
Part I

e-Governance Overview and Project Assessment

A Vision of Citizen-centric e-Governance for India

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Good governance is being recognized as an important goal by many countries across the world. These countries have taken up specific initiatives for open government. Freedom of information is being redefined and supported by detailed guidelines. The Internet revolution has proved to be a powerful tool for good governance initiatives. An important dimension of the Internet potential is the possibility of providing anytime- anywhere services. Along with this there is a conscious effort to put the citizen as the centre of focus of governance where citizens are being perceived as customers and clients.

e-Governance has to be citizen friendly. Delivery of services to citizens is considered a primary function of the government. In a democratic nation of over one billion people like India, e-Governance should enable seamless access to information and seamless flow of information across the state and central government in the federal set up. No country has so far implemented an e-Governance system for one billion people. It is big challenge before us.

My vision

I visualize an election scenario, where a candidate files his nomination from a particular constituency. Immediately the election officer verifies the information provided from the national citizen database through multifactor authentication on a multipurpose Citizen ID card— civic consciousness and citizenship behavior from police crime records; property record from registration authorities across the country; income and wealth resources from the Income Tax Department; educational credentials from university records; track record of employment from various employers; credit history from various banks and financial institutions, etc.

All the details arrive at the computer terminal of the election officer within few minutes automatically by the act of e-Governance software agents crawling across various state and central government web service directories through the network – collecting and presenting information and facts automatically in real-time without any bias. Artificial intelligence software

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analyses the candidate's credentials and gives a rating on how successful he/she will be as a politician. The election officer sitting at the remote block of the country decides on the spot and the election process starts. All the voters vote from their home through virtual polling booths.

Is it a dream? Is it possible? If possible, when shall we have it? Can we provide good governance to our one billion people? Can e-Governance speed up the delivery system? Can e-Governance differentiate between genuine transactions and spurious transactions? Can e-Governance ensure immediate action for the genuine cases that satisfy the checklist for a particular service and pend the action on spurious transactions? Can this be done by e-Governance at a cost affordable by our nation? If we have this system implemented then I call this as a true e-Governance system for the citizen.

Challenges in e-Governance

I am trying to seek an answer to these questions by asking another set of questions. Do we have a required e-Governance framework? Do we have a national citizen database that will be the primary unit of data for all governance – vertical and horizontal applications across state and central governments? Do we have standards for the exchange of secure information with non-repudiation, across the state and central government departments seamlessly? Do we have a secure delivery framework by means of virtual private network spanning state and central government departments? Do we have data centres at the centre and in states to handle departmental workflow automation, collaboration, interaction, and information exchange with authentication?

We should have our administrative systems empowered and reformed that accelerate decision-making. When will the entire administrative apparatus be able to contribute more to national development rather than being entangled in files? I have just visualized the scenario. Let us try to find an answer to each of the above questions towards providing good and smart governance to our one billion people. In summary, I visualize e-Governance as follows: *“A transparent smart e-Governance with seamless access, secure and authentic flow of information crossing the interdepartmental barrier and providing a fair and unbiased service to the citizen.”*

I have always been in my life an advocate of using technology for the betterment of our society. e-Governance is one such opportunity. I want all of you to remember that technology is a double-edged sword. If we do not have an implementation plan from concept to completion in less than one or two years, technology will become expensive and we will not be able to reap the benefits. Hence, I urge you to implement the e-Governance process extremely fast. While you are doing this, you must also have a quantitative measure on the impact of e-Governance measure on the society. Every year, you must be able to produce a number that states the number of people who have been touched by the benefits of e-Governance.

Transparency in e-Governance

India is transforming into a transparent society. It is essential that government functions which have interfaces or interactions with public, especially where state and central functionaries have to serve or support even correct the citizens, such functions have to be done through the tools of information technology and communications. This means, software has to be written to codify rules, procedures and other related government functions and public access should be through IT. Only then the government functions can provide equal access to all based on predetermined rules and even with rules to govern exceptions in a transparent manner. Since India has the core competence in information technology and communications, the possibility of success to bringing in transparency in administration and management through e-commerce and e-business leading to e-Governance, is definitely possible. Actions have to be initiated in a mission mode. Appropriate legal instruments empowering governments enable such interactions should also be done simultaneously.

National ID and e-Governance initiatives

The primary data requirement for effective e-Governance is the National Citizen ID Card. It should be a multipurpose, secured, and authentic ID card. It should be akin to the photocopy of the individual with multifactor authentication such as photograph, biometrics – fingerprint, iris-based systems and digital signature. India with a population of one billion people should be concerned about providing this card to the citizens on a cost effective basis. Hence, there is a need to select the right technology for the preparation of the card and online issue of the card also needs to be determined urgently. This challenge must be taken up by the consortium of public and private industries, and academic institutions with the government. Presently the government is considering the discussion of a bill for introducing multipurpose Citizen ID card.

Several state governments have made significant use of IT in government, integration of IT-based government services and their electronic delivery. Some of the examples are Gyandoot in Madhya Pradesh, e-Seva in Andhra Pradesh, FRIENDS in Kerala. Andhra Pradesh, Kerala, Maharashtra, Rajasthan and Tamil Nadu now provide online registration of property transactions. The NCT of Delhi has recently started electronic delivery of registration of births and deaths. Karnataka has fully deployed a computer application for the issue of land records under the Bhoomi project, Tamil Nadu has implemented the RASI project. In Karnataka, computer applications capture every single transaction at all districts and taluk treasuries. Some states have developed applications for Chief Minister Information System for monitoring activities covering developmental programs, redressing public grievances, and disaster management systems.

VIDYUDNET, India's first VSAT-based communication network supports real-time data applications for power generation and distribution. Some of these systems can be replicated and used by other states to avoid the duplication of efforts and to speed up the implementation process. India has already established successful networks like NICNET for connecting state and central government offices, ERNET to connect educational and research institutions, RAILNET to connect railway networks, and the airline network, using the minimum network bandwidth to provide important services to government units. Networks are established for specific purposes and address vertical domains like government, education and research institutions, railways, etc. Such modes, serving domain needs, are working satisfactorily. Time has now come to integrate the functions of all the networks—public and private—in a seamless way and provide an Internet exchange in the country much the same way as our telephone networks of multiple service providers have been integrated. The inter-departmental communication is required to provide citizen-centric services such as interaction, collaboration and transaction with workflow.

Conclusion

There are islands of success. There are many more that are unexplored or explored and yet not adequately exploited. Everywhere there is computerization but is not universally operable. There are web based services but again coupled with manual processes which leads to delay. In my view, a comprehensive e-Governance framework needs to be evolved that encompasses the following:

- Establishment of the *National e-Governance Commission* or empowered *National e-Governance Board*.
- Establishment of *e-Governance Grid* across the state and centre; setting up of the horizontal grid across state governments; and interconnecting horizontal grids to the vertical central grid.
- Establishment of the *National e-Governance Data Centre* with a substantial presence at the state-level facilitating real time data updates from various government units.
- Setting up of a multipurpose, secure, and authentic *National Citizen-ID Database* to serve as the primary data source for all e-Governance services and seamless online issue of citizen ID card.
- Dedicated broadband VPN (Virtual Private Network) based connectivity from centre to states, states to districts, districts to blocks, and blocks to villages offering wireless, microwave and VSAT options.
- Rigorous implementation of the PURA scheme to provide an impetus to electronic and knowledge connectivity.
- Creation of language independent operating systems, databases, application servers, mail servers etc., adaptable for Indian languages.
- Outsourcing ninety percent of work concerning e-Governance; governments should only manage data centres for online applications.

Today, technologies in computers and communications have led to the death of time and distance. Computers and networks work extremely fast and technologies can improve anything and everything. Challenges have inspired some very creative responses in our country. Let every forum of IT professionals discuss and bring out a comprehensive set of recommendations continuously for the effective implementation of anytime-anywhere citizen-centric e-Governance systems across state and central governments in our country.

e-Governance Approach in India

The National e-Governance Plan—NeGP

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ABSTRACT

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 defence, 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 1990s, IT technologies were supplemented by ICT technologies 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.

1. Introduction to NeGP

The NeGP was presented to the Hon'ble Prime Minister on 6th November, 2003. The Plan has been approved in-principle and endorsement has been given to the overall program content, implementation approach and Governance structures. The Government approved the National e-Governance Plan (NeGP), comprising of 27 Mission Mode Projects (MMPs) and 10 components, on May 18, 2006, however, for budgetary outlays separate approvals from Planning Commission/Ministry of Finance are envisaged.

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 at the center, state and integrated service levels to create a citizen-centric and business-centric environment for governance.

1.1. 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 centres should be encouraged and promoted
- Wherever possible services should be outsourced
- Full potentiality of private sector investment should be exploited
- Connectivity should be extended up to block level through NICNET/SWANs
- Government Systems R&D to be undertaken

2. National e-Governance Plan—Backdrop

- Hon'ble Prime Minister's Announcement (15 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 (Dec, 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–
 1. Draft plans for phased, time-bound prioritized adoption of e-Governance in Government of India.
 2. 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 (DARandPG) prepared a National e-Governance Action Plan for implementation in the Government at the Centre 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 23 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

3. 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.”

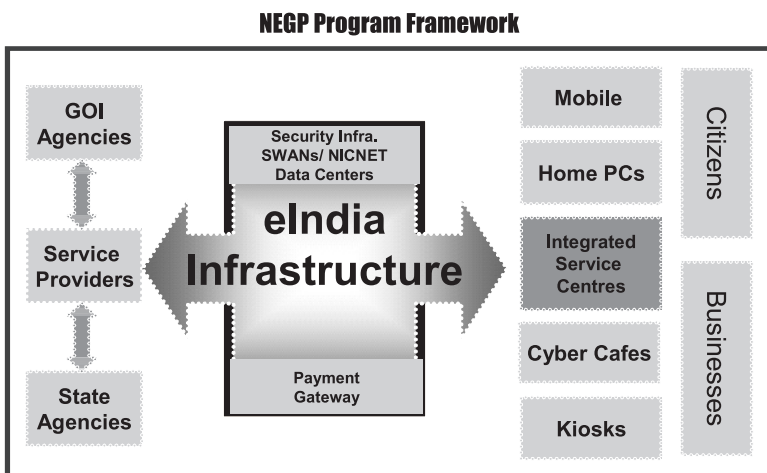
4. The Framework for e-Governance

As depicted in the diagram below, 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.

National e-Governance Strategy

- Centralized initiative, Decentralized implementation
- Identify services to be targeted
- Prioritize services (Mission), identify measurable service goals (Outcomes)

Fig. 1



- 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 Common Service Centres
- Think Big, Start Small and Scale Fast
- All services supported by 3 infrastructure pillars to facilitate web-enabled Anytime, Anywhere access

1. Connectivity: State Wide Area Networks (SWANs)/NICNET
2. National Data Bank/State Data Centres (SDCs)
3. Common Service Centres (CSCs) primary mode of delivery

Major activities proposed in the National e-Governance plan

4.1 Core policies	4.6 Technical assistance
4.2 Core projects	4.7 Awareness and assessment
4.3 Core infrastructure	4.8 Organizational structures
4.4 Support infrastructure	4.9 R&D
4.5 Human resource development/training	

4.1. Suggestive list of Core Policies

1. Overall Vision, Mission, Strategy and Approach.
2. e-Governance technology architecture, framework and guidelines
3. Funding strategies—business models BOO, BOOT etc.
4. Human Resource Strategy—for project leadership, implementation and operation, team performances, collaboration among agencies, networking with stakeholders, motivations/participation issues
5. Policy on front-end facilitation counters, kiosks, integrated service centres, etc.—ownership, funding/subsidy, types of service, charges, etc.
6. Policy on backend—department automation—role of private sector, role of government, safeguards, right to information, privacy etc.
7. Policy on integrated services (ownership, responsibility, etc.)
8. Process re-engineering—policies, guidelines with respect to criteria for redesign of processes, interfacing with workflow, record management, transaction requirements, quality standards, requirements for audit and accountability, escalation procedures, collaboration among different agencies, sharing of information, security standards, process monitoring, tracking system deficiencies, performance measurements, etc.
9. Policies and guidelines on Geographic Information Systems
10. Policies and guidelines on electronic payment mechanisms
11. Policies on employment generation through EG, development of skills, linkages with banking institutions and entrepreneur development programmes, etc.
12. Prioritization policy for selection of Project interventions
13. Policies, strategies and guidelines for managing content, prescribing authorisation, privileges, validation, content authoring, collaboration among content contributors, ownership issues, etc.

4.2. Core Projects (Mission Mode Projects)

S.No.	Mission Mode Projects	Line Ministries/Departments responsible
01	Central Government Income Tax	Ministry of Finance/Central Board of Direct Tax
02	Passport Visa & Immigration Project	Ministry of External Affairs/Ministry of Home Affairs
03	MCA21	Ministry of Company Affairs
04	Insurance	Dept. Of Banking
05	National Citizen Database	Ministry of Home Affairs/Registrar General of India (RGI)
06	Central Excise	Department of Revenue/Central Board of Excise & Custom
07	Pensions	Dept. Of Pensions & Pensioners welfare & Deptt. Of Expenditure
08	Banking	Dept. of Banking
	State Specific Projects	
01	Land Records	Ministry of Rural Development
02	Road Transport	Ministry of Road Transport & Highway
03	Property Registration	Department of Land Resources
04	Agriculture	Department of Agriculture & Cooperation
05	Treasuries	Ministry of Finance
06	Municipalities	Ministry of Urban Development and Poverty Alleviation
07	Gram Panchayats	Ministry of Rural Development
08	Commercial Taxes	Ministry of Finance
09	Police (UTs initially)	Ministry of Home affairs
10	Employment Exchange	Ministry of Labour and Employment
11	e-District	Coordinated by dept. of IT, Government of India
	Integrated Services	
01	EDI (E-Commerce) Formatted transaction of business documents (invoice, Purchase and) electronically	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 & Promotion/Department of Information Technology
03	Common Service Centres	Department of Information Technology
04	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
05	EG Gateway	Department of Information Technology
06	e-Courts	Ministry of Home Affairs
07	e-Procurement	Ministry of Commerce & Industry
08	e-Office	Department of Administrative Reforms & Public Grievances

4.2.1. 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

4.3. Core Infrastructure

- National e-Government Intranet (NICNET, ERNET and other service providers),
- State wide Intranets
- National e-Government Data Center
- State Data Centers
- Security Infrastructure
- Resource Centre for e-Governance (PKI etc)
- GIS National Spatial Data Infrastructure
- Language Resource Centre

4.4. 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 frontends

4.5. Human Resource Development/Training

Human Resources Development/Training and Capacity Building activities would comprise Training for:

1. e-Governance policy makers
2. Chief Information Officers
3. Project specific training
4. General IT skills and competencies
5. Special training programmes for specialists
6. Security, use of local language solutions, Advanced courses architecture, language technologies
7. Equipping National/State institutions of public administration for e-Governance, training, etc.

4.6. Technical Assistance

The technical assistance under this Scheme may include:

1. Support for undertaking survey of needs, expectations, etc.
2. Benchmarking of interventions
3. Feasibility studies
4. Planning and design of various projects
5. Capacity building of institutions which would be involved in the implementation and monitoring of the projects

4.7. Awareness and Assessment

1. e-Readiness assessment of various States/ Departments
2. Setting up of Virtual e-Governance Forums
3. Assessment of e-Projects
4. Best practices for e-Governance
5. e-Governance National Resource Database
6. Newsletters on e-Governance, workshops/seminars/ conferences
7. Competitions and Awards
8. e-Governance forum for NGOs, Private Sector, Academic
9. Training insititutions
10. Publicity and awareness (media, films, etc.)

4.8. Organizational Structures

1. National Electronic Governance Council/National Information Services Board,
2. National Institute for Smart Governance (NISG)
3. State Electronic Governance Councils/State Information Services Board
4. Electronic Government Standards Institution.
5. National Informatics Center (NIC)

4.9. Research and Development (R&D)

1. Architecture
2. Standards
3. Integration strategies
4. Language technologies
5. Electronic payment systems
6. Security and other areas related to e-Governance

5. Infrastructure pillars of NeGP

1. *Connectivity: State Wide Area Networks (SWANs)/NICNET*

State Wide Area Networks are being setup to provide 2 Mbps connectivity up to block level with provision for wireless connectivity from the block level to the village level. It is proposed to extend connectivity to the block level through NICNET/State Wide Area Networks (SWANs). Govt. of India support for the establishment of such infrastructure up to the block level will be provided by Department of Information Technology in accordance with the published SWAN Guidelines.

2. Common Service Centres (CSCs) primary mode of delivery

The Government has approved a Common Services Centres (CSCs) Scheme for providing support for establishing 100,000 Common Services Centers 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.

3. National Data Bank/ State Data Centres (SDCs)

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

Under NeGP, it is proposed to create State Data Centres for the States to consolidate services, applications and infrastructure to provide efficient electronic delivery of G2G, G2C and G2B services. These services can be rendered by the States through common delivery platform seamlessly supported by core Connectivity Infrastructure such as State Wide Area Network (SWAN) and Common Service Centre (CSC) connectivity extended up to village level. State Data Centre would provide many functionalities and some of the key functionalities are Central Repository of the State, Secure Data Storage, Online Delivery of Services, Citizen Information/Services Portal, State Intranet Portal, Disaster Recovery, Remote Management and Service Integration, etc. SDCs would also provide better operation and management control and minimize overall cost of Data Management, IT Resource Management, Deployment and other costs.

Department of Information Technology (DIT) has formulated the Guidelines to provide Technical and Financial assistance to the States for setting up State Data Centre. These Guidelines also include the implementation options that can be exercised by the State to establish the SDC.

6. Capacity Building Initiatives under NeGP

1. 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.

2. 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 do not even have an IT/e-Government department or have a skeletal department that is 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.
3. It is for this reason that the Planning Commission in the year (2004–05) incorporated a special Budget entry and has allocated funds as Additional Central Assistance (ACA) to all the States for initiating the National e-Governance Plan (NeGP). 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 are being issued by DIT, as indicated in the broad guidelines issued by Planning Commission.
4. The capacity building 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.

7. Capacity Building needs and Governance Structure for NeGP

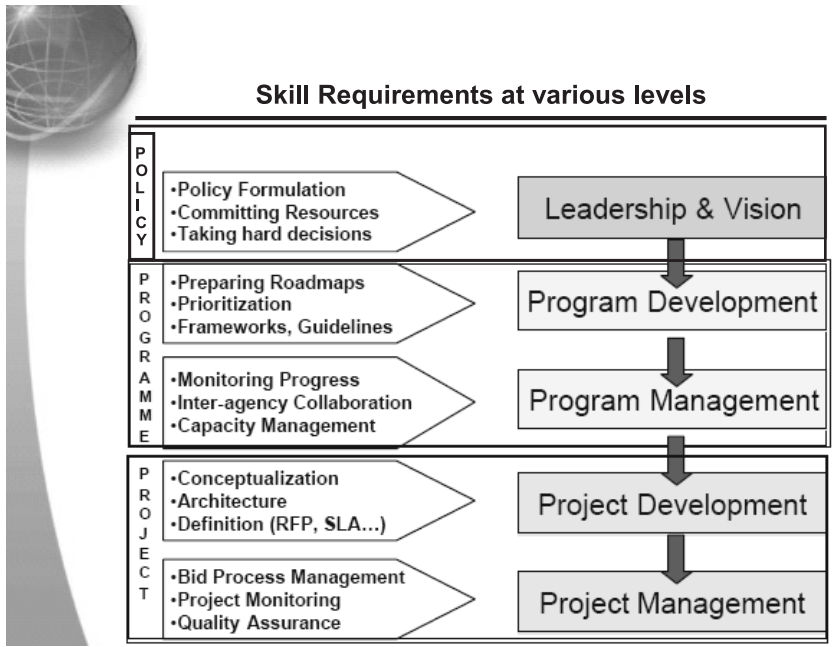
1. As NeGP in the states would be cutting across departments, it is expected that the State Government at the highest levels would be providing leadership, direction and vision for e-Governance, which would result in broad roadmap and prioritisation of the projects. Professional team need to be in place 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 the Capacity Building would also help to maintain continuity of approach despite changes of key incumbent officers leading e-Governance

8. The need for Personnel with Appropriate Background and Aptitude

In order to take the NeGP forward in the holistic way, there is a need to have personnel with appropriate backgrounds and skills at various levels. The figure below illustrates the same.

Fig. 2



1. Personnel with appropriate background and aptitude would be helpful in prioritizing, conceptualizing, developing and managing

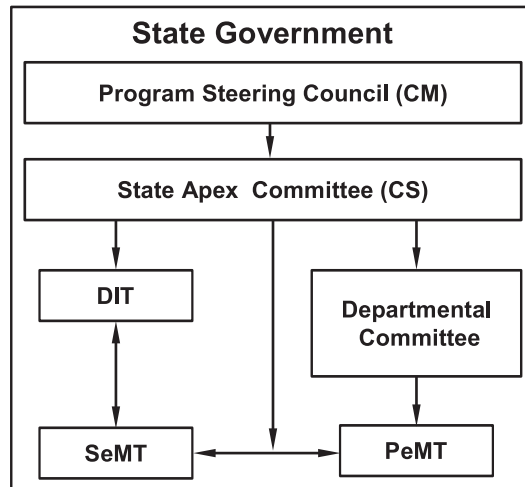
the e-Governance projects. The areas of expertise identified as being necessary for handling programme/project level issues are:

- a. Business Process Re-engineering
 - b. Change Management
 - c. Financial Management
 - d. Technology
2. It was also noted in the guidelines that this gap would be covered by a judicious mix of two approaches:
 1. Sourcing of carefully selected personnel from government, PSUs or any state agency or central agency, with required background and experience
 2. Sourcing personnel from the private sector

9. Institutional Framework under NeGP

Based on specific capacity gaps identified above, capacity building and institutional framework is 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 the Capacity Building and Institutional framework in the State Government:

Fig. 3



Apex level

A Program Steering Council 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 Program Steering Council, a high level committee—SeGP Apex Committee is expected to be set up to provide strategy direction and oversee the State e-Governance program and ensure inter-departmental co-ordination.

10. Programme Level

Program 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. 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

11. Project Level

1. 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.
2. 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 re-engineering, change management, project management).

12. Next Steps 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

As on today most of the states have developed these reports and are now moving to the next steps of establishing the governance structures and preparation of DPR's for the state specific MMPs. 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 has developed a comprehensive approach to the development of an E-Governance Roadmap that is broken down into 5 different levels across two distinct phases.

