reposting Orders etc., were introduced. Also, the collection of periodical reports was done away with.

13. Project Financials/Sustainability

Being a G2G project, the entire capital cost was funded by Department of Drinking Water Supply, Govt. of India. The annual recurring expenditure on account of maintenance is to be funded by TWAD Board. Being an intranet G2G application, there is no direct revenue generation envisaged from this project.

14. Project Teams and Leadership

The Principal Secretary, Municipal and Water Supply Department of Tamil Nadu state government and Managing Director of TWAD Board provided top-level leadership support. The software development team was formed by NIC with the direct supervision of Senior Technical Director under the overall guidance of the State Informatics Officer, NIC, and Tamil Nadu. TWAD Board formed the implementation support team with the direct supervision of EDP Manager, under the overall guidance of the Managing Director, TWAD Board.

15. Key project Outcomes

- TWAD Board is the first government agency to implement this G2G e-Governance project of mega size in the State of Tamil Nadu
- The Information and Communication Technologies has reached all the 114 offices of TWAD Board
- Intranet (WAN)/LAN network connectivity is established and put into use
- Voice over IP (VOIP) technology is used for communicating among the TWAD Board Regional offices

- Established the Network infrastructure at the Head Office of TWAD Board for providing web and e-mail services with a separate mail server in TWAD data center
- Data Center and up-gradation of hardware with the provision of peripherals for all the offices is very useful for online system implementation
- “TWADNEST” software covering various major functional areas such as Financial Accounting System, HR Management and Water Quality Management of TWAD Board is made online and it saves lot of time, manpower etc.
- Centralized and comprehensive database on all aspects of Schemes/ Finance/HR/WQ Labs with tight integration among its sub-systems is readily available for any reporting with online updation
- Enable the employees to carry out their work using appropriate sub-systems of TWADNEST software to complete work in time
- This system empowers all the officials, management to take decisions quickly using MIS reports that are available online
- Telephone charges and postage charges are reduced very much by VOIP and email services.

16. Service Users Feedback Mechanism

Online Helpdesk option is provided for the users to communicate the issues faced while using the system and solutions were provided immediately through online Helpdesk.

17. Implementation Challenges

To win over the confidence of the officials on the issue of continuous availability of the system was one of the major challenges faced by the Implementation Team. The officers expressed their concern on total dependence on the system and they were apprehensive of failure of the Servers or Connectivity. This was sorted out after the assurance was given by way of providing alternate mode of connectivity at the Division level offices and multiple servers were maintained for fault tolerance at the Head Office. A continuous and sustained effort was made to associate all the users during each stage of this project in order to implement the project successfully. A series of training programmes were

organized to induct confidence to the users in operating the application software. Planning and scheduling these activities was another challenge faced by the implementation team.

18. Key Lessons Learnt

- The technology gaps must be handled carefully with meticulous Planning
- Provides a lot of enthusiasm to implement second phase of this Project
- Gives confidence to take new projects in our organization and for others also
- Learnt a lot about ICT Solutions that can be used for the betterment of people, process and organization
- Learned to manage issues among the employees, officials and management during implementation.

Project Contact Details

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