12.1. Phase I of State e-Governance Roadmap:

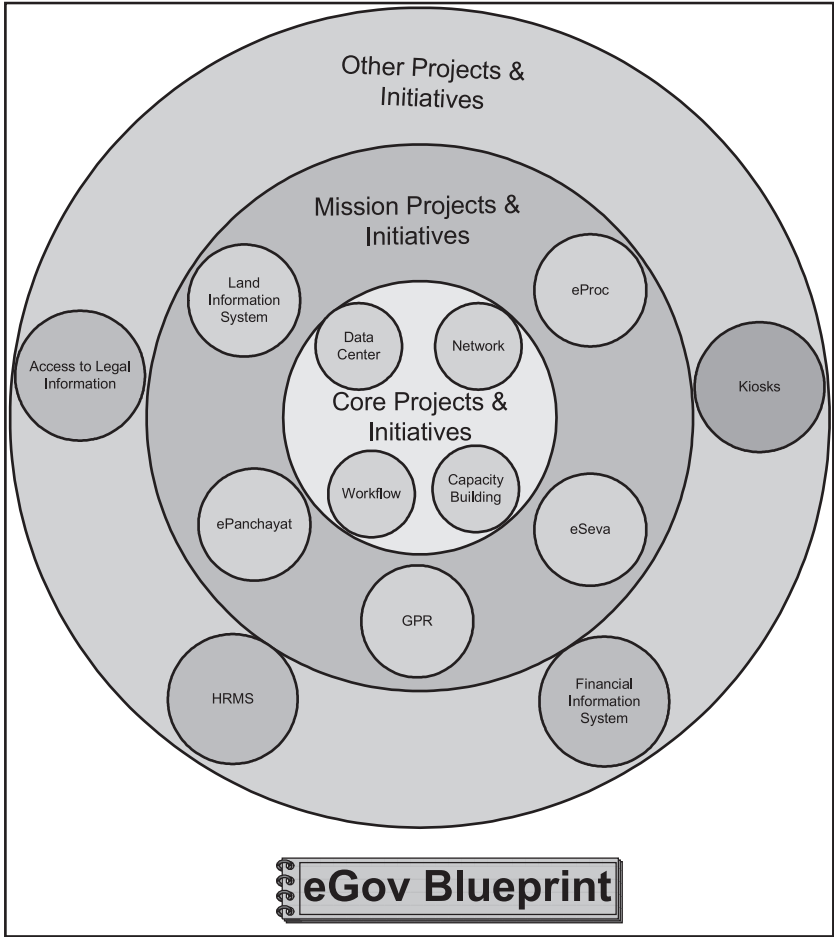
1. e-Government Vision
2. e-Government Strategy
3. e-Government Blueprint

e-Gov Vision: Vision describes the essence of the e-Government scenario as visualized, say, 5 years from now, in terms of the major outcomes and their positive impact on the stakeholders. It may also contain a targeted benchmark objective vis-à-vis peer entities, in terms of relative ranking on e-Government. This vision is expected to be adopted by all the stakeholders and thus will become the shared vision that will drive all the downstream initiatives.

e-Gov Strategy: Strategy describes in a formal way, how the Vision will be achieved. It will take into account all key objectives, means of achieving the objectives, target groups, target services and other inputs/resources required, consider the options available as well as best practices and define an internally consistent set of options, covering each of these elements, that will lead to realization of the Vision.

e-Gov Blueprint: Blueprint is a depiction of the outcomes of visioning and strategic planning processes, setting out the big picture of the key target areas of e-Government initiative and their relationships.

Fig. 4



12.2. Phase II of State e-Governance Roadmap

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

Its essential use is as a communication tool that hides the complex details of the internal workings of the initiative and provides a snapshot of the approach, to which all the stakeholders can relate to.

e-Gov Program: eGov Program incorporates the definitions of the selected Services and design of the related projects along with the plans for development of the projects, their implementation methodology and phasing. It will document the vision and mission of each project or initiative, its outcomes, objectives, metrics and targets and the 'business' case for the project.

Development of individual projects can take off from here starting with the Vision for the project. In parallel the 'business' case can be used by the project champions to garner the required support from the various stakeholders including funding agencies.

The individual project plans will be tied together in a Program structure for the eGov initiative, which will depict the timelines and phasing of the projects and their inter-dependencies as well as joint dependencies on resources such as data center.

e-Gov Ecosystem: Integration of eGov Program with opportunistic eGov initiatives, eGov initiatives of other organizations etc. as well as with plans of Change Management that would include approaches/plans for Process Reengineering, Organizational Interventions, Capacity Building, Legal Reforms etc., results in a holistic perspective of the eGov at the apex level. Initiatives at this level, in the backdrop of this Ecosystem will lead to

- Optimal resource deployment and utilization and
- Improved long term sustainability of the eGov initiatives

As development of a complete E-Governance Roadmap is fairly elaborate and time consuming exercise, the following approach is suggested for State Governments to follow in developing a State E-Governance Roadmap.

- At the first instant, the development of the E-Governance Roadmap may be restricted to the Phase I
- This roadmap to be used for developing the Capacity Building proposal to DIT
- The roadmap to be used to identify and define E-Governance priority projects to be undertaken under NeGP/on resources
- Roadmap to help define the role of SeMT and State Apex Committee
- Detailing of the roadmap (Phase II) be undertaken for prioritized projects/departments under the guidance/support of the State Apex Committee/SeMT.

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Challenges and Role of Standards in Building Interoperable e-Governance Solutions

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ABSTRACT

Standards lay the foundation for a sound e-Governance architecture, which should be open and technology neutral bringing vendor independence. Standards based implementations can be customized easily thereby enabling faster deployment. Standards facilitate interoperability and enable joined up services. Today with e-enabling of the various government documents and data, long term archival formats which are vendor independent is critical. The author has tried to bring out the areas of immediate concern in standardization in India, the methodology being adopted and the processes put in place.

Further, while standards are critical in ensuring interoperable solutions, there is a need for government to go one step ahead by creating standards based core middleware infrastructure which can act as a catalyst in ensuring standards based architectures for any e-Governance implementation. Next, important step for government is to have a mechanism in place to ensure compliance to the laid standards and standards based infrastructure. This would also help the users gain confidence that the e-Governance solutions are secure, usable and meet regulations. The paper talks about various areas of compliance to be considered and the Government of India initiative in this direction.

1. Introduction

Most often e-Government initiatives suffer delays and encounter failures as the implementation agencies lack guidance in the above areas. The investments in e-Governance tend to produce sub-optimal results in the absence of standards. It is therefore critical to lay down suitable policies, guidelines and specifications in the above areas to facilitate faster proliferation of e-Governance applications.

Further, with multiple players and agencies increasingly becoming involved in the e-Governance initiatives, standards for e-Governance in

India have become an urgent imperative. In the absence of such standards and suitable e-governance architecture, difficulties will be encountered when ICT systems from different organizations have to interoperate.

2. Challenges in the e-Governance Solution Implementations Today

Complex e-Governance Projects

An e-Governance application is very resource intensive. It normally spread across multiple locations and supports multiple delivery channels. It is hence important to have solutions that are technology neutral, cost effective, easily replicable and scalable.

Public Private Partnership (PPP)

Considering the fact that government has limited internal technical skills and the cost of any e-Governance solution is very high, PPP is the way to go. However, there are concerns w.r.t vendor lock-in and exit management (after the contract period or even before in case there are issues with the vendor) that need to be addressed.

Sharing of data across various e-Governance implementations (e.g., Unique ID, Passport, Land records, Police, etc.)

One of the key benefits that a citizen is looking at from the e-Governance initiatives is a single window access to various government services no matter which department is giving the service behind. To achieve this, there is a need to be able to seamlessly share data across the applications. Standards like XML, SOAP, Web services are required.

Data accessibility and Preservation formats

This is the most important concern of the government today to be able to preserve the government data in the format which does not tie you with one vendor software to retrieve the achieved data. Clear definition of Open Standards and the suitable format for e-Governance is the direction which government is taking.

Identifying commonalities across states/depts. to devise re-usable Services, processes, forms. Etc.

Process standardization is also very important, more so with multiple players trying to implement the same solution, there is a need to provide the requisite standards and also lay the necessary compliance mechanism.

- *Localization/multi-language support (Unique ID integrating vernacular language databases)*

The e-Governance has an impact only when the services to the citizens are made available in their respective language. However, this is a challenge that needs to be addressed by laying clear standards and guidelines w.r.t the fonts, storage, input etc

- *Security Issues*

While there are clear standards like ISO 27001 and ISO 20000 for IT security management and IT service management which are presently being used by various e-Governance applications however it has been seen that the concerns of the respective departments which regard to the Data and Application security and control are still not adequately addressed. Reasons include lack of adequate knowledge and understanding on the various management controls on these standards by the departments, policies like Access control and Security not made very comprehensive, the Controls in the International Standards need to be made more prescriptive as per our requirements, and also the RFP should highlight the concerns of the government department with respect to the requisite strategic controls clearly.

3. Government of India Initiatives with Respect to Standardization

1. Formulation of standards
2. Standards based middleware infrastructure—National e-Governance Service Delivery Gateway (NSDG)
3. Compliance and Certification framework and infrastructure

We would now take the above in more detail

3.1. Formulation of Standards

Department of Information Technology (DIT), Ministry of Communications and Information Technology, Government of India (GoI) is driving the National e-Governance Plan (NeGP) which seeks to create the right governance and institutional mechanisms and implement a number of Mission Mode Projects at the Centre & State government.

Standards in eGovernance are a high priority activity, which will ensure sharing of information and seamless interoperability of data and eGovernance applications under NeGP.

DIT had constituted a Core group on Standards to arrive at an Institutional Mechanism and Processes to be put in place and recommend key areas for standardization. The Core group had examined various aspects of the Standards-setting exercise and made suitable recommendations.

Some of the key priority areas of immediate concern that have been identified for standardization are:

1. National Policy on Open Standards for e-Governance
2. Interoperability Framework for Data Access, Presentation including Data Preservation, Publication, Archival, e-Forms, etc.
3. Enterprise Architecture framework for NeGP
4. Indian Languages related issues with respect to storage, browser, fonts, keyboard, data dictionary, etc.
5. Network and Information Security Standards
6. Metadata and Data Standards for e-Governance Applications
7. Digital Signature interoperability
8. Finger Prints

Institutional Mechanism and Processes Setup

As regards the institutional mechanism and processes are concerned, an apex body has been constituted under the chairmanship of Secretary, DIT, with senior representatives from Government, NASSCOM, Bureau of Indian Standards (BIS), etc., with a mandate to approve, notify and enforce the standards formulated by various Working Groups and to oversee that they are in accordance with international practices in this regard.

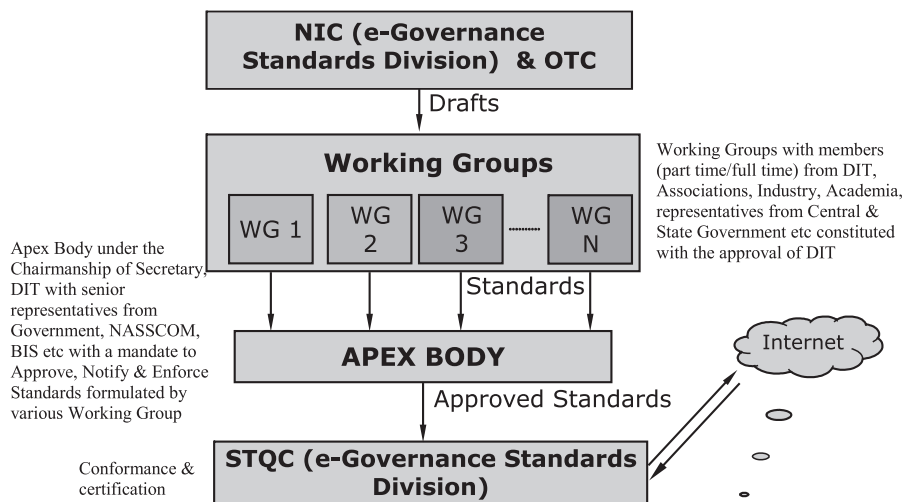
National Informatics Centre (NIC) is the DIT arm with a presence in all the States and Districts in the country. It has a large pool of technical officers. NIC provides a range of services to all the government departments at the Centre, States and Districts. National Informatics Centre (NIC) has been entrusted with the task of steering the Standardization activity. A separate 'e-Governance Standards Division' has been created by NIC for this. It has been found that there is a need for core domain experts in the above areas to generate the drafts which can be deliberated in the WGs with members from industry, academia etc. Hence, an Open Technology Centre (OTC) setup in Chennai by NIC is setting up these expert groups. Once the standards are deliberated in the WGs and published for public comments, they would be submitted to the Apex Body.

Once the Apex Body approves the standards developed by Working Groups, STQC will be responsible for release of these approved Standards on the web and make them available to all the stakeholders for free download. STQC will further ensure conformance & certification (where required) of these standards. A separate 'e-Governance Division' has been created by STQC for this purpose. Subsequent to the issuing of these initial standards, STQC will be responsible for enhancement of these standards and liaise with the national & international standardization bodies for harmonization and acceptance of these standards. (STQC—Standardisation, Testing and Quality Certification, is the Directorate of DIT with offices across the country. It provides Services in Quality & Information Security with specialization in Testing, assessment and evaluations using International Standards to Indian industry and users)

The e-Governance Division of NIC and STQC function in close coordination with e-Governance PMU of DIT, which is responsible for overseeing their working.

Fig. 1

Institutional Mechanism & Processes



Policy on Open Standards for e-Governance

GOI has decided to use Open Standards in e-Governance implementations. Though largely the Principles of Open Standards are the same across various international organizations and countries, some of the critical issues w.r.t licensing, support for multiple standards, etc., differ based on the National interest and requirement. Hence, a clear Policy on Open Standards for e-Governance in India covering the mandatory and desirable Characteristics of an Open Standard is required.

In the above context, GOI constituted a Specialist Committee comprising of members from the government and academia to arrive at the necessary and desirable characteristics of an Open Standard. Based on the recommendations of the Specialist Committee, a draft Policy has been prepared. After wider consultation on the draft, government will announce the National Policy on Open Standards. The key objective of this Policy is:

- To ensure interoperability and facilitate data interchange.
- To enable Government Data and Documents to be stored in open file format
- To reduce over-reliance on proprietary technologies/products

A website on Standards has been constituted which apart from publishing the various activities being carried out by the NIC, Working Groups and other players also facilitates closed collaboration and interaction with the various stakeholders. The Website address is <http://egovstandards.gov.in>.

Some Drafts on Standards

- **Technical Standards**
 - Interoperability Framework for e-Governance applications nearing completion (Publishing, e-Forms, archival, authoring, presentation, data integration etc.)
 - Enterprise Architecture Framework for NeGP at an initial stage
- **Metadata and Data Standards**
 - Generic Data elements including their formats, applicable horizontally to various e-Governance applications under finalisation
- **Conformity Assessment Framework** for audit, compliance and certification of e-Governance application by a 3rd party prepared
- **Network and Information Security**
e-Governance Information Security Standard - Based on IS/ISO/IEC 27001 plus drafted suited to the e-Governance applications
- **Localization and Language Technology Standards**
Draft recommendations on the OS support, content creation, resources and tools, Search Engine supporting local language, localized application

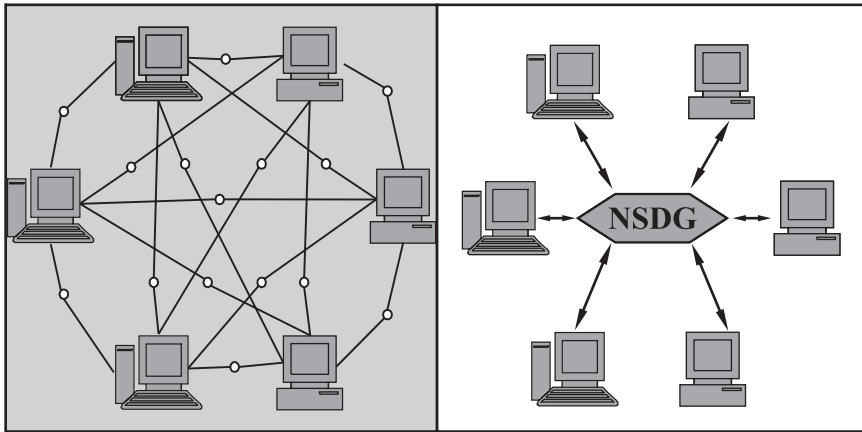
3.2. National e-Governance Service Delivery Gateway (NSDG)— Middleware for Interoperability

The National e-Governance Plan (NeGP) of the Govt. of India aims to make all Government services accessible to the common man in his locality, through common service delivery outlets and ensure efficiency, transparency and reliability of such services at affordable costs to realise the basic needs of the common man.

One of the goals of the Government to meet this vision is the need to cooperate, collaborate and integrate information across different departments in the Centre, States and Local Government. Government systems characterised 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 eGovernance Service Delivery Gateway (NSDG), a 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 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.

Fig. 1

Departments would need to develop connectors/adaptors for point to point connections between departments creating a mesh as shown in 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. The National e-Governance Service Delivery Gateway (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.

The National e-Governance Service Delivery Gateway (NSDG) aims to achieve a high order of interoperability among autonomous and heterogeneous entities of the Government (in the Centre, States or Local bodies), based on a framework of e-Governance Standards.

It is envisaged to have constellation of Gateways across the country with a National Services Directory to resolve and the addresses of the Gateways and the government services they serve.

Gateway Standards

The gateway achieves integration amongst diverse set of applications built on varying platforms through compliance with a set of e-Governance Specifications- Interoperability Interface Protocol and Interoperability Interface Specifications (IIP/IIS) that are based on open standards such as the W3C XML and SOAP specifications.

The entire set of Gateway 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)

3.3 Compliance and Certification Framework and Infrastructure

One of the important aspect for a successful g-Governance solution is to gain confidence of the users that the solutions are secure, usable and meets regulations. This assurance can be provided by assessing quality and security conformance to the users requirements (RFP), best practices, international standards etc. To achieve this it is important that systems are evaluated by Third Party (Vendor independent) which is impartial, technically competent and transparent in their operations.

Compliance audits give assurance that the project meets the:

- Requirements, standards and specification
- Software, IT Infrastructure
- Non – IT Infrastructure
- Service Level Agreements (SLA)
- Avoid large scale post-testing modifications

Key areas of Compliance to be covered in an e-Governance Solution before and after Go-live.

1. The quality of software to a Quality Model addressing requirements of functionality, interoperability, security, reliability, usability, performance scalability, maintainability etc.
2. Solution development and deployment process
3. Security of e-Governance information system addressing technological, management and operation control by means of ISMS assessment, penetration testing, vulnerability assessment etc.
4. The effectiveness of the management of IT Services for compliance with the service level agreements and other associated processes.
5. Compliance of IT and non-IT infrastructure with the user requirements.
6. Compliance with applicable standards and best practices
7. Policies and procedures with respect to data centre, back-up, storage, DR
8. Compliance with applicable regulations (IT Act, RTI Act, DOPT Rules and domains specific (Ministries) Act and Rules)

To ensure compliance in the above areas, the RFP must be documented very well ensuring the scope of work with respect to the third party compliance audit is covered adequately. In terms of modality of execution, this could be got done either by the user department or the solution provider. However, it would be best if done by the user department as this would eliminate any bias in the selection of the third party auditor.

Many a times various e-Governance applications do not include the cost of such compliance audits as a part of the project cost which normally is less than 10% of the total project cost. It would also be a good idea to ask the auditor to provide various certifications like 9126, ISO 27001, ISO 20000 etc. to the e-Governance solution. This will help in generating further confidence. The compliance audits should be done on regular basis.

Under the NeGP, various Mission Mode Projects are going ahead independently for end to end compliance audits of their e-Governance solutions. Some of them are getting it done by a single agency while others are getting it from multiple agencies.

Considering the fact that this is critical for the successful implementation of any e-Governance solution, GOI is in the process of initiating Conformity Assessment Centres across the country. The objective of the project is to develop techniques, methodologies and framework for assessing conformity of e-Governance solution to the user requirements, best practices and the applicable regulations. It is also intended to provide conformity assessment services through a network of competence centres spread over nationwide. STQC which is a Directorate of DIT with offices across the country is already is being strengthened to provide these services.

4. Conclusion

While Standards are key to the successful implementation of e-Governance projects ensuring interoperability and integrated services, Compliance audits will ensure the requisite confidence in these e-Services.

References

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Approach and Methodology for Project Assessment—CSI-Nihilent e-Governance Award 2006–07

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ABSTRACT

Practical considerations govern a king's share in any attempt made for assessing e-Government projects. Well-motivated attempts towards assessment of e-Government projects such as that of arriving at projects which deserve Awards of Excellence in chosen domains have to work within the constraints, yet be able to capture the overall global picture that might come assuming a thorough assessment. This paper explains the method followed for assessing e-Government projects under CSI-Nihilent e-Governance Awards 2006-07. 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.

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 modified to suit a pattern of meta-theoretic thinking, also explained in this paper. The assessment framework is based on the research in progress by the authors. This paper explains the framework as well as the possible insights that can be gained from it by elaborating on our recently accepted papers (see Piyush Gupta et al (2007) and Piyush Gupta (2007)), outlining the approach for the Awards.

1. Introduction

Electronic Governance (e-Governance) has received a tremendous fillip in India since the Govt. 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 for 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 Dept. of IT, Govt. 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 2006-07. Working within the constraints under which the judgments related to the award take place is the major challenge. Learning from the experience of previous assessment exercises for the awards and improving on them is another dimension that we look at.

One of the improvements that we have worked on is in terms of making one phase of evaluation 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. This is apart from the significant modification made to the multi-criteria model and the application of Analytic Hierarchy Process (AHP) (see Thomas L Saaty (2005)) to it by changing the Indicators and Attributes of the hierarchy. Two hierarchies – one each for Results and Enablers are made. The implementation strategy used is similar to the one detailed in Ashok Agarwal et al. (2007), and is also explained here, in this paper with a running example. Apart from these two, the other significant thing done this year is to collect write-ups on each of the nominated projects for publication (this book is an outcome of the exercise!) as an effort to disseminate information on the selected e-Government projects running across India.

The data collected from both the online form, as well as collected for the evaluation purposes for Results and Enablers can provide a platform for interesting analysis, which requires some more effort to be put in, and is not covered as part of this paper.

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 the 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 eGov 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 stake holder'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.

In the next section, we outline some of the challenges and issues involved in project assessment that we noted as we studied the problem. This is in the interest of taking a glimpse at the meta-theoretic aspects of assessment.

4. Challenges and Issues in Project Assessment

This section draws inputs from one of the authors' paper (see Piyush Gupta (2007)) to appear in ICEGOV2007.

Classification of the various expectations and views of assessment increases the challenge in targeting a holistic and comprehensive assessment. While looking at the challenges and issues, we need to be clear as to what is being assessed and towards what end one is assessing. Since one of the prime objectives of assessment is to identify the success question of the project – that is whether or not the project would be a success or to fix the reasons as to why a project was a success or failure, it is important to note the views of the various stakeholders involved in the project. To elaborate on the point here is a list of what you might expect:

The different dimensions and perspectives of eGov project assessment:

- Service users point of view:
 - Cost of availing the Govt. service
 - Time for delivery of service
 - Convenience of availing the service
 - Compliance of RTI Act
 - Transparency in Govt. functioning
- Government point of view:
 - ROI
 - Immediate impact on service users
 - Internal efficiency – process reforms
 - Impact on internal employees
 - Sustainability
 - Long term overall impact
- Funding Agency point of view:
 - ROI
 - Business model
 - Immediate impact on service users
- Public Private Partner (if it is a PPP model):
 - Business model - ROI
 - Compliance to Service Levels
 - Enhancement of service and reach
- Others
 - At National level from replication perspective
 - Academics - in terms of understanding the patterns and see the intricate details of assessment

Further, a report presented at IIM-Ahmedabad (see IIMA 1) has identified the following dimensions of outcome for the impact assessment:

- Client Stakeholder :
 - Economic (Direct & Indirect)
 - Governance (Corruption, Accountability, Transparency, Participation)
 - Quality of Service (Decency, Fairness, Convenience, etc)
- Agency (including Partners in implementation) Stakeholder:
 - Economic (Direct & Indirect)
 - Governance (Corruption, Accountability, Transparency, Participation)
 - Performance on key non-economic objectives
 - Process Improvements
- Society (Government as a whole and Civil Society) Stakeholder:
 - Economic (Direct & Indirect)
 - Governance (Corruption, Accountability, Transparency, Participation, Responsiveness)
 - Development Goals
- Attitude to computerization of Government agencies for service delivery

This kind of classification of the various views of assessment increases the challenge in targeting a holistic and comprehensive assessment while

an interesting issue to look at would be to selectively choose some of the views/dimensions and focus exclusively on that while assessing projects, and achieve the desired objectives of assessment. Projects belong to different categories – each demanding a different manner of assessment. Hence, identifying a common set of indicators and then identifying category specific indicators that cover a desired set of assessment criterion becomes an interesting exercise. It turns out that more often than not, the attempt must be to ensure that there is logical consistency and coherence in the specification of the indicators (or factors) and the respective attributes that make up the evaluation of each of the indicators. Logical consistency becomes meaningless if the scope of assessment is not closed and is kept open, and the attempt should be in identifying definite boundaries for assessment.

Continuing the sequence of meta-theoretic questions and answers, we ask the questions related to: the periodicity of assessments, the agency or body which is going to assess the e-Gov projects, assessment for whose sake, the intent behind the assessment, and finally give the constraints that are faced by assessment exercises.

4.1 Who is Interested to Learn from Assessment?

One of the major objectives of assessment is to learn and develop on the weak areas. However, in reality the assessment results are taken merely to showcase if the project is found to be a good one. It is observed that if the project has not been assessed as a good project, no one looks into the report for improvements in the project. If we have a self-assessment framework, which will be done out of self interest, the project owners' will always strive to understand and strengthen the weak areas of the project.

4.2 What is the Learning from Assessment Studies?

Assessments should identify Best Practices. This must be a key objective of assessment and focus should be on identifying the best practices w.r.t. different aspects of eGov project e.g. Business model, PPP model, Change Management strategy, technology architecture, Service levels, etc. Presently, the assessments study the models and practices being adopted in the specific projects and do not have an objective to bring out the best practices from them.

4.3 What Should be the Periodicity of Assessments?

Different components of assessment can be assessed only after a certain period of deployment of the e-Gov project. A complete assessment on all components cannot be carried out altogether at the same time. Actually, one set of assessment as checklist would be recommended just before

the project is being implemented. Subsequently, assessment could be done on yearly basis. This could be considered an extension to the yearly audit process, and include it as a regular feature of work at office. Since assessment provides critical inputs to the project owners for improvement, it can also act as a stakeholder need assessment tool.

4.4 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. Secondly there is a stakeholder survey, which is also conducted by the third party. The issue is that why not develop a self assessment framework? Since the Government might not have the necessary skills and capacity to conduct the survey, it could be done by a third party. It is necessary to come out of the accountability and controls built only by the third party assessment, and rely on self appraisal. 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-Government projects.

4.5 Constraints Driving Project Assessment

4.5.1 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. This is in order to understand the various dimensions of the project. 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.

4.5.2 Lack of a comprehensive assessment framework

One can look at various assessment models being adopted for the eGov 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 eGov maturity model, and identify only the basic level indicators.

4.5.3 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 in-correct assessment of the impact made by the project.

4.5.4 Lack of high visibility for assessment reports

It has been seen that most of the time the assessments are done as part mandatory requirement of the project and once the said task requirement is completed, the report is shelved and forgotten. It is not surprising, that the assessment reports are not even seen or read by most of the senior policy level or other stakeholders in the project. In case there is high transparency and visibility given to the assessment report, it will provide sufficient learning for the project owners.

4.5.5 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.

4.6. Other Challenges

There are some more similar issues and challenges pointed out in a study done by IIM Ahmedabad (see IIMA 2) on impact assessment for e-Governance projects:

- Often evaluation studies had been done by agencies that may be seen as having an interest in showing a positive outcome.
- Different studies of the same project showed very different outcomes, thus indicating a lack of credibility of the results.
- Part of the reason for different outcomes was the use of a very small samples and a 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.
- 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 counterfactuals was ignored.

- Finally, since different studies did not use a standard methodology, it was difficult to compare the outcome for a project with other projects.

Having commented on a number of meta-theoretic aspects, we now present you with some of the notes that we have made on some of the existing assessment frameworks from various domains.

5. Study of Existing Frameworks

The team as part of another research work, studied various assessment models, however for purpose of this paper three are discussed here, viz. CSI-Nihilent eGov 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 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 were 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 & resources to capture all aspects of eGov 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 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 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 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 no. 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 & strategy, people, partnerships & resources, and processes. The model has the logic known as RADAR (Results, Approach, Deployment, Assessment & 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.

6. Approach used for CSI-Nihilent eGovernance Awards 2006–07

Assessment Framework for the CSI-Nihilent e-Gov Awards 2006-07 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 previous year's CSI-Nihilent Awards which is detailed in Ashok Agarwal et al(2007). The assessment is done in three phases, however the broad steps followed are listed here:

Submission of project information in specific format → Scoring and shortlisting of projects → Submission of Result-Enabler based information in specific format → Field visits and scoring → Scoring of Result-Enabler information (before and after field visits) → Submission of project write up in specific format for publication → Consolidation and final rankings.

6.1 Phase I

The first phase is more akin to an elimination phase, 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.

The online form limits the answers provided for each of the question by setting an upper limit on the no. 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 phase 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. Each of the submitted forms gives a good global snapshot of the project.

In the earlier assessments, project owners were found to send the documents detailing their project which ran into hundreds of pages at times, on request for information about their projects. Sifting through enormous amounts of such data only adds to greater trouble for the person assessing rather than help him go about his job within the time constraints. Further, it is observed that all the details provided about the project may not be necessary at all as far as the proposed evaluation scheme is concerned. Lack of structured data collection was an issue which was to be addressed. Requesting for precise information required for the purpose was made possible by the online form, and from the global snapshot provided, projects for further evaluation selected. The interest shown in filling the form, the correctness and the relevance of the data provided to the questions posed were the criteria for judgment. 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 no. of projects for greater scrutiny from the total number of nominated projects.

Tables 1–7 give a sample project data submitted through the Online Form. The questions in the form are towards the left side of the table, and the answers provided by the person nominating the project are towards the right. In the end, there was a Statement of Certification which was received to allow the data to be published by CSI. The limits on the number of characters (include spaces) allowed for each of the questions is also indicated. It may be noted that at times, the data filled was not complete, maybe the information submitted could not be adjusted within the limit set. That is when there was a need for the person submitting the form to re-look and make changes to suit the limit consideration.

Apart from the listed tables showing information, the name of the Official filing the Award nomination and the Contact Person for the Assessment process was also requested.

It has been a general observation that more often than not it is the concerned Project's Technical Lead who nominates the project. This was an indication that the project nominations were led by the development teams and not the project-owning departments. The example shown here was an exception and is being presented as an illustration of the assessment process.

Table 1 *Project Details*

Name of the Project	: Child Record Information System
Url of the project website/portal	: www.cris.nic.in
Project Award Category	: G2C(Rural)
Category Of Excellence	: CitizenCentricity
ProjectDomain	: others
OtherProjectDomain	: Women & Child, Health, Education & Social Welfare

Table 2 *Project Overview*

Description of the Project : (not more than 200 words – 2500 characters)	The administration of Jabalpur Division has implemented “ChRIS” (Child Record Information System) to identify, register, count and monitor every marriage, pregnancy, child birth in Jabalpur Division. The system so developed endeavours to bring all marriages, pregnancies, deliveries, ante & post natal care, inoculations, proper growth & elementary education of the child in the ambit of public domain by posting the relevant information on its website and on the websites of each of the eight districts in Jabalpur Division. Lack of coordination and collection of data by different sources led to inaccuracies, data was fudged and there was no mechanism in place to check it and ensure accountability & responsibility in the delivery of various government schemes/benefits. Individual beneficiaries could not be monitored and there was no effort to integrate data collected by different departments leading to faulty implementation of various schemes. Now it is mandatory for the field level functionaries of Health and Women & Child Development Departments to record every marriage and every pregnancy in their areas as soon as it is declared. This data is fed in to custom made software and thereafter put on website. This information is used for ante-natal and post-natal care for all expectant mothers whereby system generates flags giving tentative dates for various activities ensuring proper

Table 2 *(Continues...)*

Vision & Objectives of the Project (<i>max. 5000 characters</i>)	care to all carrying ladies. Each birth is recorded in detail, here again system generates flags for all necessary services to be delivered and a child's calendar for next 5 years is automatically generated, keeping in record details of the birth as well tracking child's growth from 0 to 5 years. These reports are given to field level functionaries of different departments at cutting edge level resulting into targeted delivery of various schemes to each mother and each child leading to better results and achievements. Integration of the schemes of various departments, viz., Social Welfare, Women & Child Development, Health & Family Welfare, Elementary Education and Planning & Statistics has taken place through ChrIS. This project not only monitors each and every expectant mother and child but also acts as a watchdog to other socio-economic parameters like child marriage, institutional delivery, expected complications at the time of delivery, female foeticide, IMR, MMR, supplementary nutrition to carrying mothers & infants, immunisation, innoculation and elementary education. : India could be one of the fastest growing economies but it has a lower Human Development Index. The benefits of economic growth have to percolate down, when it comes to basic health, education and nutrition facilities to masses. The grim socio-economic parameters call for a serious rethinking. Although there are a number of agencies catering to the health and nutritional needs of the marginalized people, in the absence of proper data base and information, strict monitoring on developmental parameters becomes a complicated issue and the sufferer is general populace. In order to address these lacunae, this project has been developed to identify, register and monitor each case of marriage, pregnancy, child birth and child growth. System makes available the entire information about target populace and delivery of schemes on a real time basis in public domain. The project, the pioneer in this area facilitates: (a) prevention of child marriages, (b) increase in institutional deliveries, (c) check on cases of female foeticide, (d) identifying beneficiaries for various government schemes, (e) reduction in risks at the time of birth, (f) nutritional supplements to needy mothers and children,

Table 2 (Continues...

	(g) timely delivery of health services, (h) monitoring the growth of every child from 0–5 years and finally (i) child's admission into his first school. It also provides real time information on critical parameters such as IMR, MMR, etc. Flags are automatically generated showing dates for the delivery of vaccination, immunisation and routine check-ups for every mother and her child. Information is also collected on socio-economic parameters, like cast, community, land holdings, poverty/income level etc. This results in focussed attention to needy people. “Child Record Information System” provides facility for storing, updating and managing information from various sources at village level. This information may be required for planning and decision making at different levels. The main objectives of the project can be listed as: 1) Effective monitoring of the schemes of Health, Women & Child Development Departments and Elementary Education Departments. 2) Delivery of various Government schemes at right time to beneficiaries. 3) Transparency in implementation of Government schemes. 4) Helping masses to know about their vaccination and other details. 5) Statistical Information to be used for planning and implementing new schemes.
Internal stakeholders	: Commissioner Jabalpur Division, Collector & District Magistrate, Districts - Jabalpur, Katni, Mandla, Dindori, Seoni, Chhindwara, Collector & District Magistrate, District, Balaghat, Narsinghpur, Chief Medical & Health Officers of all the eight districts,
Internal stake holders	: District Women & Child Officers of all the eight districts of the division, Functionaries at different levels of Health, WCD, Planning, Social Welfare, School Education Deptts., All carrying & feeding mothers of the division, All children upto the age of six years in the division, All married couples in the division, National Informatics Centre, Madhya Pradesh
External stakeholders	: Various departments of State Government, Panchayati Raj Institutions at District, Block & Village levels
Target Beneficiaries	: all citizens, women, children, govt dept, govt employees

Table 2 *(Continues...)*

Geographical spread of the project	: many departments - multiple locations
Phase Plan (older project) (max. 2500 characters)	: – Not Applicable –
Present population reach of project (max. 1000 characters)	: Coverage Area: Jabalpur Division: 5836600 Hectare Population covered : 1,01,61,841 Number of Villages Covered: 10692 Number of Blocks/Janpads covered : 64 Number of Tahseels covered : 47
Growth Pattern (for older project) (max. 2000 characters)	: – Not Applicable –
Current Stage of project	: Rollout
Availability of service charter and compliance	: yes

Table 3 *Project Essentials*

Compelling reason I (max. 1000 characters)	: Poor quality of human resource, high Maternal Mortality Rates (MMR), high Infant Mortality Rates (IMR), low immunization and vaccination, highly skewed sex ratio in 0–5 age group in rural areas, extremely low literacy rates, large number of non school going children suggest the dismal state of affairs in social welfare, health, education and women & child development sectors.
Compelling reason II (max. 1000 characters)	: Lack of any monitoring system at higher levels to monitor the delivery of health services in a village. Non availability of accurate information about recipients of specific immunizations, inoculations and vaccinations. Manual record keeping and data maintenance were prone to errors and accurate details regarding delivery of services at field/village level were never available .
Compelling reason III (max. 1000 characters)	: Attendance in Angan Wari Centers used to be extremely low because of poor delivery of services. It was not possible to monitor health deficiency parameters of every individual child and mother. It was not possible to ensure and monitor delivery of various beneficiary oriented schemes to each individual case.
Compelling reason IV (max. 1000 characters)	: It is not possible to monitor admission of each child into elementary/primary schools. The data base used for this purpose lacked authenticity.
Compelling reason V (max. 1000 characters)	: Lack of effective monitoring and incorrect/fudged data being presented for decision making led to faulty policies and planning.

Table 3 (Continues...

Goals/milestones to be achieved (quantifiable and measurable over a period of time) <i>**Note the milestones that you expect to achieve along the way to meet that goal and especially any that you have already reached.</i> (max. 2000 characters)	: 1. Various health related parameters are available on anywhere - anytime basis. 2. Latest information is available on the net so that anybody can see the progress in a particular village/block/area. 3. Exact figures on Infant Mortality Rate, Maternal Mortality Rate, and Institutional Deliveries etc. could be made available. 4. Various reports to monitor each and every scheme can be generated on desired parameters. More than 200 reports are included in offline and online software. Once basic data is made available, reports based on different locations, periods and categories can be generated through any DBMS. 5. Every month different reports like, expected critical delivery cases within a period, details about malnourished children, vaccination defaults, pregnancy details, death, and birth details are obtained from the system and sent to concerned departments. This reduced the number of defaulters and brought a tremendous improvement in the performance of departments. 6. The system improved the overall delivery of the services of Health, Woman & Child Development Departments on all relevant parameters. Introduction of ChRIS has also resulted in fixing responsibility & accountability in a manner which can be effectively monitored by senior officials; this was resented initially as it led to an effective check on prevailing absenteeism among government functionaries in rural areas. Data collected manually, without any mechanism to check its veracity and authenticity is always questionable, therefore data on critical issues like MMR, IMR, child marriages, and female infanticide/foeticide needs to be accurate so as to project a true picture of the socio economic and human development profile of the place. In this context, Child Record Information System (ChRIS) is an effective tool to create a comprehensive database of all its future citizens, which in the absence of any social security scheme in India is bound to be extensively used for all government schemes.
How these goals are measured	: All the health and other activities are computerised and put in the website cris.nic.in.

Table 3 (Continues...)

<i>(max. 1000 characters)</i>	Different types of reports are generated through the system, which are helpful in monitoring the health and other services given to each beneficiary. Since Citizens are also a part of the system, they can also play an important role to achieve the goals.
How are these goals being reviewed and corrective action taken? <i>(max. 1000 characters)</i>	: The data from all the districts under Jabalpur division are uploaded regularly into the site every month. The activities of departments and functionaries are reviewed at Block, District and Division level every month.
Stakeholder need assessment?	: no
Critical success factors for this project (list top five factors in order of priority) <i>(max. 500 characters)</i>	: The underlying theme behind ChRIS was to integrate low cost technology with an easy to use software bearing in mind the quality of manpower that would finally be using it. Its design and implementation has ensured that personality traits of those who actually conceptualized and conceived it does not come in the way of its successful implementation. ChRIS is also sustainable because, there is hardly any change in the procedure or style of functioning from earlier manual system.
Major Challenges/Risks involved in getting this project to the current stage (list top five factors in order of priority) <i>(max. 500 characters)</i>	: 1) The challenge is to make the concept acceptable to all and adopt the new system in the place of existing manual system. 2) Withstand the predecessor-successor syndrome which often results in many innovative projects being discontinued for want of personal interests resulting due to change of guard in Government 3) To Co-ordinate Ground level functionaries of different departments.
Government Process Range (GPR) - degree of reduction man days/time to deliver a service (Difference from the earlier manual v/s the new system, e.g.) <i>(max. 1000 characters)</i>	: ChRIS right from its inception stage has achieved commendable results which are indicative of its forthcoming achievements as envisaged in it. Action plan for each expectant mother and child birth has been auto generated in form of a health calendar. Delivery of services according to dates mentioned in the calendar are attempted to be ensured in a phased manner. At the same time all such data is being made available in real time and in public domain through internet. Apart from creating an extensive database, the system also helps in reducing the workload on village functionaries by reducing the number of

Table 3 *(Continues...*

	records which they have to keep. This also provides extra time to village level functionaries to deliver his/her services in a better manner.
Certification (if any)?	: yes
Certificates	: Winner of the Best Project award in the category
If Yes,Specify the nature of specification along with the year of certification. (max of 200 characters each)	IT For Masses for the year 2007 from Dept. of IT, Govt of MP
3rd Party Audit and compliance (Executive report) (max of 2MB (file types . doc or .pdf))	: – none –

Table 4 *Project Time line*

Project Start Date	: 04.07.2006
Project Launch Date/Start of service delivery for pilot	: 01.11.2006
If Project is in pilot phase, Period of Piloting (max of 50 characters)	: NA
If project is in rollout phase, duration & period of piloting (max of 50 characters)	: NA
Planned Implementation Period (max of 100 characters)	: 120 days
Actual Implementation Period (max of 100 characters)	: 100 days

Table 5 *Project Ownership and Implementation Details*

Participating Department(s) in the project (max of 2500 characters)	: Health & Family Welfare, Women & Child Development, Planning & Statistics, Social Welfare & Social Justice, School Education
Name of the nodal Govt. department/agency responsible for implementing and managing the project (max of 100 characters)	: Commissioner Jabalpur Division, Jabalpur, MP
Ownership of IT infrastructure	: government
List of shared infrastructure	: department
Ownership of Application Software	: government
Implementation model	: Govt.
Type of access to services	: portal

Table 5 *(Continues...)*

Does the Project have Service Continuity Plan?	: yes
Under. Project Governance structure (specify, no. of dedicated full time members, part-time separately)	: Around 5000 functionaries of the concerning departments at village, janapad and district level are actively working for the project as a part of their job. Project is primarily a transition to web based computerised system from their earlier manual system.
Project Management (max of 500 characters)	
Project Policy level (max of 500 characters)	: Senior district level officers including District Collectors and Chief Executive Officers of Zila and Janapad Panchayat are involved at policy level. Divisional, District and Block level heads of Health, Women & Child Development, Panchayat & Social Welfare, School Education and Planning & Statistics departments are working at project policy level.
Change Management (max of 100 characters)	: The project is designed and implemented in Hindi and thus it could be successfully implemented in a short span of time, this has also facilitated its quick and easy reach to masses. The English version of the site is also being made available ChRIS, implemented without any additional cost to anybody is an effort to provide cutting edge to delivery mechanisms of the Government, it has transformed and institutionalized the earlier manual system to a technology based on-line automatic system.
Commitment (Political leadership)	: yes
Visibility (Political leadership)	: yes
Status of Discontinuity of manual system for services delivered by e-Gov project (max of 500 characters)	: ChRIS has integrated low cost technology with easy to use software bearing in mind the quality of manpower that would finally be using it and hence it has been successful. Its design and implementation has ensured that personality traits of those who actually conceptualized and conceived it does not come in the way of its successful implementation and it successfully withstands the predecessor-successor syndrome. It is sustainable because it does not change procedures of earlier manual systems.

Table 6 *Project Economics*

Source of Funds	: stategovt
CAPEX (Capital expenditure)	: Nil

Table 6 (Continues...

in the last two years as on 31st March 2007	
OPEX (Operative expenditure)	: Nil
in the last two years as on 31st March 2007	
Brief detail of the business model. primarily for self-sustenance	: Project does not need a business model because it is a transfer from the existing manual system to a web based system in public domain on a real-time basis. ChRIS, implemented without any additional cost to anybody is an effort to provide cutting edge to delivery mechanisms of the Government, it has transformed and institutionalized the earlier manual system to a technology based on-line automatic system. Since the infrastructure required (computer and other accessories) to develop this was already in place at Block level, there were no additional expenses required on installing new infrastructure. Parameters on which data is being collected for ChRIS were uniformly used earlier also, and so the systems could easily be adopted. Because of these reasons ChRIS is easily transferable. There are no additional expenses and its easy to use software makes it adaptable in any working environmen
Annual Expenses (in Rupees) for last two years	: Year:I:: NA Year:II:: NA
Revenue generated (in Rupees) in the last two years	: Year:I:: NA Year:II:: NA
Average user time savings in using the Govt. services as compared to the previous system (max of 250 characters)	: It has very high user time saving because data once collected now remains as a permanently record for any future usage, which was not the case earlier. The system is first of its kind to count every child and take care of every pregnancy in India.
Average user cost savings in using the Govt. services as compared to the previous system (max of 250 characters)	: The benifits are immense in terms of the cost saving because now all information is as per reality, whereas earlier it used to be only on the basis of statistical averages. This kind of a system does not exist anywhere in developing world.

Table 7 Additional supporting Documents

3rd Party Audit and compliance (Executive report)	: ChRIS-Award.pdf Brochure-1.doc
Stakeholder feedback	

Table 7 (Continues...

summary report ONE	
Stakeholder feedback summary :	Brochure-2.doc
report TWO	
3rd party impact assessment :	Report.pdf
summary report	
Report supporting user time/ :	project_highlights.doc
cost savings in the new system	
Photograph One :	check-up.jpg
Photograph Two :	child-checkup.jpg
Photograph Three :	child-wght.jpg
Photograph Four :	training.jpg
Photograph Five :	ceremony.jpg

In the Additional Support Documents section, a request for the photographs of the site at which the project is implemented was requested, and in some cases the 3rd party impact assessment also included the coverage given by Press to the projects. To the list of the documents above, one may as well add a section for Press Coverage to the project, for it gives an indication of the public perception of the project.

6.2 Phase II

In the second phase of assessment, the factors for assessment have been divided as Results and Enablers, inspired by the model used for the CII-Exim Bank Awards for Business Excellence. Inputs from the project owners were requested for the Attributes of the Indicators Results and Enablers (discussed later) and evaluation of the information provided was done, independent of verification of the ground situation about the project.

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 under go 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 – their Indicators and the Attributes.

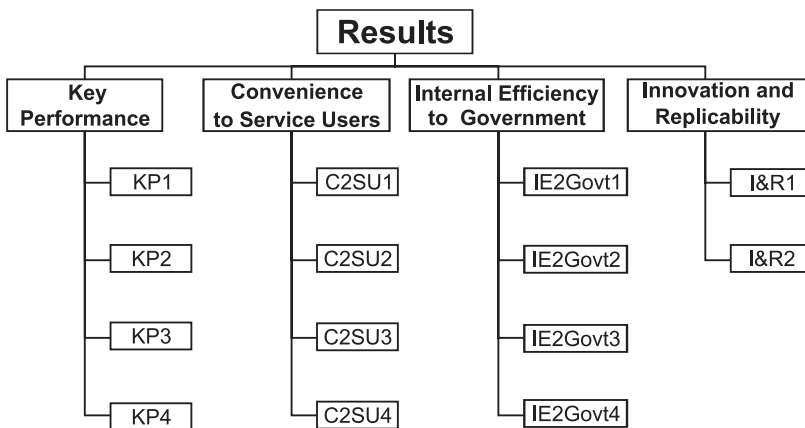
The notion of a division on the lines of Results and Enablers gives a meta-theoretic justification of the kind of indicators chosen, e.g. in the EAF 2.0, for evaluating e-Gov projects which otherwise may not be easily justified, other than by empirical or other experiential means. Though it might be 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.

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 hierarchies for Results and Enablers are given in the figures Figure 1 and Figure 2 below. The explanation of each of the Indicators of Results and Enablers is given in the Annexures I & II of the Appendix A.

Fig. 1 *Hierarchy for Results*



KP1 – To what extent of time saving has been achieved for taking these services by the Service users

KP2 – Indication of overall project Financial benefits and sustainability

KP3 – To what extent this project has increased Transparency in the processes and delivering of services.

KP4 – To what extent has there been a growth in no. of users taking the services through the new system

C2SU1 – What is the geographical spread and population coverage of the project, leading to proximity to users?

C2SU2 – What has been the enhancement/increase of - number of services, timings of delivering services, delivery channels over a period of years?

C2SU3 – To what extent has there been an ease of availing service (in terms of reduction of touch points for users – single window approach, and reduction in no. of visits for the users to avail a particular service

C2SU4 – How are the stakeholders (external and internal) feed back incorporated in the project?

IE2 Govt 1 – To what extent do you see productivity increase (in terms of increase in handling more transactions by same or less manpower as would have been done in the manual system)?

IE2 Govt 2 – To what extent have the processes been automation at the back-end which are delivering services in this project?

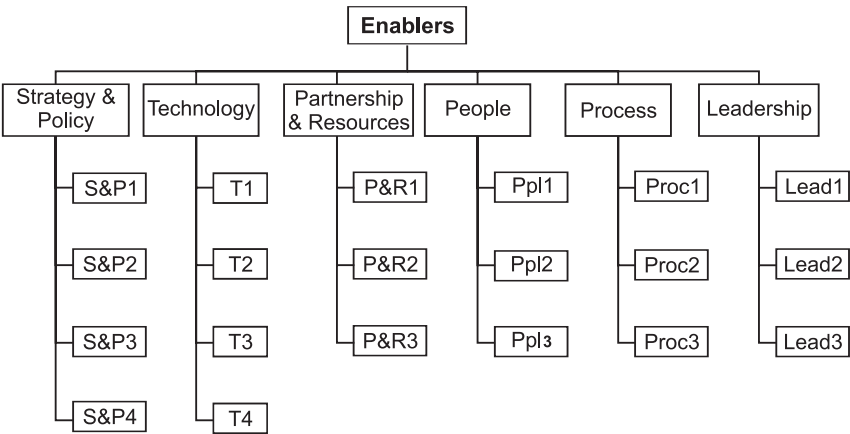
IE2 Govt 3 – How would you explain the ease in adoption of new processes by internal stakeholders of the project, in terms of change management and training?

IE2 Govt 4 – To what extent and how has this project implementation resulted in improve in morale of the internal stakeholders?

I&R1 – List various aspects of this project which could consider this project for replication or list what aspects of this project were replicated from other project?

I&R2 – List the set of innovations in services delivery, which could be in term of processes, technology, etc.

Fig. 2 *Hierarchy for Enablers*



S&P1 – Does A Roadmap and plan exist for the project?

S&P2 – Are the policies and strategy in place for project 3rd party Audit and assessment?

S&P3 – What type of Customer (service users) feedback policy is being followed?

S&P4 – What type of Project Documentation policies are being adopted?

T1 – What is the Technology architecture?

T2 – Which technology standards are being adopted?

T3 – How does the project address Scalability factor?

T4 – Which Security standards are adopted in the project?

P&R1 – Which are the key measurable Service Levels for all the participating stakeholders in the implementation and operations of the project?

P&R2 – How is the involvement of industry and community being addressed?

P&R3 – How has the project Capital adequacy being addressed?

Ppl1 – Capacity building plan – people resources are planned, managed and improved

Ppl2 – Change management plan (this includes awareness and communication plan)

Ppl3 – Employees at all levels - involvement and empowerment

Proc1 – Is there any GPR (Government Process re-engineering) plan in place?

Proc2 – Is there any Citizen charter in place?

Proc3 – Is there any Service level process and its measurement tool for all The implementing partners?

Lead1 – How is the Political support visible in the project?

Lead2 – How is the Top management support (administrative) visible in the project?

Lead3 – Has there been a continuity of project champions from Conceptualization to implementation to roll-out?

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. After a deliberation with a set of experts, the attributes for each of the Indicator under Results and Enablers have been finalized for this year's evaluation. While it is true that fixing the attributes may not capture the complete strength of all projects,

for they have different dimensions which are not be captured by them, the idea behind fixing the attributes was with an intention to fix the parameters under which the projects shall be evaluated. Attributes are so chosen so as to be “measurable”, that is, to have attributes whose quantification or for which a qualitative judgment can be made with ease.

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 the actually 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. Further, it is also important to note 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.

6.3 Phase III

Phase 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.

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.

Having formed the respective hierarchies for Results and Enablers, a team of experts were requested to assign weights to each of the indicators and attributes 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.

Each of these scores of the attributes is multiplied by the weights for the corresponding attributes obtained by applying AHP to get a score for an indicator out of 100. These scores out of 100 of each indicator are then multiplied by the corresponding weights of the indicators obtained by applying AHP to get the final score out 100 for both Results and Enablers. 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.

Initially the experts are asked to give weights to each of the Indicators of Results and Enablers out of 100. See Appendix A.

Weights for Indicators of RESULTS			
Please Fill the cells in the column under the head "For 100" with the weights			
Please Do NOT fill the Cells under the head "For 20"			
Note that your sum out of 100 should be equal to 100			
Sl.No.	Indicators	For 100	For 20
1	Key Performance	20	4
2	Convenience to Service Users	30	6
3	Internal Efficiency(to Govt.)	30	6
4	Innovation & Replicability	20	4
	Current Sum	100	20
	Sum Should Be	100	20

Weights
 0
 0
 0
 0

In table 9, 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 of between them two at a time starting from the first indicator – Key Performance.

A table of differences is computed, which is later transformed to the table with pair-wise comparison of indicators (table 9) by changing the differences to the corresponding weights as per the table 8.

The measuring scale is as per Table 8, where for each of the difference of values from -20 to 20 Corresponding weight is given.

Table 8 *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	4	5	6	7
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 9 *Pair-wise comparison among results-indicators*

	Key performance	Convenience to service users	Internal efficiency to government	Innovation and replicability
Key performance	1	1/3	1/3	1
Convenience to service users	3	1	1	3
Internal efficiency to Government	3	1	1	3
Innovation and replicability	1	1/3	1/3	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 10 *Normalized matrix for the results-indicators and weights*

Key performance	0.125	0.125	0.125	0.125	0.125
Convenience to service users	0.375	0.375	0.375	0.375	0.375
Internal efficiency to government	0.375	0.375	0.375	0.375	0.375
Innovation and replicability	0.125	0.125	0.125	0.125	0.125

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.

Fig. 4 Sample weightages for enablers

Weightages for Indicators of ENABLERS					
Please Fill the cells in the column under the head "For 100" with the weights for Indicators out of 100					
Please Do NOT fill the Cells under the head "For 20"					
Note that your sum out of 100 should be equal to 100					
Sl.No.	Indicators	For 100	For 20	Weights	
1	Strategy & Policy	20	4	0	
2	Technology	10	2	0	
3	Partnership & Resources	15	3	0	
4	People	20	4	0	
5	Processes	25	5	0	
6	Leadership	10	2	0	
Current Sum		100	20		
Sum Should Be		100	20		

Corresponding to the scores received (scaled down to 20), Table 11 shows the pair-wise comparison among the Indicators of Enablers.

Table 11 Pair-wise Comparison among Enablers-Indicators

	Strategy and policy	Technology	Partnership and resources	People	Process	Leadership
Strategy and policy	1	3	2	1	1/2	3
Technology	1/3	1	1/2	1/3	1/3	1
Partnership and resources	1/2	2	1	1/2	1/3	2
People	1	3	2	1	1/2	3
Process	2	3	3	2	1	3
Leadership	1/3	1	1/2	1/3	1/3	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 12 Normalized matrix for the enablers-indicators and weights

Strategy and policy	0.193548	0.230769	0.222222	0.193548	0.166667	0.230769	0.206254
Technology	0.064516	0.076923	0.055556	0.064516	0.111111	0.076923	0.074924
Partnership and resources	0.096774	0.153846	0.111111	0.096774	0.111111	0.153846	0.120577
People	0.193548	0.230769	0.222222	0.193548	0.166667	0.230769	0.206254
Process	0.387097	0.230769	0.333333	0.387097	0.333333	0.230769	0.317066
Leadership	0.064516	0.076923	0.055556	0.064516	0.111111	0.076923	0.074924

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.

The Scoring Sheets as per Annexures I and II of Appendix A were given to Experts for evaluating Results and Enablers during the Field Visit for each project.

Once the scores are received, the weighted scores for each of the Indicators followed by weighted score for Results and Enablers is obtained. Table 14 gives a sample weighted score for one of the Indicators – Key Performance of Results for projects named P1-P8. Table 15 gives the sample weighted score for Results – which is weighted over the weighted scores of each of the Indicators.

Table 16 gives a sample weighted score for one of the Indicators – Strategy & Policy of Enablers for projects named P1-P8. Table 17 gives the sample weighted score for Enablers – which is weighted over the weighted scores of each of the Indicators.

Project Evaluation Sample: Results (Tables 14–15)

Table 14 *Weighted scores for indicator—key performance*

Projects	(1) Key Performance				Weighted Score
	KP1 (10)	KP2 (10)	KP3 (10)	KP4 (10)	KP 1-4 (100)
P1	8	8	8	8	80
P2	8	8	8	8	80
P3	6	7	8	8	73.311598
P4	10	10	10	10	100
P5	9	9	9	9	90
P6	8	8	8	8	80
P7	10	10	10	10	100
P8	9	8	8	9	83.595638

Table 15 *Weighted scores for results—overall*

Projects	Weighted score KP 1–4 (100)	Weighted score C2SU 1–4 (100)	Weighted score IE2Govt 1–4 (100)	Weighted score IandR 1–2 (100)	RESULTS - OVERALL WEIGHTS KP-C2SU-IE2 Govt-IandR (100)
P1	80	83.333334	90	87.5	84.86691
P2	80	80	90	9	70.10418
P3	73.311598	71.666667	70	60	69.63593
P4	100	100	90	90	95.83334
P5	90	90	90	90	90.00001
P6	80	80	80	77.5	79.56598
P7	100	90	86.379552	90	91.55059
P8	83.595638	85	76.232493	77.5	81.2256

The same process is applied for Enablers.

Project evaluation sample: Enablers (Tables 16–17)

Table 16 *Weighted scores for indicator–strategy and policy*

Projects	(1) Strategy and policy				Weighted score
	SandP1 (10)	SandP2 (10)	SandP3 (10)	SandP4 (10)	SandP 1–4 (100)
P1	9	9	9	9	90
P2	9	9	9	9	90
P3	9	9	8	8	85
P4	10	10	10	10	100
P5	9	9	9	9	90
P6	7	7	7	7	70
P7	10	10	10	10	100
P8	8	7	7	8	75

Table 17 *Weighted scores for enablers–overall*

Projects	Weighted score	Weighted score	Weighted score	Weighted score	Weighted score	Weighted score	Enablers- overall score
	SandP 1–4 (100)	T 1–4 (100)	PandR 1–3 (100)	Ppl 1–3 (100)	Proc 1–3 (100)	Lead 1–3 (100)	SandP-T- PandR- Ppl-Proc- Lead (100)
P1	90	93.40196	95	95.09524	90	100	4.750195
P2	90	90	90	80	90	90	7.656873
P3	85	0	50	50	50	52.5	9.472723
P4	100	100	100	93.11905	90	100	6.642521
P5	90	90	90	90	90	90	0.000002
P6	70	88.90033	90	90	90	100	0.415513
P7	100	100	100	95.09524	90	100	7.105568
P8	75	70	80	69.80952	86.2482	90	9.771023

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 Fig.1 & 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 minor

weights to the Online Form submitted and the Project Case Study (Write Up).

The following weights were given to each of Online Form data, case study, Results and Enablers data (before field visit), Field Visit scores for Results and Enablers Indicators (provided by experts visiting the projects):

Table 18 *Weights applied for overall project assessment*

Category	Nomination details in form b (online form)	Case studies/ Write up	Result and enablers	Field visits
Weightage	10	10	30	50

The scores for Form B and Case Study were based on the completeness of the data submitted and the manner in which various questions from the Template (see Appendix B) for the Case Study suggested. Results and Enablers scores for 30% were evaluated based on the information provided by the respective project owners' for the various attributes of the Indicators of Results and Enablers. During the Field Visit scores have been given by experts as explained in section 6.

The final scores were arrived at by taking a sum of the 4 parameters.

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.

It turns out that in the final evaluation scores, in most cases the projects' assessment based on the Results and Enablers before the Field Visit was higher than the projects' assessment after the Field Visit. At the same time, there were also few projects where the evaluation before the Field Visit was low, and after the Field Visit, its scores were higher in comparison .

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 2006–07.

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 2006–07.

Given the constraints of man-power, 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 2006–07 – 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 Results and Enablers model was felt to be easy to perceive, and this requires to be put for wider discussion. Our on going work is to enlist all the possible 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 could be extended to other criteria viz. State, Departments, Districts as the case may be.

Finally, we feel that for assessment exercises done by voluntary bodies such as CSI – it is required that the strengths of CSI such as the CSI Student Branches as well as CSI Chapters be leveraged so as to make the evaluation process better. The author's encourage feedback and discussion on specific aspects from the readers, so as to improve the assessment methodology, especially adopted for purpose of awards.

10. References

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¹ These inputs are based on reports submitted to eGovernance Practice Group of the Information Systems Division, World Bank, Washington DC and Department of Information Technology, Government of India and shared by IIM-A at the Workshop on Building Capacity for Impact Assessment held on February 26–27, 2007

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Appendix A

Phase II Assessment Weightages

(Document for Selection Committee members only)

e-Government Project Category

Important Instructions

1. The phase II of this process is based on assessing the two key components—project Results and Enablers. Each of these will have specific indicators which will be measured based on a selected set of attributes. It may be noted that this assessment is not looking at all attributes and the selection committee in its meeting held on 30th September 2007 at Hyderabad suggested some revision in indicators and identified selected attributes for the purpose of these awards.
2. The framework conveys that the project can deliver excellent Results which are achieved through Enablers. Listed below are the revised indicators defined for this framework. These have not been listed in any order of importance or priority.
3. Selected result indicators include:
 - i) Key performance ii) Convenience to service users
 - iii) Internal efficiency (to Government) iv) Innovation and Replicability
4. Selected Enabler indicators include:
 - i) Strategy and Policy
 - ii) Technology
 - iii) Partnership and Resources
 - iv) People
 - v) Process
 - vi) Leadership
5. Expectation from you
 - a. Based on your rich experience in e-Governance domain, you are requested to give us the weight to be assigned to each of these indicators and attributes. This will enable us to apply the AHP (Analytical Hierarchy Process) model to arrive at the final set of weightages. These weightages will be used for evaluation of the short listed projects in Phase I.
 - b. In Annexure I, give weightage to each of the 4 Result indicators, totaling to 100. Similarly, give weightages to each of the 6 Enabler indicators, totaling to 100. Note that each Result and Enabler has to be given weightage out of 100 each.
 - c. In Annexure II, give weightage to each of the attributes under respective Result and Enabler indicators. Total of the attribute under each indicator should be 10.
 - d. Subsequently, after applying AHP to each set we will arrive at the final weightages for each of the attributes.

Weightages for RESULT and ENABLER INDICATORS

(Annexure A)

Please give your preferred weightages in table below

RESULT INDICATORS	Weightage
1 Key performance	
2 Convenience to service users	
3 Internal efficiency (to Government)	
4 Innovation and Replicability	
TOTAL	100
ENABLER INDICATORS	
1 Strategy and Policy	
2 Technology	
3 Partnership and Resources	
4 People	
5 Processes	
6 Leadership	
TOTAL	100

Explanation on these indicators is given in the Annexure I and II

Annexure I

Scoring Sheet for Experts—Sample Sheet for RESULTS

No.	Indicator	Indicator Explanation												
1.	Key Performance	Excellent projects comprehensively measure and achieve outstanding results with respect to benefits derived in terms of cost, time and usage of system. Set of measurable Attributes (Give 10 points to each) <table><tr><th>Score</th><th>Attribute</th></tr><tr><td></td><td>KP1 - To what extent of time saving has been achieved for taking these services by the Service users</td></tr><tr><td></td><td>KP2 - Indication of overall project Financial benefits and sustainability</td></tr><tr><td></td><td>KP3 - To what extent this project has increased Transparency in the processes and delivering of services.</td></tr><tr><td></td><td>KP4 - To what extent there been a growth in no. of users taking the services through the new system.</td></tr><tr><td>40</td><td>Maximum</td></tr></table>	Score	Attribute		KP1 - To what extent of time saving has been achieved for taking these services by the Service users		KP2 - Indication of overall project Financial benefits and sustainability		KP3 - To what extent this project has increased Transparency in the processes and delivering of services.		KP4 - To what extent there been a growth in no. of users taking the services through the new system.	40	Maximum
Score	Attribute													
	KP1 - To what extent of time saving has been achieved for taking these services by the Service users													
	KP2 - Indication of overall project Financial benefits and sustainability													
	KP3 - To what extent this project has increased Transparency in the processes and delivering of services.													
	KP4 - To what extent there been a growth in no. of users taking the services through the new system.													
40	Maximum													
2.	Convenience to Service Users	Excellent e-Government projects measure and achieve outstanding benefits and results to the end-customers of its project. The service users are the end users of the system in terms of availing the services. Set of measurable Attributes (Give 10 points to each) <table><tr><th>Score</th><th>Attribute</th></tr><tr><td></td><td>C2SU1 - What is the geographical spread and population coverage of the project, leading to proximity to users?</td></tr></table>	Score	Attribute		C2SU1 - What is the geographical spread and population coverage of the project, leading to proximity to users?								
Score	Attribute													
	C2SU1 - What is the geographical spread and population coverage of the project, leading to proximity to users?													

		C2SU2 - What has been the enhancement/increase of no. of services, timings of delivering services, delivery channels over a period of years? C2SU3 - To what extent has there been an ease of availing service (in terms of reduction of touch points for users – single window approach, and reduction in no. of visits for the users to avail a particular service) C2SU4 - How are the stakeholders (external and internal) feed back incorporated in the project?
	40	Maximum
3	Internal Efficiency (to government)	Excellent projects comprehensively measure and achieve outstanding results with respect to their people. This indicator addresses the results in terms of internal working efficiency of the project owner. Set of measurable Attributes (Give 10 points to each) Score Attribute IE2Govt1 - To what extent do you see productivity increase (in terms of increase in handling more transactions by same or less manpower as would have been done in the manual system)? IE2Govt2 - To what extent have the processes been automation at the back-end which are delivering services in this project? IE2Govt3 - How would you explain the ease in adoption of new processes by internal stakeholders of the project, in terms of change management and training? IE2Govt4 - To what extent and how has this project implementation resulted in improve in morale of the internal stakeholders?
	40	Maximum
4	Innovation and Replicability	Excellent projects measure and achieve outstanding results with respect to innovation (process or technology) and replicability. This indicators address results in terms of Innovation - Process, technology, Best practice, Replicability in other parts. Set of measurable Attributes (Give10 points to each) Score Attribute IandR1 - List various aspects of this project which could consider this project for replication or list what aspects of this project were replicated from other project? IandR2 - List set of innovations in services delivery, which could be in term of processes, technology, etc.)
	20	Maximum

Annexure II

Scoring Sheet for Experts—Sample Sheet for ENABLERS

No.	Indicator	Indicator Explanation
1.	Strategy and Policy	Excellent projects are implemented by developing a focused strategy. Policies, plans objectives are developed and deployed to deliver the strategy. Set of measurable Attributes (Give 10 points to each) Score Attribute SandP1 - Does a Roadmap and plan exist for the project ? SandP2 - Are the policies and strategy in place for project 3rd party Audit and assessment? SandP3 - What type of Customer (service users) feedback policy is being followed? SandP4 - What type of Project Documentation policies are being adopted? 40 Max.
2.	Technology	Excellent projects build technology architecture for present and future growth needs of the project. It addresses the comprehensiveness, scalability, security aspects by adherence to standards. Set of measurable Attributes (Give 10 points to each) Score Attribute T1 - What is the Technology architecture ? T2 - Which technology standards are being adopted? T3 - How does the project address Scalability factor? T4 - Which Security standards are adopted in the project? 40 Max.
3.	Partnership and Resources	Excellent projects plan and manage external partnerships by their involvement for an efficient implementation and operation of the project. By bringing these partnerships the project balances the present and future growth needs of the project. Set of measurable Attributes (Give 10 points to each) Score Attribute PandR1 - Which are the key measurable Service Levels for all the participating stakeholders in the implementation and operations of the project? PandR2 - How is the involvement of industry and community being addressed? PandR3 - How has the project Capital adequacy being addressed? 30 Max.
4.	People	Excellent projects manage, develop and realize the full potential of their existing employees at an individual level, team-based at organization level. The project takes them smoothly during the transition phase, by building their commitment, skills and knowledge. This indicator relates to the internal project owner and partnering departments, handling of people issues.

	Set of measurable Attributes (Give 10 points to each)
Score	Attribute
	Ppl1 - Capacity building plan – people resources are planned, managed and improved
	Pp2 - Change management plan (this includes awareness and communication plan)
	Ppl3 - Employees at all levels involvement and empowerment
30	Max.
5. Processes	Excellent e-Government projects address the existing process to bring in the desired transformation. Process are re-engineered in order to fully satisfy, and generate increasing value for all its stakeholders.
	Set of measurable Attributes (Give 10 points to each)
Score	Attribute
	Proc1 - Is there any GPR (Government Process re-engineering) plan in place?
	Proc2 - Is there any Citizen charter in place?
	Proc3 - Is there any Service level process and its measurement tool for all the implementing partners?
30	Max.
6. Leadership	Successful e-Government projects are champion and leader driven. Leaders develop organizational values and systems required for sustainability and implement via their visibility and actions throughout the project. During the period of change they give direction and inspire others to follow.
	Set of measurable Attributes (Give 10 points to each)
Score	Attribute
	Lead1 - How is the Political support visible in the project?
	Lead2 - How is the Top management support (administrative) visible in the project?
	Lead3 - Has there been a continuity of project champions from conceptualization to implementation to roll-out?
30	Total

Part II

Government to Business (G2B)

Computerized Dealer Service Centre

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ABSTRACT

‘Computerized Dealer Service Centre (CDSC)—New Approach towards Service Delivery’ is a project focus on the delivery of Government services to Business. Is an online application for issue of Statutory Forms.

As per AP VAT Act and Central Sales Tax Act when dealer transfer goods from dealer to another dealer the goods must be accompanied by relevant Statutory Forms issued by Commercial Tax Officers (CTO), based on demand made by the dealers and assessment of CTO, to registered dealers. When service delivery requires physical contact between service provider and service recipient, service recipient is likely to suffer. The goal is to eliminate human interfaces to the extent feasible and deliver services Any Time Any Where.

Functionality of the CDSC

- Self Serving Online Registration Process, Service available from 6.00 AM to 10.00 PM, on all working days. Dealer can indent any number of Forms as per his eligibility.
- CTO fixes limits base on dealer’s eligibility. System will display eligibility, blank Form with the dealer, System indicates cost of Forms etc., Dealer can make payment either through Credit Card or make lump sum advance deposit.
- System Provide the accounting for forms of the dealer
- On submission of his indent, system sends confirmation mail to dealer. Centralized Dispatch Centre (CDC) will dispatch Forms within 24 hours of receipt of request.
- System sends dispatch details email to dealer. CDC activity is out sourced on PPP model.
- One staff from department trained in customer care handles customer issues through email system. Response to customer issues is ensured within 2 working days.
- System eliminated all physical interfaces between Tax Payers and Tax Collectors.

1. Introduction

Project conceptualization

CDSC was designed based on the fundamental principles of Good Governance- Transparency, Reliability and Convenience from the view point of citizen. System is designed to be scalable and self sustainable through PPP model. System objectives are:

- Reduced cost of administration
- Satisfaction in providing improved services to customers
- Improved Image and Trust of the customers in Government
- Convenient, transparent and reliable services.
- The other goals and fringe benefits are:
 1. System does not require any budgetary support from Government for its operation.
 2. Reduced interface between Tax Collectors and Tax Payers
 3. Transparency: Once one time parameters are fixed by CTO, system serves dealers without any intervention from Tax officials. It's a great relief to dealers.
 4. Dealers can file their requests from the comfort of their business premises from 6.00 AM to 10.00 PM on all days of the week.
 5. On average two visits per month to Tax Collectors office avoided.
 6. Saving in travel time and costs.
 7. Dispatch forms within 24 hours of receipt of request.
 8. Delivery of forms at the door steps of the dealer.
 9. CDSC activity is out sourced on PPP model and payment to service provider is based on number of dispatches made to ensure efficient service.

2. Project Vision, Stakeholders, Objectives and Services

CDSC vision was designed based on the fundamental principles of good governance, transparency, reliability and convenience from the view point of citizen

The other goals and fringe benefits are:

- System does not require any budgetary support from Government for its operation.
- Reduced interface between Tax Collectors and Tax Payers
- Transparency: Once one time parameters are fixed by CTO, system serves dealers without any intervention from Tax officials. It is a great relief to dealers.
- Dealers can file their requests from the comfort of their business premises from 6.00 AM to 10.00 PM on all days of the week.
- On average two visits per month to Tax Collectors office avoided.

- Saving in travel time and costs.
- Dispatch forms within 24 hours of receipt of request.
- Delivery of Forms at the door steps of the dealer.
- CDSC activity is out sourced on PPP model and payment to service provider is based on number of dispatches made to ensure efficient service.

3. Public Private Partnership (PPP)—Roles and Responsibilities

System is designed to be scalable and self sustainable through PPP model. CDSC activity is out sourced on PPP model and payment to service provider is based on number of dispatches made to ensure efficient service. M/s United Telecom Limited (UTL), Bangalore—PPP model Operator/PPP partner in handling the CDSC. CDC activity is out sourced on PPP model and payment to service provider is based on number of dispatches made to ensure efficient service. There by a great satisfaction to the dealer The PPP partners' revenue increasers based on the dispatches. Penalties (SLA) are stringent so that the PPP partner never delay the dispatches

4. SLA

The Service provider shall procure and install required IT hardware, furniture along with site preparation, software and other equipments, integration of Computerized Dealer Service Centre application with Internet Payment Gateway, operate the Computerized Dealer Service Centre and maintain the same to achieve the required quality standards during the entire contract period.

Running expenses on manpower, IT consumables, stationery, dispatch envelope, courier charges will also be the responsibility of the operator (s) of the M/s UTL.

The Statutory Forms for dispatch will be printed and supplied by the CT Department to the M/s UTL on cost basis. The forms must be delivered with in the time agreed. Penalty is defined for the delay in services.

5. Funding Process

- CAPEX (Capital expenditure)—Application software development and AMC for one year at Rs. 6lakhs. Infrastructure is as existing in department.
- OPEX (Operative expenditure): Rs.32,000/- per month

6. Audit

There is no third party audit, however, the project was considered for the best challenger on the PC Quest and published in the May 2007 issue. Please refer the page no 121 of the issue.

7. Project Plan

- Project Start Date conceptualization of project: 04.05.2006
- Project launch date/start of service delivery for Pilot: 19.01. 2007
- Pilot phase was done in twin cities of Hyderabad. Twin cities constitute almost 30% of all the dealers in the State. Pilot was completed in 10 weeks.
- Project planned and actual implementation period

8. Requirements of Process Re-engineering

Each dealer conducting business requires various statutory Forms during the Course of Business. These statutory Forms are issued by the Department to a registered dealer from time to time. The various forms issued by the Commercial Taxes Department are: (i) Waybills, (ii) C Forms (iii) F Forms (iv) H Forms. Entire process is **person dependent**. If staff or CTO is not available in the office, no Forms can be issued. CTO being a field officer has many field duties.

DSC in its present form had too many human interfaces with the dealers—CTO, ACTO, Assistant and attendant. With these interface in place, in the present form, it is highly difficult to meet the expectations of dealers to provide quality service and meet 24 hours delivery standard. Present system is department staff dependent and provides delivery of service provided office staff is available. Customer needs and conveniences are subject to availability and capacity of department staff. Hence it is not possible especially for CTO to available all the time at office. Thus the 24 hours time limit for issue of Forms is just on paper. As per citizen charter the issue of Forms is the 24 hours.

- Dealers have to make at least two trips to get Forms. One for submitting application and other to receive Forms from DSC. These trips costs time and money for the dealer. This is against the citizen charter.
- The CTO will account for the various forms issued to the dealer and gives the new allotment based on the DSC register (manual) details. There is very little transparency in the decision making process of CTO as there is no automatic accounting of the forms issued and the returns submitted.

- Dealer service Centre (DSC) is the place the dealer has to submit the request/Indent for the new forms. The DSC, a personnel interface, service quality varies on many factors and added one more layer of bureaucracy and resultant ills.
- All the forms are to be stamped by attendant. Attendant takes lot of time in stamping the Forms to make the service delay to get benefit out of the slow process.

9. Legal Framework Technology Architecture

Reduced cost of administration—Savings for the Department Typically in the manual system, each centre for issuing of forms is manned by 4 people. There are 7 such centres in the Twin cities alone. That makes it 28 people—doing the work of issuing statutory Forms to the dealers. The CDSC that is currently in operation in the twin cities is managed by only ONE Person. So if 28 people can be replaced by two person and the services of balance 26 persons are utilized for better Tax administration activities, the cost saving to the dept will be enormous.

Satisfaction in providing improved services to customers Centralized Dispatch Centre (CDC) at Hyderabad which works from 10.00 AM to 6.00 PM on all working days will dispatch Forms within 24 hours of receipt of request (excluding holidays). In all most all the cases, all the requests received prior to 5.00 PM are dispatched on the same day. The Forms are dispatched through courier to the business place of the dealer. System sends dispatch detail email to dealer. One staff from department trained in customer care handles customer issues through email system. Response to customer issues is ensured within 2 working days. Dealer can also enter utilization of Forms previously received by him. System will mail it to CTO concerned also. CDC activity is out sourced on PPP model and payment to service provider is based on number of dispatches made to ensure efficient service. Thereby a great satisfaction to the dealer.

Improved Image and Trust of the customers in Government—Convenient, Transparent and Reliable Services—Reduced interface between Tax Collectors and Tax Payers—Transparency. Once one time parameters are fixed by CTO, system serves dealers without any intervention from Tax officials. It is a great relief to dealers. On average two visits per month to Tax Collectors office avoided. Saving in travel time and costs. Delivery of Forms at the door steps of the dealer.

Table 1. *The entire architecture is following the SOA principles.*

Frame Work	Frame Work 1.0
Architecture	3 tier architecture
Technology	.Net
Programming Languages	ASP.net, VB.Net with java script
Operating Systems	Windows 2000 Server (Server End) with Service Pack4,

Table 1. *(Continues...*

	Microsoft Windows XP/ Windows 98 onwards (Client End)
Application Server	
IDE	Visual Studio 2003
Database	Oracle 10g

All the process designed developed and implemented as per the departmental procedures. No deviation from procedure, however an approval of the Govt. is taken wide G.O Ms No:

10. Milestones

- Development of application
- Identification of PPP partner
- Selection of the Payment gateway
- Implementation

11. Implementation

Table 2. *Strategy for Pilot to roll out*

<i>Project start Date</i>	04-05-2006
<i>Was a pilot done?</i>	Yes, for twin cities of Hyderabad. Twin cities constitute almost 30% of all the dealers in the State.
<i>When?</i>	19 January 2007
<i>What is the overall time line?</i>	8 months
<i>Where has it reached now?</i>	Pilot completed successfully.
<i>What is left for the future?</i>	Rollout to all other locations across the state. Further enhancements to the software such as: More MIS reports, value added features such as bulk label printing.
<i>What is the expected life of the project?</i>	It is ongoing service to dealers.
<i>How many stages is the project being executed in?</i>	Two (Pilot and Roll out)
<i>Which are they?</i>	Pilot and roll-out
<i>What are the key deliverables of each stage?</i>	Delivery of Forms to dealers
<i>What is the duration of each stage?</i>	Pilot completed in 8 months. Roll out in 3 months.

- Project start date conceptualization of project: 04.05.2006
- Project launch date/start of service delivery for Pilot: 19.01. 2007
- Pilot phase was done in twin cities of Hyderabad. Twin cities constitute almost 30% of all the dealers in the State. 10 weeks. Pilot was completed.

- Project planned and actual implementation period
 1. Planned implementation period of 11 months. Pilot in 8 months. Roll out in the entire state in 3 months.
 2. Actual implementation period was—Pilot was planned and completed in 8 months. The rollout was delayed for the reason of the internet spread and courier service in the entire state.

12. Capacity Building

Governance structure, Project management teams, Exit management team, Change management and training. The application is developed by M/s APTSL, and operationalized by M/s UTL in PPP model, as the application is developed in SOA model, hence user friendly.

13. Evaluation and Measurement

- Advantage of getting services at door step in the said time period.
- Reduced cost of administration—savings
- Satisfaction in providing improved services to customers
- Improved Image and Trust of the customers in Government
- Delivery of services as per SLA
- Other benefits:
 1. 240 lakh person km per year can be avoided
 2. Fuel consumption to an extent of 4.0 lakh litres per year can be reduced (Fuel consumption for two wheeler @ 1 litre for 60 km)
 3. Reduction in traffic congestion on roads especially leading to CT department offices
 4. Reduction in air pollution
 5. Reduction in air pollution triggered diseases.
 6. Improved health for citizens and reduced expenditure for Government as well as citizens on Medical
 7. Improved health leads to better productivity
 8. Reduction in travel time and cost for citizens
 9. Overall improvement in quality of life for citizens

14. Road Ahead

Road ahead

Extended to Visakhapatnam city in Andhra Pradesh and will be extended to entire state.

15. Status and Results

Present status

- Implemented in Twin cities and Visakhapatnam city
- No forms

Future plans for readers seeking more information on project

- Extended to Visakhapatnam city in Andhra Pradesh. Will be extended to entire state.

e-Governance in Petroleum and Explosives Safety Organisation—PESO*

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ABSTRACT

The Petroleum and Explosives Safety Organisation since its inception on 5-9-1898, has been serving the Nation as a nodal agency regulating safety of explosives and hazardous substances. The organisation has earned rare distinction as an institution of excellence in matters relating to safety in manufacture, refining, storage, transportation, handling of explosives, petroleum and compressed gases for over a century. The Organisation has creditably rendered training to Police, Security and Intelligence personnel in detection, examination and disposal of explosives/explosive devices, as there was no other agency to impart such training in the country. Today the Organisation deals with statutory duties of wide range of subjects relating to Explosives, Petroleum, Compressed Gases, Pressure Vessels, Gas Cylinders, Pipelines, LNG, CNG, Auto LPG, etc.

The Organisation, although small in size, with an existing strength of less than 100 officers, is the only organisation of its kind directly overseeing the safety requirements for over 2.5 lakh hazardous units and offering expert technical and safety guidance to numerous industries and organizations, including Ministries of Defense, Railways, Shipping, Surface Transport, Environment and Forests, Civil Aviation and establishments of Atomic Energy and Space Research.

Due to the complexity of functions and increased responsibility in implementing safety regulations across the country, along with the economical growth of the country, the organization has opted for modernizing its congenial working conditions aided by its efficient technocrat work force with proactive approach and making use of the latest ICT tools, under e-governance initiatives.

1. Introduction

Project conceptualization

An expert group under the Chairmanship of N. Vittal, Chairman Public Enterprises Selection Board was setup by the Department of Personnel and Training in December 1996 to make its recommendations on computerization

* CSI Nihilent e-Governance Awards 2006–07, G2B – Runner-up.

of the information on Personnel and Citizen Services. The group submitted its report in December 1997. The expert group suggested that the “Ministries should have a Five Year Plan for Information Technology and the provision is made for computerization so that there is clear goal and resources to achieve it are available”.

Also expert committee setup by the Govt. of India to prevent pilferage of explosives vide memo no. 5(20)/91-DPR/EGGS dated: 8-8-91. The committee has recommended following in its recommendation No. 43.

‘Computerization should be introduced in all the offices of the Department of Explosives including those existing in Nitroglycerin -based factories to monitor the monthly returns filed by manufacturers, dealers and users. Cross-checking of monthly returns through computers will reveal the wrong returns involving diversions or pilferage of explosives.’

National Informatics Centre was entrusted with the overall responsibilities and was asked to prepare a Five Year IT Plan in consultation with Ministry of Industry and Commerce (erstwhile Ministry of Industry). After having submitted this IT plan to Planning Commission in the year 1998, Petroleum and Explosives Safety Organisation (formerly Department of Explosives) received sanction and funds under Ninth Plan against this project report. The project took off immediately after signing of MoU between PESO and NIC in October, 2000.

2. Vision

The genesis of ‘e-Governance in PESO’ project was mainly based on the suggestions of Expert Committee on Information Technology on making provisions for computerization to achieve the goal of IT in Government Departments, which was further supplemented by the opinion of Expert Group setup by Government of India to look into pilferage of explosives in the interest of Public Safety and National Security.

The Project has been shaped in line with PESO’s vision as given below by re-engineering of government work procedures.

“Chief Controller of Explosives and his team should constantly endeavor to render efficient, prompt and courteous services to all licensees, public and industry with complete transparency in their working through optimum utilization of available human resources and e-technology while keeping in view National interest and safety first motto”

3. Project Stakeholders

Internal

- Office of Chief Controller of Explosives at Nagpur

- 5 Circle offices (Faridabad, Chennai, Kolkata, Mumbai and Agra)
- 13 Sub-circle offices (Guwahati, Hazaribagh, Asansol, Rourkela, Sivakasi, Ernakulam, Mangalore, Hyderabad, Jaipur, Chandigarh, Bhopal, Allahabad and Baroda)
- 5 Factory-attached offices (Bhandara, Wardha, Vellor, Gomia, Lalitpur)
- Departmental testing station at Nagpur
- Pay and Accounts office (PESO) at Nagpur

External

- Explosives and fireworks Industries
- Mining industry, petroleum industries
- Gas industries, mechanical industries - manufacturing cylinders, valves, regulators, petroleum tanks/tankers/containers/safety-fittings/valves/dispensing-pumps and pressure vessels (Static and Mobile)
- Flame proof fitting industries, explosives and fireworks package industries
- Industries exporting and importing items mentioned above
- Other Govt. agencies, Industries involved in transport of items mentioned above
- Any other industry or persons storing explosives, petroleum, compressed gases and calcium carbide.

4. Objectives

- To bring Transparency and Accountability in the system.
- To closely monitor transactions of explosives across the country.
- To create a National Database on Hazardous premises under various rules administered by PESO.
- To enable stakeholders (public, industry and individual licensees) to obtain the license particulars and status of application online through public domain interface.
- To optimally utilize the available HR resource.
- To do the re-engineering of workflow processes and bring uniformity at various levels, i.e., submission of documents, scrutiny, work flow and final outputs.
- To expedite, grant of approvals, licenses and other permissions, by computerization of workflow and fixing the time limit for every process.

5. Services

While ensuring public safety, issuance of approvals/licenses/renewals under Explosives/Petroleum/GCR and SMPV rules being administered by PESO, in the shortest possible time to all stakeholders.

- To provide quality and proactive services to a wide spectrum of stakeholders with commitment and maximum transparency in the delivery system.
- To provide a user-friendly online facility to external stakeholders to trace their applications and status of applications submitted to any of the PESO offices across India and reduce the time and cost of internal and external stakeholders.

Comprehensive dissemination of information through <http://peso.gov.in> in a user-friendly manner such that even a layman will know 'where to apply?', fee details through 'fee calculator', jurisdiction of offices, posting of officers and detailed information about acts and rules being administered by PESO.

Funding process

The funding for e-Governance project of PESO was primarily through Government of India, Ministry of Commerce and Industry under the plan budgets of Ninth and Tenth five-year plans. The year-wise outlay decided by Ministry/Government of India towards this project is as given below:

Table 1

Phase	Period	Cost in Rs	Five year plan
Phase-I	April-2000 to March-2001	2.0 crores	Ninth Plan
Phase-II	April-2001 to March-2002	3.0 crores	Ninth Plan
Phase-III	April-2002 to March-2003	1.5 crores	Tenth Plan
Phase-IV	April-2003 to March-2004	1.46 crores	Tenth Plan
Extended	April-2004 to March-2005	1.50 crores	Tenth Plan
Extended	April-2005 to till date	0.85 crores	Tenth Plan
Proposed	2007–2011	5.66 crores	Eleventh Plan

National Informatics Centre was entrusted with the responsibilities of system study, planning, design, development and implementation during all the phases of this project. A MoU was signed between PESO and NIC for execution of this project.

6. Necessity/Needs

- To closely monitor the transactions of explosives ranging from the manufacturer to the end user in the interest of 'National security' as well as to ensure public safety by minimizing the chances of pilferage of explosives to unsocial elements.

Under the EXPLOSIVES RULES, 1983 the sellers and users of explosives are suppose to submit their monthly returns of explosives to PESO offices giving details of their day-to-day transactions against their licensed capacities. ICT driven solution is the only alternative to

closely monitor and to prevent illegal transactions. To achieve this, the licensing system under an e-Governance framework, have details of all the licenses in terms of their unique identity, capacities, validity and accessibility. Also to have an application module (Form-36 or Monthly Returns) which will take inputs from the monthly returns and do the cross verification and generate reports based on pre-defined business logic based on provisions under EXPLOSIVES RULES, 1983.

PESO e-Governance project to fulfill its commitments towards 'Our Motto – Safety First' in ensuring safety of common public. Under PETROLEUM RULE 2002, thousands of Road-Tankers are carrying inflammable and toxic substances within the country. PESO is responsible for approving the design, granting licenses of tankers and manufacturing units. This is done with a strict vigil on the domain industries, and keeping in focus the 'public safety'. The domain of GAS CYLINDER RULES, 2004 bring the common public as an important stakeholder. The usage of over 6 crores LPG cylinders in the houses of Indian citizens coupled with negligible rate of accidents in handling them is an example of safety measures being taken by PESO from design to deployment. The filling permission granted to such manufacturer can be seen by the general public by just giving the serial number of the cylinder in the public domain website to see whether the cylinder being used by them is a genuine one or not.

- To build up a national database of hazardous industries and extend global online access.

This is achieved by computerizing the cumbersome workflow (paper based) of the manual licensing-system. The manual system involved, movement of papers within and across offices with inordinate delays, lack of transparency, and was based on the priorities assigned by the concerned dealing person. The shortage of workforce in PESO also stimulated the delay factor in disposing off cases in manual system. In short, the delay was seen as 'inevitable' bottleneck.

- To provide transparent, quality and responsive services to a wide range of ever increasing stakeholders, with enhanced accountability on the part of staff and officers of PESO.

The management can easily see the pendency against a staff or officer at any given time. The computerized system was also aimed at providing the highest transparency in the system to both internal (officers, offices and staff) and external stake holders i.e. industries and individuals approaching PESO for obtaining licenses under various acts and rules administered by PESO. Under the e-Governance project of PESO, in all 31-application modules is developed covering every sphere of activities being performed manually by PESO offices across the country. This approach also involved re-engineering of manual processes including conversion of legacy data to computerized system after capturing the information from old files, their data entry, and validation.

- To facilitate reduction in overall cost and time for this exercise for the internal stakeholders, a centralised approach for accessing these applications and database maintained at head office at Nagpur was adopted. Planning and laying of WAN connecting all PESO offices was executed.

This approach reduced the cost and time substantially in terms of upgradation of applications. For the external stakeholders, the reduction in cost and time was planned in proper dissemination of information through a public domain website. Value addition in terms of pro-active response from PESO to external users is also achieved by sending them reminders for renewal of their licenses.

7. Project Plan

Requirements of process re-engineering and legal framework

To achieve the desired objectives of the project many reforms were introduced in the system. Some of them are listed below.

Monitoring and removal of pendency: To have maximum transparency and provide quality services to external stakeholders, the application modules were designed to provide pendency of documents against each and every internal stakeholder from lower-rung to higher authorities in PESO offices across India. The individual HoDs can monitor the pendency at the click of a mouse.

Standardization: Taking the re-engineering process further, the entire workflow was standardized right from receipt of inward to dispatch section. All types of covering letters, checklists for scrutiny of drawings and documents were also standardized.

Cultural change: To encourage the use of computers and application modules, PESO has adopted management techniques in motivating the workforce through various training programs and providing a computer to every desk well before the start of actual work of that desk. The improved working conditions of offices also added to improved efficiency of the individual.

Information dissemination to external stakeholder: One-stop-source-information dissemination to external stakeholder through <http://peso.gov.in> is planned and delivered. Status of application submitted to any PESO office in India is available on public domain site.

8. Technology Architecture

In the existing setup front-end is the browser and backend is MS-SQL 2000. The business logic is written in ASP (Active Server Pages). All the applications are web-enabled and reside on a central server. There are in

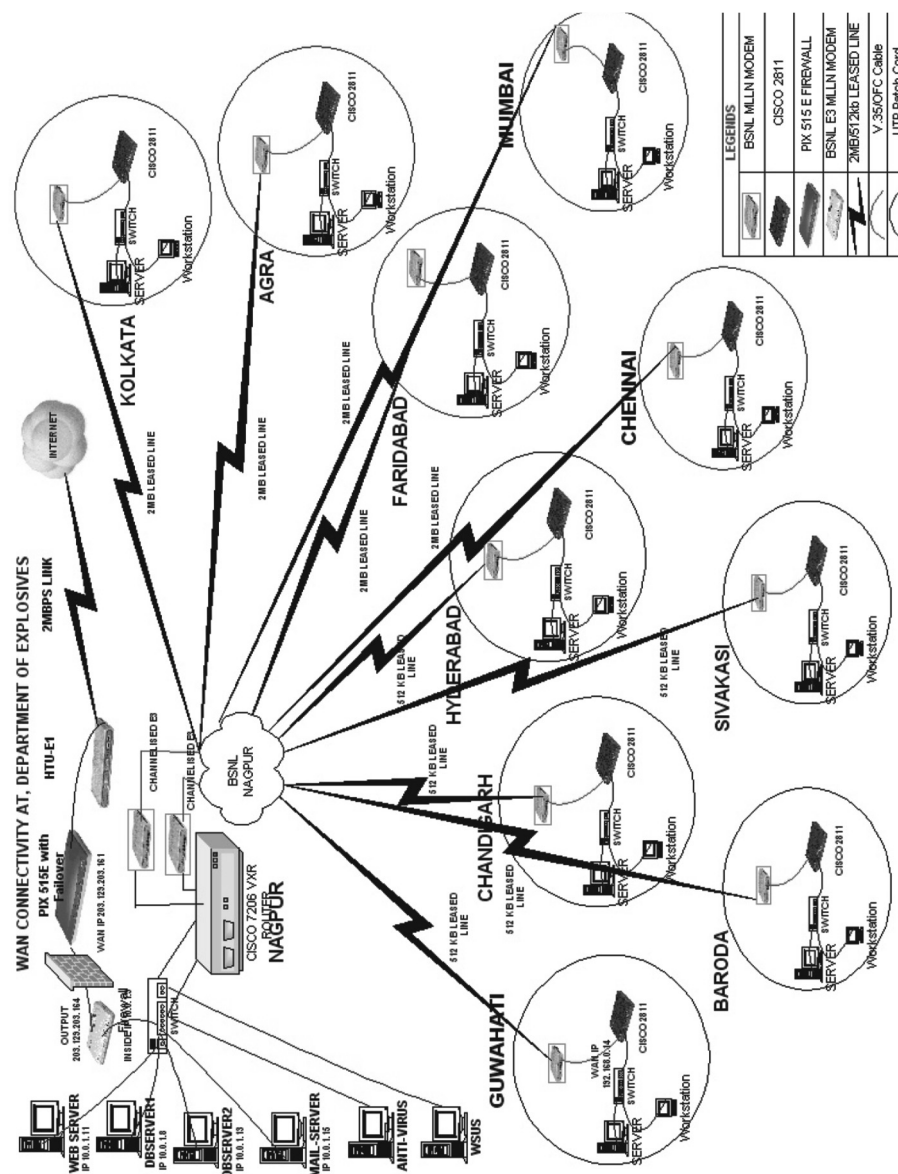


Fig. 1

all 6 databases maintained at the central site covering every sphere of work being performed for PESO offices across the country.

The EXPLONET Wide Area Network of PESO, comprising 23 Nos. of 128 kbps leased circuits (MLLN) is already in place. Five circle and thirteen sub circle offices across the country are connected 24×7 to the central site at Nagpur. This network in turn connects over 300 machines in an intranet environment.

The security policy (IT) of PESO is well defined and it is implemented at all levels including security of network from external threats, authentication security at various levels and infrastructure security in terms of virus and denial of service attacks. PESO has deployed a firewall (with failover), and put the servers in DM Zone with appropriate access control lists for external and internal stakeholders. PESO has also implemented Disaster Management of data and applications as the entire backup of applications and data is ported to remote disaster management server on a daily basis, located at Software Technology Park of India, Nagpur.

The network diagram Wide Area Network (EXPLONET) along with head and circle networks is depicted in the enclosed network diagram.

9. Milestones

Milestones already reached

- 1. Reduction in response time to various stakeholders (under ideal circumstances when documents and drawings are in order)

Response time in days/hours/minutes

Table 2

Response time in days/hours/minutes	Manual system	With e-Governance system
Approval of petroleum/explosives/ GCR/SMPV rules	21 days	1 to 2 days
Grant of licenses under various rules	21 days	1 to 3 days
Renewal of licenses	21 days	1 to 2 days
Preparation of revenue-receipt challans and depositing in the bank	1 month	3 days

- 2. More transparency in the services being offered to various stakeholders

As soon as the entry of an application is made in inward module and the relevant entry in the corresponding module, the status of application is available in public domain site to the concerned licensee and the same would keep changing with the processing taking place on that application till it is disposed off.

3. Transparency in functioning of internal system i.e. close monitoring by the management of PESO for pendency of applications for all the offices across India.

This monitoring is further extended to monitor pendency against officials and staff.

4. Achieve uniformity and standardization in the processes and procedures across all offices of PESO spread across the country through Single Window information dissemination at <http://peso.gov.in>.

PESO portal <http://peso.gov.in> covers entire gamut of activities of PESO besides having user friendly application modules like fee calculator, jurisdiction of offices, where to apply? List of approved fabricators for valves/regulators/cylinders; list of approved explosives manufacturer and procedures for import and export of items mentioned above.

Here has been a significant increase in efficiency of entire workforce of PESO.

Milestone to be reached

1. Provision for online acceptance of applications for approvals/grant/renewal of licenses under explosives/petroleum/CGR/SMPV rules.

This will further cut down the processing time of applications as the applicant himself completes most of the data entry portion. This facility will help oil companies in particular in getting their licenses/renewals in the shortest possible time

2. Provision for explosives manufacturers and dealers to submit their monthly returns of transactions online.

This facility will further strengthen the monitoring of explosives transaction system, as there will be very little scope to submit un-audited information pertaining to transactions.

3. Provision for an 'extranet' environment for the external stakeholders. After successful implementation of online submission of monthly returns of explosives, the system will be further upgraded to have an extranet system for explosives manufacturers and dealers.

This will essentially be an online system for all the stakeholders who would like to transact in explosives. Their internal records ranging from stock registers, sale-purchase vouchers, issuance of road-pass for explosives van etc can be done over this extranet system. This extranet system will be internally linked to PESO's system and thus will result in total transparency in the transactions of explosives leaving very little scope for pilferage.

Project management structure

Project Management structure consists of a high level committee setup by the Chief Controller of Explosives having three members from PESO.

The chairman of the committee is Chief Controller of Explosives and two officers from NIC also participate as members. In all six members are there in this committee including the chairman.

The Chief Controller of Explosives had constituted expert committees under different rules to look after individual application areas. These committees forward the feedback on change-requests to high level committee in the head office. This committee then forwards the change-requests to NIC for these changes to be incorporated in application modules. The frequency of such change-requests has gone down considerably during last 2 years.

10. Implementation

Strategy for pilot to roll out

Phase I Computerization and LAN of Head Office; Hardware and System Software Procurement; System Study and SRS Preparation; Prototype Module Development; Application Software Development; Establishment of e-mail server and Internet Connectivity; Trial Run and Implementation and Basic and Applications Training to HQ Officials were under taken.

Phase II and III LAN and Training of Circle/Sub-Circle/Field Offices including Testing Station; Procurement of 64 Kbps leased lines from BSNL; Establishment of Wide Area Network (WAN); Trend Micro Anti Virus deployment; Launch of explosives.nic.in website; Development of remaining Modules, Launch of Public Domain Service; Fine tuning of existing Modules; Disaster Management Program; Backlog data entry and Weeding of files were taken up during 2002–2003 and 2003–2004.

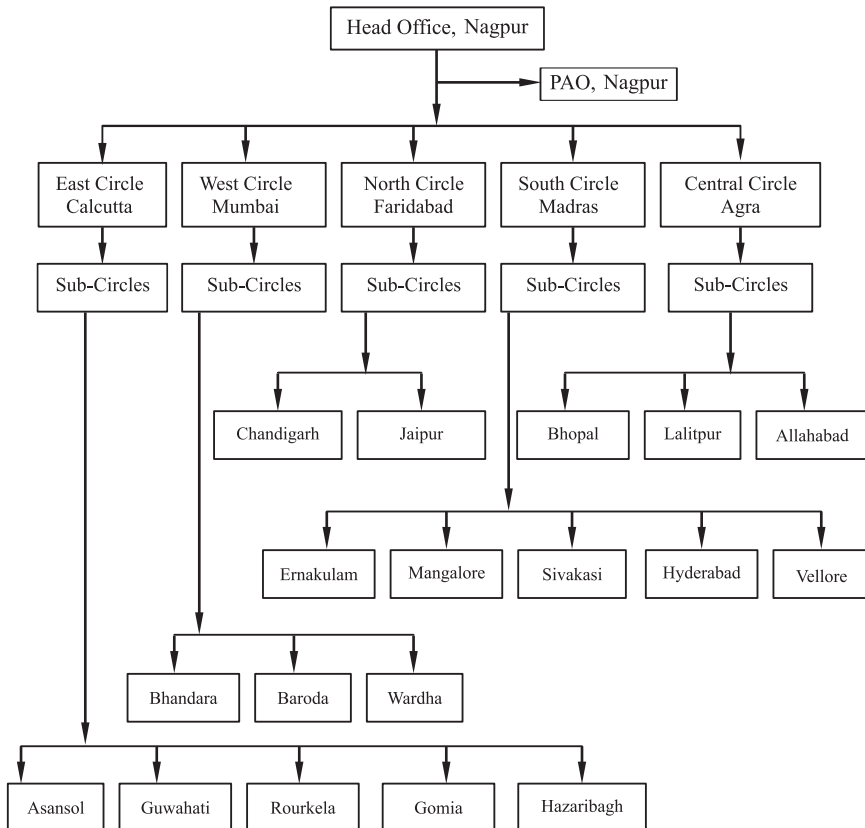
Phase IV Development of remaining Modules; Stabilization of existing Modules; Upgradation of WAN and Central Servers; Redesigning and revamping of PESO's web site and value additions over Public Domain Contents have been taken up.

Capacity building

Training was imparted to the entire workforce of PESO in computer awareness and also in usage of application modules. Trainers training concept was adopted to create a workforce of trainers in individual offices.

11. Governance Structure

Fig. 2



12. Project Management

Project Management structure consists of a high level committee setup by the Chief Controller of Explosives having three members from PESO. The chairman of the committee is Chief Controller of Explosives and two officers from NIC also participate as members. In all six members are there in this committee including the chairman.

Change management

The Chief Controller of Explosives had constituted expert committees under different rules to look after individual application areas. These committees forward the feedback on change-requests to high-level committee in the head office. This committee then forwards the change-requests to NIC for

these changes to be incorporated in application modules. The frequency of such change-requests has gone down considerably during last 2 years.

Training

The executor of this project, i.e., National Informatics Centre also arranged computer awareness training for the entire workforce of PESO. This awareness training was given in two phases i.e. preliminary and advance through an external agency. The entire workforce is trained to handle computers and also carry out their day-to-day work using computer besides working on application modules. Training is regularly conducted by NIC personnel on the features of application modules developed for PESO. This training is organized at user offices as and when new features are incorporated in these modules. In future these training sessions will be organized using video-conferencing facility under Eleventh Plan.

A concept of trainers training is also in place wherein PESO has identified computer savvy workforce within the existing strength. These trainers impart training to other staff members of the respective offices. This is a continuous and ongoing process. A separate setup of dummy servers is also in place which is a replica of production servers. This setup was used for conducting extensive testing of applications and also for trial runs to practice the functionalities of the applications before they are actually deployed on the production servers.

Evaluation and measurement

The executor of this project National Informatics Centre follows the standard practices of Software Development Life Cycle and project management policies are used for evaluation and measurement. As all activities of project are documented against time the Program Evaluation Review Technique (PERT CHART) is used for evaluating the desired goals.

Following inputs are used for measuring the desired degree of goals as per project management policies.

1. Inputs from expert committees on various application modules for cross checking the functionalities as suggested by them.
2. Feedback (verbal/email) of external stakeholders also helps in measuring the satisfaction of external stakeholders for the services being provided.
3. Targets set for internal stakeholders for processing of various transactions. All the activities being carried out in a transaction is electronically recorded. With the help of inward and dispatch dates, delay occurred in performing the transaction is known. The responsibility is fixed by the management to avoid such occurrences in future.

13. Issues and their Solutions

Lessons learnt: Critical success factors

- Making of Project Management Plan jointly by NIC and PESO with involvement of Chief Controller of Explosives and his team of officers right from planning, design, deployment and to execution.
- Web enabled applications based on workflow, dedicated WAN (EXPLONET), and centralized database approach coupled with collaborative development environment by NIC.
- Chief Controller of Explosives' motivation of workforce to adopt new working environment and acceptance of 'change-in-culture' by the entire workforce. Creation of trainers' workforce within the organization.
- Business Process Re-engineering of all work processes and procedures. Standardizations of these processes and role of internal core-committee in the whole process.
- Acceptance of delivered functionalities by all concerned from the lowest rung of PESO to the top. Also upgradation of WAN network and hardware vis-à-vis load-factor, consistent implementation support by NIC with the help of internal support site.

Failure factors

There has not been any significant failure which would result in considerable downtime of the system. The factors which affected the system in a very limited way are as given below.

Failure of hardware (server): This has happened couple of times due to failure of multiple hard disks of RAID based server. After the replacement of faulty disks and redundant servers these failure are almost eliminated.

Failure of Leased Line Link: The rate of leased links failure was higher in the beginning affecting the connectivity from 1 hour to 3 hours. Due to upgradation of technology (MLLN) by BSNL, the downtime has come down to 15 minutes.

Administrator can allot the work to someone else in case a person is absent.

Replication in other states

The project is already implemented at National level as one department-multiple location. These multiple locations are spread across India.

Road ahead

- Provision for online acceptance of applications for approvals/grant/renewal of licenses under explosives/ petroleum/CGR/SMPV rules. This will further cut down the processing time of applications as

the applicant himself completes most of the data entry portion. This facility will help oil companies in particular in getting their licenses/renewals in the shortest possible time.

- Provision for explosives manufacturers and dealers to submit their monthly returns of transactions online.

This facility will further strengthen the monitoring of explosives transaction system, as there will be very little scope to submit un-audited information pertaining to transactions. The above provisions will result in arresting the pilferage of explosives substantially.

Provision for an 'extranet' environment for the external stakeholders. After successful implementation of online submission of monthly returns of explosives, the system will be further upgraded to have an extranet system for explosives manufacturers and dealers. This will essentially be an online system for all the stakeholders who would like to transact in explosives. Their internal records ranging from stock registers, sale-purchase vouchers, issuance of road-pass for explosives van etc can be done over this extranet system. This extranet system will be internally linked to PESO's system and thus will result in total transparency in the transactions of explosives leaving very little scope for pilferage.

14. Status and Results

Present status

The project is successfully running at Petroleum and Explosives Safety Organization having its head office at Nagpur with 5 nos. of circle offices (Mumbai, Chennai, Kolkata, Faridabad and Agra), 13 nos. of sub-circle offices, i.e., Baroda, Mangalore, Hyderabad, Sivakasi, Ernakulam, Asansol, Rourkela, Guwahati, Hazaribagh, Chandigarh, Jaipur, Bhopal and Allahabad.

In all 31 application modules are being used over the stabilized WAN (EXPLONET). NIC team is giving continuous implementation and maintenance support.

Specific achievements during the year 2006-07

The achievements cannot be classified in a given time frame as this project has evolved through its gestation period of 5 years as per the IT plan devised in the beginning. This fact is also true keeping in view the availability of funds for various set goals in the plan. The specific achievements of 2006-2007 could be summarized as below:

The internal stakeholders accessing the central site have not faced downtime of leased lines for more than 15 minutes on any given day. The frequency of downtime has also come to ignorable levels as per the MRTG and leased line management tools used for monitoring. During this period, PESO has enhanced the kind of services provided to external stakeholders.

Besides the ‘general queries’ giving district/state/product and party wise lists, PESO has launched the ‘status queries’ to provide the status of the application submitted to any office of PESO spread across the country. This status is changed throughout the processing of the application by the concerned office and the same is available to external stakeholder through <http://peso.gov.in>

Fig. 3

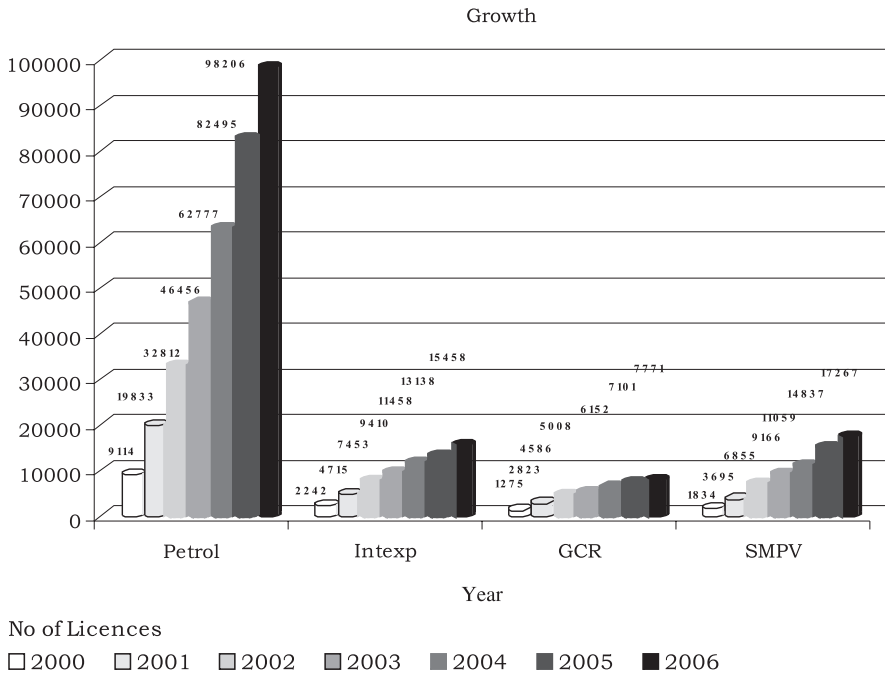


Fig. 4

Yearly license growth report

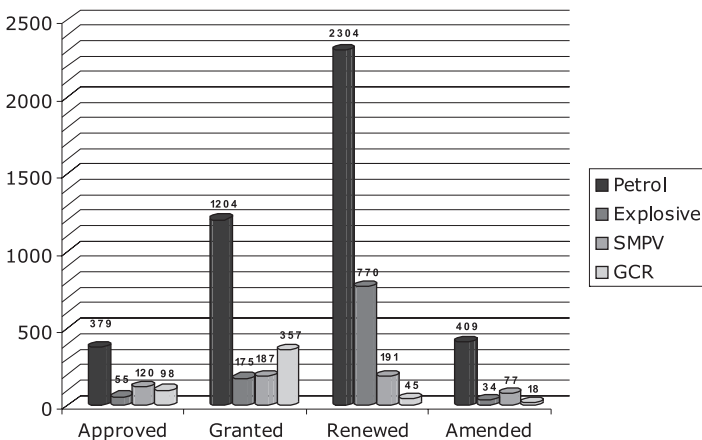
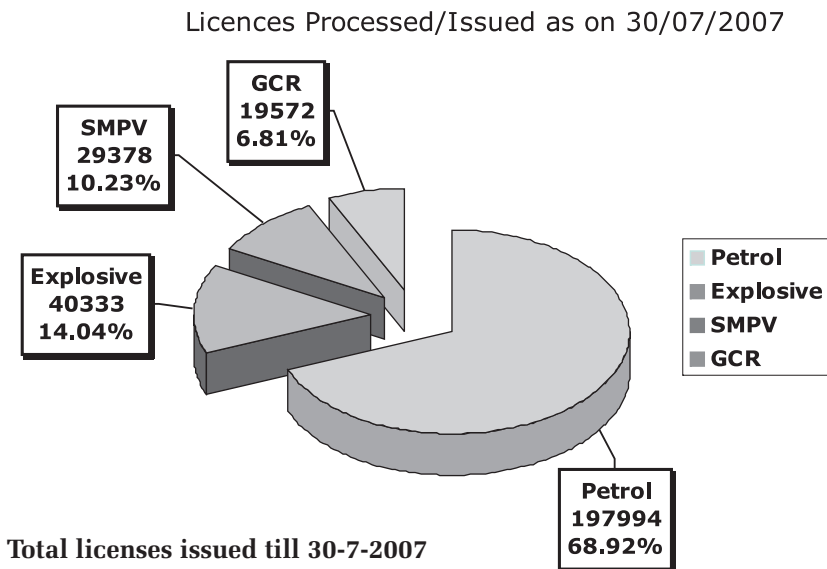


Fig. 5



To overcome the process of patch-management on individual machines a centralized WSUS is deployed within the intranet and the patches, upgrades with respect to operating systems are deployed on remote machines in an automated manner.

PESO has also revamped and launched <http://peso.gov.in>

during period and received overwhelming response from all the quarters of domain industries. Number of feedback received by PESO on the user-friendliness and quality content of the portal speak for them.

The overall progress achieved during 2006–2007 is presented in a pictorial manner in charts shown below.

Area-wise Progress Report for the month of June-2007

15. Future Plans

- To drive the National e-Governance Project under Eleventh five year plan and workout modalities for providing web enabled e-Governance services to User-Industry keeping in view the comparative advantage, strengths and weaknesses of the existing systems evolved during Ninth and Tenth five year plans through “Computerization of PESO” as per Expert Committee on Information Technology to achieve the goal of IT in Government Organizations/Departments.
- To put in place the basic framework for making PESO an high-tech service oriented organization with full transparency to achieve the Hon’ble Prime Minister’s vision of creating friendly and hassle free

environment for the growth of indigenous industry and maintaining National manufacturing competitiveness index high for attracting foreign investments.

- To assess the existing procedures and systems and workout a roadmap to facilitate secured transactions for user industries on a Mission Mode basis and to derive an action plan for capacity building keeping in view the cyber security field.
- To plan, assess and prepare a framework for modernization of entire organization with respect to communication infrastructure, hardware and networking infrastructure (Video-conferencing and VoIP phones) and backup systems for next five to ten years in a phased manner.
- To devise a disaster management plan and implement the same at PESO OFFICE Mumbai/Chennai. This will facilitate transfer of data and code to remote location on a daily basis.
- To revamp existing application software modules to accommodate the revisions in Petroleum, Gas cylinder, SMPV and Explosives rules and to enhance the type and quality of services being provided to licensees.

VAT Information Computerization to Optimize Revenue Yields (VICTORY)

Saurbah Gupta

SIO and Project Leader

S.N. Behera

Technical Director and Project Coordinator

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ABSTRACT

VICTORY system has facilitated unearthing crores of tax evasion by micro and macro analysis by adopting integration of top-down and bottom-up approach using HIT, MISS and Windfall. It also helped in scrutinizing of returns and validation of Input Tax Credit (ITC) from seller and purchaser data in centralized way thus speeding up the refund process. It widened the tax base in terms of Registered Dealers from 47,049 up to March 2005 (before VAT computerization) to 101,731 April 2006 to October 2006 depicting a growth rate of 116 percent. Similarly, Revenue Growth was also remarkable as it was 1604.36 in the year 2001–02 and augmented to 2389.98 in the year 2005–06 i.e. there is 785.62 crores of growth in 4 years of age of VICTORY. The satisfaction index for VICTORY effectiveness has gone above 86 percent despite of all odd circumstances in the state of Bihar. This creativity in reforms in tax administration fetched Oracle Excellence e-Governance Award in the category of 'IT against odds' in World Summit, 2006.

1. Introduction

Project conceptualization

Way back in 1999, there was virtually no discipline in the tax administration in Finance (Commercial Taxes) Department, Govt. of Bihar due to absence of computerization. Tax collection and its collation from above 1 lakh dealers dealing with hundreds of commodities spread over 46 circles across the state was very difficult task in the absence of proper systems to capture and analyze the data leading to appropriate actions to tune the tax compliance. There was no mechanism for data convergence at the HQ level within a

defined time period, so that the top management can take any decision that is required in the interest of the Department. Control, monitoring and analysis of the data for better tax administration and revenue collection was very strenuous and the policy decision without factual data was risky for the Department and hence the department was looking for the ways and means to overcome it in order to widen the tax base and improve the revenue growth.

2. Project Vision, Stakeholders, Objectives and Services

The objective of automating the entire tax administration is to capture each single transaction related to the tax on push button and on the desk of the officer dealing, supervising and monitoring the system.

It was thought to make the system more intelligent, so that it can track the abnormality, evasion, and manipulation of the tax by pre-empting the warning and alert messages through the system thus enforcing the tax compliance.

To adopt workflow based system, so that delay in the data flow in the system itself can be minimized. This will also help in capturing the data as and when it is generated in the process.

Stakeholders (Internal/External)

1. Commercial Taxes Department, Govt. of Bihar.
2. Finance Department, Govt. of Bihar.
3. 46 Circle Offices, 7 Divisions and 15 allied Offices of the Department.
4. Dealers within Bihar
5. Dealers outside Bihar
6. National Informatics Centre (NIC), Bihar State Centre
7. NIC Services Incorporated a section 25 Company under NIC

3. Public Private Partnership (PPP) —roles and responsibilities, audit, SLA, business model; If not PPP, funding process

It is in-house with hired manpower for 24 × 7 technical supports. Rollout of the application in 7 divisions and 46 circles spread across length and breadth of the state was a Herculean task to meet the timeline set by the Government with limited available sources. However, with limited NICSi hired technical hands at the division level, the challenge of rollout and implementation in addition to the trouble-shooting in the data and application was handled successfully, thus developing the confidence in the user in adopting the new system.

4. Project Plan

Requirements of process re-engineering and legal framework

Technology Architecture

Before the application software the department was able to monitor only top 25 dealers and 30 major commodities across the state manually. With software implementation the department was able to monitor each and every dealer who is contributing to the treasury.

The computerization opened up the perspectives of the department in understanding the issues related to dealers, tax behavior etc. and those in turn helped the department in formulating various policies and also in taking faster decision making.

The critical element of VAT implementation was TI generation, scrutiny of returns and Input Tax Credit match/mismatch. The application software helped the department in the implementation of VAT seamlessly from the pre-VAT regimes.

5. Milestones

- Creation of appropriate ICT infrastructure, inculcation of IT culture in the working of the Department and enhancing capacity building program to make the computerization work smooth.
- Develop suitable monitoring tool to evaluate the system and validate the processes.
- To capture the tax related data at the source of its generation i.e. in circles.
- 90–10 rule was adopted to monitor the tax from 10% top dealers contributing 90% of the revenue.
- Convergence of tax data from remote circles to Divisions and to HQ for periodical analysis.
- Identification of risk prone dealers through risk analysis model
- Tracking the tax behavior of the dealers on weighted composite parameters.
- Minimizing the revenue leakage through Identification of defaulters.

6. Project Management Structure

Table 1

User Department	NIC Project
Commissioner	Project Leader
Additional Commissioner	Project Coordinator
Deputy Commissioner (VAT)	Project Member
Commercial Taxes Officers	Team Member

A total of 5 full-time officers were engaged, two from the user Department and 3 from NIC. A total of 7 trained technical manpower were hired for 6 months duration to help implement the application in the Circle and Divisions. Their tenure used to get extended after expiry.

7. Implementation

- Strategy for Pilot to roll out
- Capacity building: Governance structure, Project management teams, Exit management team, Change management and training
- Evaluation and Measurement

8. Strategy for Pilot to Roll Out

The process of computerization was initiated in each circle with minimum ICT infrastructure for capturing the data generated during the core process of registration, payment, returns, forms etc. on the spot, thus building up of appropriate database at the circle level.

To overcome the manual process of tax administration a comprehensive action plan was drafted, discussed and formalized as part of strategic approach supported by the following actions.

- Creation of appropriate ICT infrastructure, inculcation of IT culture in the working of the Department and enhancing capacity building program to make the computerization work smooth.
- Develop suitable monitoring tool to evaluate the system and validate the processes.
- To capture the tax related data at the source of its generation i.e. in circles.
- 90–10 rule was adopted to monitor the tax from 10% top dealers contributing 90% of the revenue.
- Convergence of tax data from remote circles to Divisions and to HQ for periodical analysis.
- Identification of risk prone dealers through risk analysis model
- Tracking the tax behavior of the dealers on weighted composite parameters.
- Minimizing the revenue leakage through Identification of defaulters.

9. Capacity Building

Governance structure, Project management teams, Exit management team, Change management and training

Project management

A total of 5 full-time Officers were engaged, two from the user Department and 3 from NIC. A total of 7 trained technical manpower were hired for 6 months duration to help implement the application in the Circle and Divisions. Their tenure used to get extended after expiry.

Project policy level

All policy level decisions on various issues of the application were jointly taken by Commissioner, Commercial Taxes and State Informatics Officer, NIC.

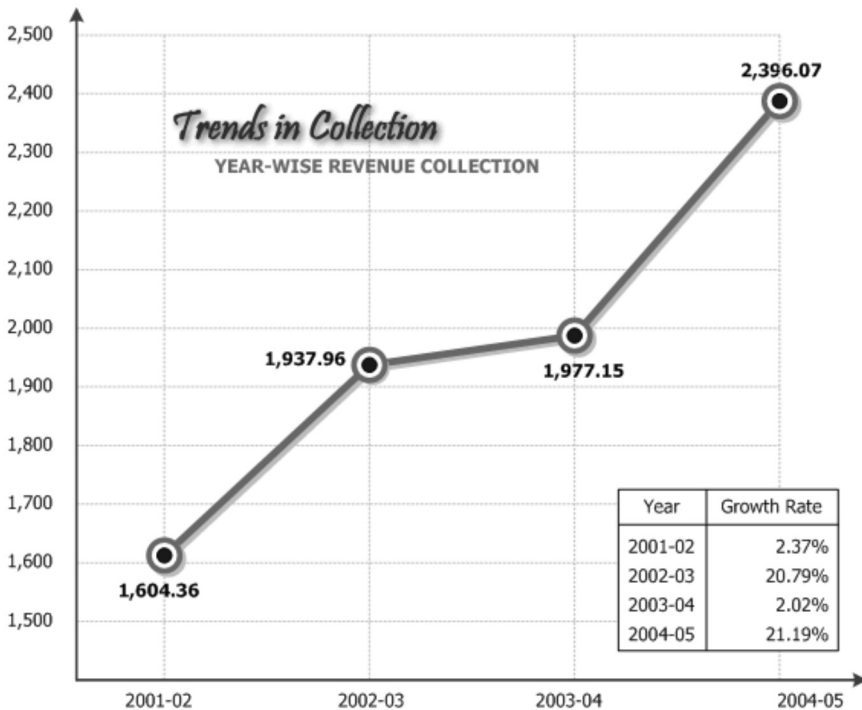
Change management

All 5 full-time members are responsible for bringing out the change requirements whenever there is need of it. Then it formally gets approved from the Commissioner before steps are initiated to incorporate the same.

10. Evaluation and Measurement

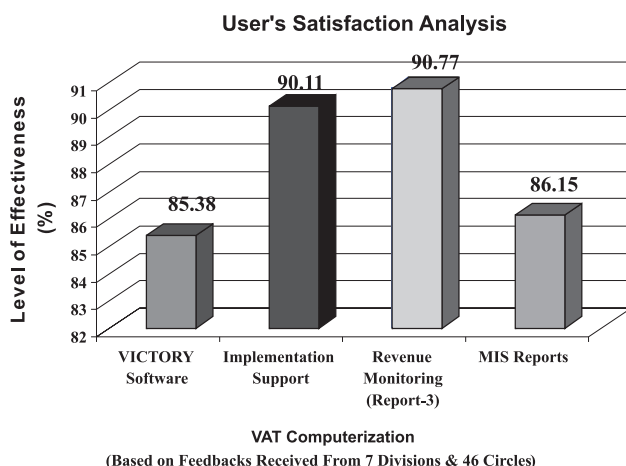
User's satisfaction index, regular feedbacks formal and informal, inputs received from officials of the department has been the measurement

Fig, 1



parameters for evaluation of the VICTORY software. Being Government organization and at the same time of the criticality of the project, the analysis and their redressal based on the measurements and evaluation have been the most critical success factor for the usability and acceptability of the project.

Fig. 2



11. Issues and their Solutions

- Lessons learnt - critical success factors, failure factors
- Replication in other states
- Road ahead

Lessons learnt-critical success factors, failure factors

There are lots to be learned when an application is being developed and implemented for any government department due to very nature of its functioning.

- In the absence of clarity in the requirements from the user, prototyping of software application development is the key for translation of the processes existing in the department.
- Application implementation exposes the requirement of process re-engineering for better service delivery with in time line with imposition of discipline in capturing the data at the source.
- User involvement is a critical factor in the analysis, design, and testing phase of the application software.
- The experience speaks that user must own and nurture the application rather than pointing fingers in case of any shortcomings
- There is a need for timely review of the project progress by project steering committee, implementation feedback with set of validation parameters for evaluation of the progress and success to achieve the objectives within the estimated time and effort.

Replication in other states

VICTORY was developed and implemented on pilot basis at 8 circles of Patna Division located in Patna. After incorporating a number of feedbacks from the user the software was standardized and rolled out in phases in all 46 circles, 7 Divisions and HQ of the Department in record time.

As the VAT rules are uniform across the states, VICTORY does not have any problem of transferability or replicability across the states. VICTORY-Bihar has been successfully customized for Jharkhand and is being implemented very smoothly in the work-flow environment.

Road ahead

In Government, the continuity and fore-casting can seldom happen. So it is the policy that will guide the future of the project continuity.

12. Status and Results

- Present status
- Specific achievements during the year 2006–07
- Future plans for readers seeking more information on project

Present status

Currently the VICTORY Application Software has been in use across all the 46 circles of the department where the transactions originate. Moreover, in the newly created 4 circles, the data migration from old to new and customization of the software for implementation is under-hand.

Specific achievements during the year 2006–07

Reliability and Smooth running of the VICTORY application software can be the measure achievement of the year. However, Oracle Corporation awarded VICTORY for Excellence in e-Governance special category “IT against Odd”. And time-to-time Press reporting on implementation of VAT is the testimony for specific achievement.

Future plans for readers seeking more information on project

Nothing specific.

Website of the department <http://comtax.bih.nic.in>

e-Procurement*

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ABSTRACT

e-Procurement system was introduced for all the purchases and procurements in the Government departments, Nigams and Societies under the administrative control of the State Government and which are funded by Government of Gujarat. The project caters to procurement needs like services, civil works, material procurement, rate contracts, maintenance contracts and auctions. Roll out of e-Procurement was carried out in a phased manner starting from few works/items for limited Departments to multiple items for many departments in the month of October 2004 (Circular No. ETD-2004-1288-STD dated 12th October 2004 issued by Addl. Secretary, Department of Science and Technology).

One of the prime objectives of the Government is to secure benefit of efficiency by the e-enablement of business process. Purchasing is often the area where the greatest savings can be made within any organization. e-Enabling Purchasing helps to achieve those savings sooner as well as bringing other benefits such as best practice processes and quality management information. E-Procurement project was initiated with the vision of achieving above stated goals.

e-Procurement is the process wherein the physical tendering activity is carried out online using the Internet and associated technologies. e-Procurement enables the user to introduce ease and efficiency without compromising the required procedures of the department.

e-Procurement provides transparency, results in savings of time and money, shortening of procurement cycle, ease of operation to the implementing department and to the bidders/suppliers/vendors.

The project initiated in the month of October 2004 and made compulsory for all the government department from January 2007. At present 56 departments through their 168 offices are conducting online tendering and are prime stake holders of the project.

1. Introduction

Project conceptualization

e-Procurement system introduced for all the purchases and procurements in all the Government departments, Nigams and Societies under the

* CSI Nihilent e-Governance Awards 2006–07, G2B – Joint Winner.

administrative control of the State Government and which are funded by Government. Roll out of e-Procurement carried out in a phase manner starting from few works/items for limited Departments to multiple items for many departments.

e-Procurement System introduced for the following transactions:-

- a) For purchases and procurement of goods, plants, equipments, machinery, medicines, medical and surgical suppliers and stores items, all type of store items, supplies and purchases, food and civil supplies stores items and purchases, printing and stationary items and purchase, all type of vehicles purchases, furniture and fixtures etc.
- b) All type of civil construction and related works
- c) Outsourcing of required services
- d) Auctioning of old plants, equipments, machinery, buildings, vehicles, furniture and fixtures, lands, properties, etc.
- e) All other purchases and work orders.

2. Project Vision, Stakeholders, Objectives and Services

One of the prime objectives of the Government is to secure efficiency benefits from the e-enablement of business process. Purchasing is often the area where the greatest savings can be made within any organization. E-enabling Purchasing helps to achieve those savings sooner as well as bringing other benefits such as best practice processes and quality management information. e-Procurement project initiated with the vision of achieving above stated goals.

e-Procurement is the process wherein the physical tendering activity is carried out online using the Internet and associated technologies. e-Procurement enables the user to introduce ease and efficiency without compromising the required procedures of the department.

e-Procurement provides transparency, results in savings of time and money, shortening of procurement cycle, ease of operation to the implementing department and to the bidders/suppliers/vendors.

3. Project Stakeholders (internal and external)

Internal: All the departments conducting e-Procurement
(Buyer Community)

External: All the bidders/suppliers/vendors
(Business Community)

Targeted beneficiaries

Govt. Departments and Business community

4. Public Private Partnership (PPP)

Ownership of application software

(n)Code Solutions—A division of GNFC Ltd. act as an Application Service Provider (ASP) and ownership of Application software is of ASP.

Implementation model

Government—Private Partnership

Business model

Government–Private partnership concept adopted by way of Application Service Provider (ASP) concept.

1. ASP is responsible for presentation, demo, Dry run to the department, teaching and training to the department.
2. ASP is responsible for presentation, teaching and training to the bidders/suppliers/vendors
3. ASP carries out required customization of software module for conducting online tendering.
4. ASP creates online tenders on behalf of the Department (For first 5 Tenders) to establish proper hand holding.
5. ASP is responsible for all the Capital Expenditure like H/W, physical security by way of data centre, redundancy establishment as well operating expenses like Internet bandwidth.
6. ASP is responsible for all software up gradation and maintenance.

Third party audit and compliance

Indian Institute of Management (IIM), Ahmedabad has been approached to carry out system study

Certification

Electronics and Quality Development Centre (EQDC), Gandhinagar

Sources of funds

Operative expenses funded by State Government

5. Necessity/Needs

- a. To establish Transparency in procurement process.
- b. To shortening of procurement cycle
- c. To avail competitive price
- d. To enhance confidence of suppliers
- e. To establish flexible and economical bidding process for suppliers

6. Project Plan

Requirements of process re-engineering and legal framework

Technology Architecture

Change in the legal framework was not required as the project follows defined procurement guideline of the state. Minor variations in the format of News paper advertisement with the effective reduction in the size of the advertisement were required.

Process re-engineering is basic need for the project. Re-design of the bid submission is the major change as the physical submission of bid now got converted into online data submission for the bidders against set qualifying criteria. Manual bid evaluation method re-engineered so that software evaluated technical and commercial bids. As soon as the bids are opened online at the stipulated date, the system assesses the response submitted by bidders. The comparative data based on the online forms created by department and the set qualification criteria are presented in the form of system-generated bid evaluation statement of all participating bidders.

This auto bid evaluation have major impact on the reduction of evaluation cycle. The subjective evaluation efforts reduced with the faster and simpler evaluation process.

7. Milestones

High value purchases of 50 lakhs and above were made mandatory in the beginning. Lower value of Rs. 10 lakhs and above was adopted after sufficient time gap of 5 months in between.

Future roll out plan of reducing core procurement value of Rs. 5 lakhs and above in short run and Rs. 1 lakh and above in a long run is also taken as a one of the target for GPR.

Addition of new features and facility like ePayment, Catalogue management, vendor management etc. is also taken under planning of GPR.

8. Project Management Structure

Project management

35 skilled and trained people (full time)

Project policy level

Involvement of 4 senior level people from ASP end. (Part time)

Empowered committee as mentioned below from Government end.

Table 1

1. Chief Secretary	Chairman
2. Additional Chief Secretary (Finance)	Member
3. Additional Chief Secretary (Health)	Member
4. Principal Secretary (Small Scale Industries)	Member
5. Principal Secretary (Expenditure)	Member
6. Principal Secretary (Water Resources)	Member
7. Secretary (Department of Science & Technology)	Member
8. Secretary (Roads and Buildings)	Member
9. Addl. Commissioner, Industries and CSPO	Member Secretary

Change Management—Involvement of 4 Senior level people from ASP and 4 numbers of senior level people from Government of Gujarat. (GOG) (Part time)

9. Implementation

Strategy for Pilot to roll out

For Government objective was to have a government wide e-procurement solution covering all the departments and offices across Gujarat. Newer technology, availability of infrastructure in place and criticality as well as complexities of tendering process were initial barriers for buy in of buyers and suppliers. Keeping above stated points into consideration the solution is segregated into pilot phase in the first phase and roll out in the second phase.

Pilot Phase: A pilot option is given to all the department through GR dated 12.10.2004. None of the department were compelled to instead self initiation to have better buy in of buyer was asked for. In January 2005, Sardar Sarovar Narmada Nigam Ltd. floated their works related tender through online mechanism. Gujarat Water Supply and Sewage board also followed it for works and items like pipeline network. Gujarat Informatics Ltd. dealing in hardware and software also floated tenders during pilot phase.

Pilot was meant to create awareness in the supplier community also. Standardization of pattern of procurement templates or even overcoming of limitations of IT infrastructure is also required to be handled during pilot phase. Gradually number of departments increased to 12 numbers including GNFC, GSFC, GMDC, GWIL, GUDC, Irrigation Department, medial services, Geology and Mining department and Department of road and building by the month of January 2006 with the total procurement value of Rs. 47966 lakhs.

Roll-Out: After successful handling of 225 tenders covering 19 different departments and organizations by 31 August 2006, roll out was plan in the way of mandatory e-Procurement to all the departments. Government Resolution issued on 22.11.2006 and all the procurement exceeding a value of Rs. 50 lakhs and above was made compulsory effective from 01.01.2007.

Thus 1.25 months time period given to all the departments to be able to establish required IT infrastructure and get trained for application of e-Procurement.

e-Procurement is being implemented in 60 different government departments, Board, Nigams, PSU and municipalities as on 31.08.2007. Till 31.08.2007 4073 tender aggregating to Rs. 5726 crores have been processed through the e-Procurement at Government of Gujarat.

10. Capacity Building

Governance structure, Project management teams, Exit management team, Change management and training

Capacity building

Capacity building is planned with the decentralized Zonal level support centres in the first phase which will be expanded to District level support centres.

Change management

Empowered committee is formed under the chairmanship of the Chief Secretary with the representative of different key departments for change management plan at macro level. This includes Add. Chief Secretary (Finance), Add. Chief Secretary (Health), Principal Secretary (Small Scale Industries), Principal Secretary (Expenditure), Principal Secretary (Water Resources), Secretary (Department of Science and Technology), Secretary (R&B) and Addl. Commissioner, Industries and CSPO.

e-Procurement project was allotted with special session for different 'Chintan Shibir' which took place during last one year. This acted as a major supportive for communication plan

- Awareness plan was established along with Central Store and Purchase Office (CSPO) and different stakeholders were trained on regular basis with the frequency of two batch/week.
- Periodic presentation were made at the secretarial level monthly meeting
- Sub committee consist of Principal Secretary SSI, U/S Industries, U/S Finance Department, Dy. Commissioner CSPO, U/S Department of Science and Technology, representative of GIL and Executive Director GNFC was formed to take care of micro level issues and technological decisions.
- Project owners were identified from within each departments/offices and core groups were formed in the user departments to chalk out the required implementation strategies within the departments.

- Training to around 1800 department employee through seminars, user manuals and visual aid media like Movie CD of complete tendering cycle provided. One to one training was given to all core team members. 'Train-the-trainer' method has also been adopted among stakeholders. Open training session is conducted every Saturday for all the stakeholders. This session is facilitated by proper infrastructure in place.
- In addition about 3200 vendors have been trained on the proper usage of the online facilities.

11. Evaluation and Measurement

- a. Time savings in terms of shortening of purchase cycle achieved by the service users. Average time for decision making like from the day when first tender stage opened (i.e., document fee stage) till price bid stage opening was approximately 30 days. This cycle time reduced to 6.6 days with implementation of project.
- b. Project financial benefits and sustainability are of qualitative as well as quantitative nature. Indicative savings of quantitative nature for this project are 23.5 days savings on man days. Savings of Rs. 48.6 crore against ECV for 300 random sample data. Substantial savings on advertisement cost because of drastic reduction in the size of news paper advertisement.

Qualitative benefits like increased transparency, enhancement of trust of suppliers, wider reach, equal opportunity to all etc are also available with this project.

- c. Transparency increased as physical interaction of purchaser and supplier is reduced. The information related to all the tenders is available online and it is not selectively produced in some newspapers.
- d. Growth in no. of users taking the services through the new system can be seen as In the month of January 2007 tender per month were 131 while that was 432 per month for March 2007 and 739 for August 2007. Participation of department increased from 19 departments in January 2007 to 34 departments by March 2007. As on August 2007 number of the departments reached to 61.

Offices those are active in e-Procurement and falling under all of these departments also increased from 49 by end of January 2007 to 93 in March 2007 and 199 by August 2007. Thus, total 250 offices are actively involved in one or other stage of the e-Procurement roll out.

Department officers directly involved into e-Procurement were 190 by end of January 2007 reached to 345 in March 2007 and 646 by end of August 2007. Supplier participation also increased from 737 at the end of January 2007 to 1394 in March 2007 and 3084 by end of August 2007.

12. Issues and their Solutions

Lessons learnt

- For paradigm change into the system, it is very much essential to have buyers and supplier buy in early stage.
- Stakeholder participation during the initial phase of project is very critical.
- Change management is sensitive and important issue to be managed for such projects.
- Pilot phase plays critical part to understand teething problem and solutions for the same.
- Pilot phase also helps to have slow diffusion of change and easy penetration of the new concept.
- Training is an essential part of the project roll out. Different mode of training and creation of facilitation point play vital role for smoother pick up of project.

Critical success factors

- Training to Department Users
- Training to Bidders/Suppliers/Vendors
- Support to Bidders/Suppliers/Vendors
- Uptime of the Service
- User friendliness of an application
- Dynamism of an application for varied procurement requirements

Failure factors

- Lack of computer awareness – Department
- Lack of computer awareness – Bidders/Suppliers/Vendors.
- Infrastructure like Computers and Internet connection
- Department's willingness for technology adoption
- Initial Resistance of Bidders/Suppliers/Vendors
- Freezing out function requirement of the department for customization purpose.

The future roadmap includes covering of all purchases above Rs. 1 lakh through this system.

Other milestones to be covered in the next 12 months include:

1. Payment Gateway (currently under implementation)
2. Digitally signed e-Auctions,
3. Reverse auctions
4. Catalogue management,
5. Vendor management
6. e-Payments
7. Demand aggregation

13. Status and Results

- **Present status—Roll Out**

14. Specific Achievements during the year 2006–07

During the year e-Procurement was identified as a significant administrative reforms project and accordingly its progress was orchestrated throughout the year by significant training and education programs, infrastructure improvements, awareness and creating business process reengineering.

During the year no of monthly tender increased from 20 tender per month in the first quarter of year 2006–2007 to 432 tender per month in March 2007.

170 numbers of training programs arranged.

4385 people (buyers and suppliers) participated in the program

Total 1273 Tenders worth of Rs. 1985 crore floated during the year.

Total numbers of man days saving in tendering activity was 23.5 days multiple by 1273 tenders = 29,915.5 days.

Future plans for readers seeking more information on project

1. Increase in the reach and coverage so more and more department offices can float online tenders and more and more suppliers takes part for the online bidding process.
2. Future roll out plan of reducing core procurement value of Rs. 5 lakhs and above in short run and Rs. 1 lakh and above in a long run.
3. Addition of new features and facility like e-Payment, Catalogue management, vendor empanelment etc.

VAT Information System*

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ABSTRACT

With the Govt. of Gujarat deciding to adapt to VAT regime from 1 April 2006, the Commissioner of Commercial Taxes decided to computerize the VAT related business processes simultaneously.

This was a conscious initiative, knowing, that as the VAT processes are deployed, there could be resistance from dealer community necessitating modifications and amendments in the VAT related rules and processes which may impact the computerization project and the application development. However, the simultaneous exercise insured that legal system had adequate provisions encapsulating e-Governance.

The project was initiated to ensure prompt capturing of data at its origination in digitized form so that the VAT administration could be more informed and controlled. As the VAT implementation process involving VAT returns, scrutiny, assessment and refunds get streamlined, it was envisaged that the data also gets digitized to help the administration have an in-depth analysis of information for better decision support with respect to strategizing the tax administration processes.

The implementation of **Computerization** Project has lead to following benefits for the Government:

- 1 *Informed decision making*: Due to huge quantum and diversity of data sources informed decision making is difficult in manual system. Availability of data in a digitized data format has helped in better analysis, and subsequent decision making.
- 2 *Improved analytical studies*: Easy compilation and comparison of data provides various options for analytical studies like commodity analysis, revenue trend analysis etc.
- 3 *Increased compliance*: Information collected from various sources are collated and collected in the form of central database. This enables an officer to have complete information about any dealer/transaction on the click of mouse. This leads to increased tax compliance by preventing and detecting tax evaders. For example, entry of unscrupulous dealer is prevented by using reports like 'check duplicates'. In this report, an officer is provided with information about earlier usage of same dealer name, applicant name, address, etc., anywhere in state. Similarly transactions not disclosed in returns are detected by match-mismatch report.
- 4 *Improved administrative control*: The field officers are having access to a number of reports which provide critical input on different facets of administration. It helps in increasing revenue collection, and preventing

* CSI Nihilent e-Governance Awards 2006-07, G2B – Joint Winner.

evasion. For example, Unit officers have list of return/challans defaulters available on real time basis, these leads to control on defaulters.

- 5 *Dissemination of information:* Departmental web site is used for two way communication with stakeholders. It is an important tool to disseminate information about latest changes in the acts and rules, circulars and statistical information. There has been a steady growth in the number of users taking the services through website. The number of hits on the website as of today is about 8 lakhs.

1. Introduction

Project conceptualization

VATIS project was conceptualized by the commissionerate to achieve the following broad business aims:

- Multi Point Taxation without burden of double taxation
- Simplifying and re-engineering Procedures
 - o Re-Organization of administrative structure and Re-definition of Roles
- Efficient, Effective and Economical Tax Administration
 - o Citizen Service Orientation—moving away from person dependency to process dependency and ensuring transparency to maximize citizens' acceptability of VAT regime
 - o Alerts to Department—proactive data points for better decision support
 - o Monitoring of Tax Collection

2. Project Vision, Stakeholders, Objectives and Services

Vision

Efficient, effective, economical and transparent tax administration

Stakeholders

- Tax payers
- Tax practitioners
- Commercial Tax Department, Govt. of Gujarat
- Employees of Commercial Tax Department
- State Government

Objectives

- The objectives for implementation of VATIS are as follows:
- Simplify administrative procedures

- Provide better quality of information for decision making
- Efficient and transparent commercial tax administration
- Improving the quality of services to the taxpayer

Services

The major services made available through VATIS are as follows:

- e-Registration—Dealers can put online request for registration.
- e>Returns— Dealers can file online returns. For ease of use, facility for uploading Microsoft Excel format file is provided. For reusability of the information, dealers have online access for history of e>Returns filed, take printout and can submit the same to the department if required.
- Dealers can put online request for acquiring statutory forms and receive the forms at their door steps without visiting department offices personally.
- Online submission of statutory forms to avail green channel at all check posts (under development)
- e-Request for refunds—Dealers can put online request for refund claims.
- e-Request for amendments—Dealers can put online request for amendment of registration related information.
- e-Messages—Dealers can receive online messages generated by the system in their Message Box.
- e-Payment and Integration with Treasury—Dealers have facility of making online payments against tax, interest and penalty having integration of the citizen portal with treasury. (under development)

3. Public Private Partnership (PPP)

Computerization is not implemented on PPP model. The entire project has been funded by the State Government.

4. Necessity/Needs

Computerization was necessitated due to the following:

- Increase in number of dealers filing returns and challans due to introduction of VAT which is a multipoint TAX unlike first point tax under Sales Tax Act.
- Massive data handling: Data collected from various sources are to be processed to ensure that seller deposits tax because buyer claims credit of input tax.
- Delays in the system, and lack of transparency.

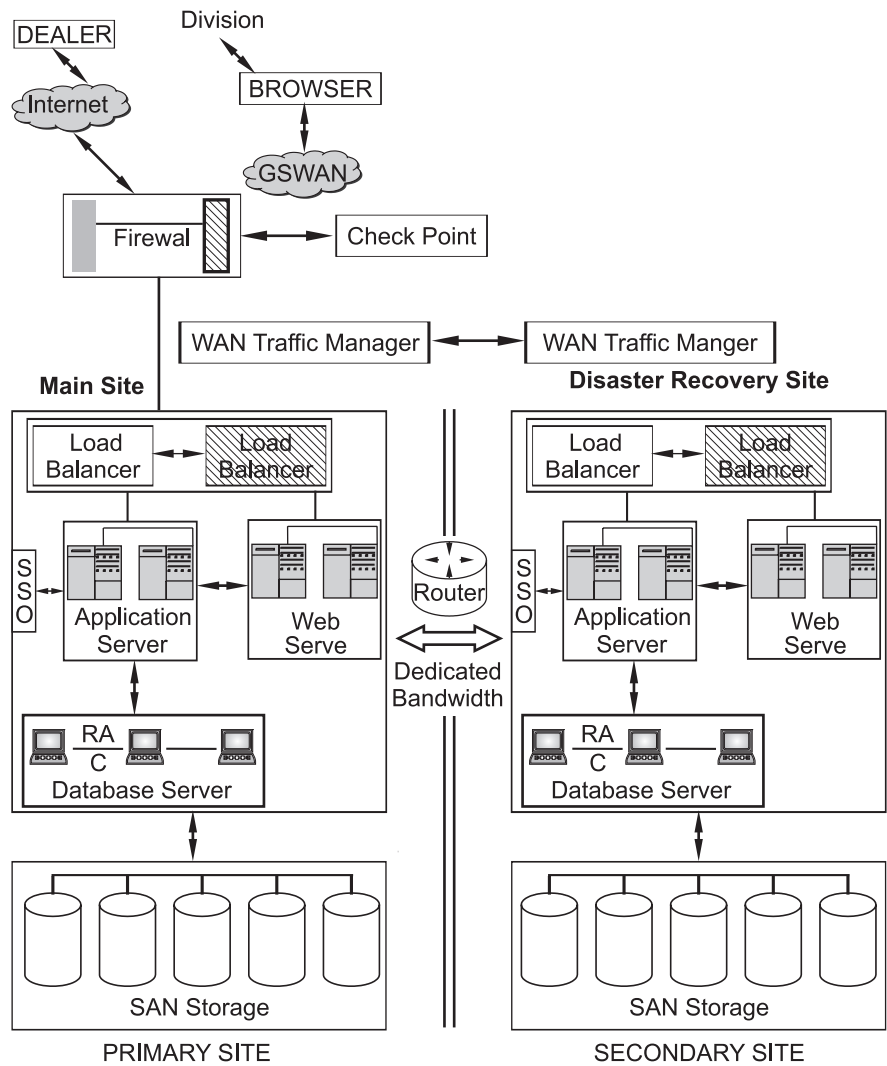
5. Project Plan

Requirements of process re-engineering and legal framework

With the introduction of VAT, Act Rules and Administrative procedures were finalized keeping in view the data capture requirements for processing through computer system e.g. Legal provision for mandatory submission of e-Return, Mechanical numbering of Invoices, etc.

Process re-engineering is almost completed for all VAT processes. Registration, Return modules are operational and once the computerized system is fully stabilized other processes like refund, payment, etc., will also be computerized and implemented.

Fig. 1



6. Technology Architecture

- i. Application Architecture at CST Head Quarters
- ii. Application Architecture at Each Unit Group Office
- iii. High Availability/Scalability Configuration – Logical Network
- iv. Disaster Recovery

Fig. 2

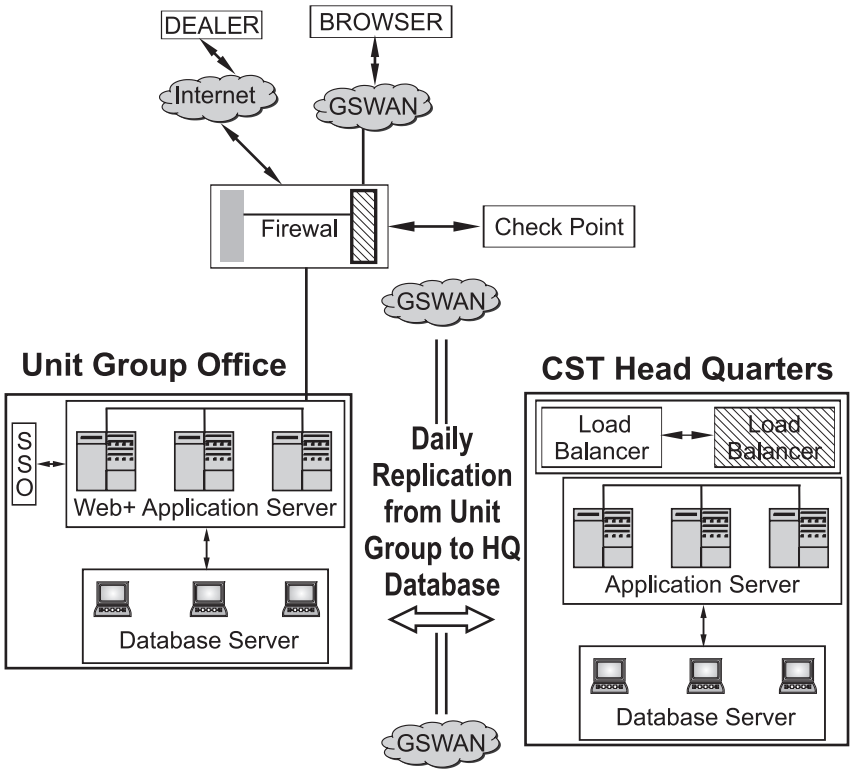
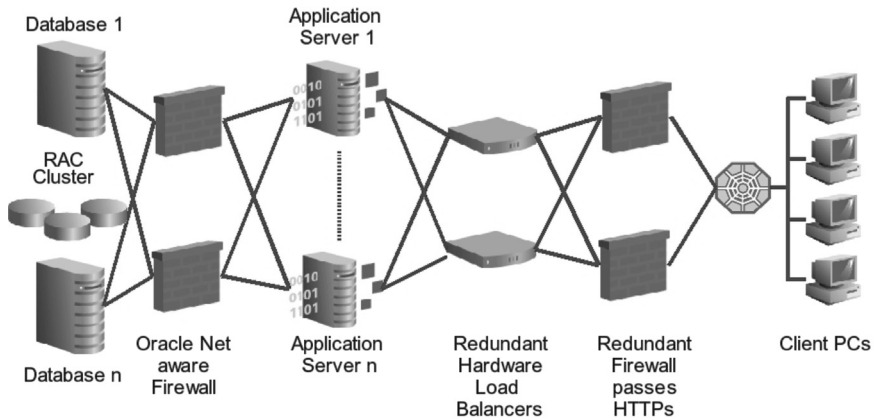


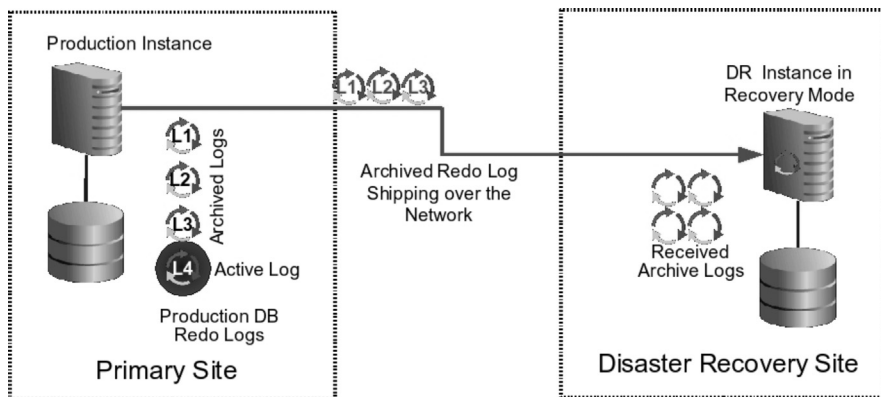
Fig. 3



- All network connections are redundant as shown in blue. The network shown here is logical. Actual implementation will use one or more switches and will have a different layout.
- This configuration follows the classic MZ-DMZ-Internet model and is very secure. This architecture also has excellent availability characteristics.

Working Principal

Fig. 4



- Copies database level changes.
- Works at the log size/transaction level.
- Requires less bandwidth in comparison to pure disk copy solutions as only details of "what to do" are sent to the DR database.
- The actual disk writes to multiple blocks are performed by the DR database. This eliminates the need to copy many blocks for each transaction.
- Certified with Oracle Applications 11i.

7. Milestones

The major milestones for VATIS project have been as follows:

Table 1

Milestone	Date
Project initiation	Sept 2005
Go live	March 2006

Different applications have been operationalised in a staggered manner.

8. Project Management Structure

The project management structure for VATIS project consists of following:

- The team headed by Commissioner under IT implementation committee for the department.
- There is a separate branch for e-Governance in the Commissionerate.

9. Implementation

Strategy for Pilot to roll out

The Strategy adopted for roll out of application was as follows:

- Selected an IT partner, who already had implemented VAT IT application earlier, therefore having proven record and experience about functional as well as technical know-how. The partner was involved while designing IT-friendly form formats when deploying VAT business processes.
- Decided to move simultaneously with the VAT process deployment and IT application development and ensuring thereby quick Proof-of-Concept and testing of application functionality to go-live to be able to capture digitized data at origin.
- Introduced IT awareness and application orientation as part of VAT change management HR initiative within the department and training sessions arranged for all the employees of the department.
- Organized seminars, workshops and facilitation centres for the dealers/citizens/practitioners for VAT business processes and eServices/eReturns.
- Setup a helpdesk with an open mind to help all users and incorporated suggestions, modifications as enhancements and improvements to the e-functionality/eReturns.

10. Capacity Building

Computerization project governance structure primarily consists of a team headed by Commissioner under IT implementation committee for the department. The change management and training aspects for the project are taken care by this team and a separate branch for e-Governance in the commissionerate. The details of the training provided are as follows:

- More than 2000 personnel imparted training during last 18 months
- More than 10 Seminars held for e-Return
- Computer guide, handbooks, Act, Rules, etc., put on the intranet that is within the application

11. Evaluation and Measurement

The stakeholder feedback is taken in various manners including the feedback section in the web portal, e-communication, seminars, workshops, etc. The structured feedback survey (CSI) is also taken twice a year on following parameters:

- Quality of deliverables
- Project management
- Post-implementation support
- Documentations
- Responsiveness
- Communication
- Infrastructure
- Security and confidentiality

12. Issues and their Solutions

- Lessons learnt—critical success factors, failure factors
 - o Lessons learnt
Migration of existing data, and cleaning of the same gave lot of problems.
 - o Critical success factors
Simultaneous introduction of VAT and start of the project. So, all the forms under VAT rules were designed in a computer friendly manner.
Logically Centralized and Physically De-Centralized Architecture of Application.
 - o Failure factors
N/A
- Replication in other states

The project can be customized and easily replicated in other state governments.

- Road ahead

The road ahead for VATIS project consists of providing following services:

- e-Payments
- Online application for C-Forms
- Online submission of waybills
- e-Invoices

13. Status and Results

The positive outcomes of VATIS Project for its stakeholders have been as follows:

Dealers/Citizens

- o Transparency, better response for services, avoidance to un-ethical practices
- o Direct and meaningful communication through web portal as single window for services
- o Time and location independence due to e-Services

Tax administrators/Commissionerate

- o Daily updated data dashboard and MIS for informed proactive decision support
- o Holistic view of state-level transactions and health of tax revenue collection
- o High value, citizen friendly image
- o Better control

Employees of the department

- o Speedier internal process such as scrutiny, assessment and monthly report preparation with digitized data and automated triggers and work flows
- o Spare time and effort for core work of leveraging tax-net and revenue generation

State Government

- o Easy consolidation of revenue collection data at treasury level
- o Predictable revenue in-flow and refund forecast/planning

14. Specific Achievements during the Year 2006–07

The specific achievements made during 2006–07 have been as follows:

- More than 60,000 TIN generated through the system.
- More than 32 lakh acknowledgements issued through the computerized application.
- Detailed data entry for more than 20 lakh forms.
- Entry of 1.23 lakh forms for Tax on closing stock done.
- e-Return started for selected 4,000 dealers.

15. Future Plans for Readers Seeking more Information on Project

The future plans for VATIS project consists of providing following services:

- e-Payments
- Online application for C-Forms
- Online submission of waybills
- e-Invoices

Part III

Government to Citizen (G2C)

Samadhan Ek Din Mein*

(Jan Suvidha Kendra in Mandla District)

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ABSTRACT

Samadhan Ek Din Mein-Jan Suvidha Kendra (One Day Governance- Public Facility Centre) is a very innovative and pro-people project which increases efficiency of administration. It seeks to provide around 21 certificates sought by the applicant on the same day itself. The public has to apply from 11:00 AM to 1:30 PM, after which the certificates will be issued before the end of the day. If it is rejected or getting delayed the reason thereof is furnished to the applicants. The Collector monitors the disposal of applications at the end of each day. For the Citizens, their ordeal of uncertainty of getting the certificates in hand even after spending lots of time and money has ended. For the Administration, it reduces the corruption to a great extent, generates revenue, increases public confidence and reduces the number of pending cases. The system requires strict monitoring so that both the middlemen as well as officials with vested interests do not affect the purpose of this project.

For this program NIC Mandla has designed software in accordance with the district requirements and implemented it in all the 4 Jan Suvidha Kendras. One Kendra is situated at Collectorate premises and other three at the Tehsil level. Thus Mandla became the first district to implement the program in Tehsil level and third in implementing it at district level.

For this a common application form is designed and distributed at the fee of Rs. 5/-. The program is implemented by first finding out efficient computer literate employees from various departments for running the centers and training is given to them. Then infrastructure is set up. Each Tehsil center is visited every week for ensuring its proper functioning. Database backup is taken and reports are generated frequently. Daily and weekly report is given to the collector regarding the summary of operations like number of applicants, number of certificates issued, fees collected and other details.

1. Introduction

Project conceptualization

Samadhan Ek Din Me - Jan Suvidha Kendra (One Day Governance - Public Facility Centre) is an important program of the Government of Madhya Pradesh. The main aim of the program is to provide all kind of services

* CSI Nihilent e-Governance Awards 2006-07, G2C (Rural) – Runner-up.

like Government certificates on the day of submitting application itself and under one roof. It is being felt that majority of the public is not getting government services quickly and they are some times put in to stress by vested parties. In order to remove involvement of middle-men and make the system transparent and corruption free Government of Madhya Pradesh floated the idea of Samadhan Ek Din Me- One day Governance. District Administration of Mandla took the mission and quickly implemented the scheme and is the first district in Madhya Pradesh to implement it at the Tehsil level.

The application forms for different certificates are received in between 11.00 AM to 1.30 PM on all working days and certificates are distributed on the same day itself after 4 PM. The initial scrutiny of application received is done at the Jan Suvidha Kendra and if it fulfills all the requirements then details of applicant will be entered and a computer generated receipt will be issued to the applicant. By 2'o clock the forms are reached at respective departments and before 4'o clock it is returned back to Jan Suvidha Kendra. Certificates are distributed to applicants after 4 PM.

2. Project Vision, Stakeholders, Objectives and Services

The Vision is to make the Government operations transparent, error free and quick so that public need not to wait for long time as it is used to be in earlier days.

The objective of the project is to bring all Government services under a single roof and make a system so simple that public can conveniently get services without much hassle. The system is made in such a way that there can not be any involvement of middle-men and vested parties. Daily and weekly reports are generated for monitoring disposal and pending rates.

The following services are being delivered at Jan Suvidha Kendras:

- Domicile certificate
- Temporary caste certificate
- Marriage registration certificate
- Birth/Death certificate
- Renewal certificate of small establishments
- BPL certificate
- No-dues certificates
- Attested copy of Voter list
- Duplicate ration card
- Learning driving license
 1. Temporary driving license—without gear
 2. Temporary driving license—with gear
 3. Temporary driving license—LMT
 4. Temporary driving license—Tractor
 5. Permanent driving license—without gear

6. Permanent driving license—with gear
7. Permanent driving license—LMT
8. Permanent driving license—Tractor
9. Attested copy of electoral list

3. List of Project Stakeholders

1. Collectorate, Mandla
2. Tehsil Office, Mandla
3. District Election Office, Mandla
4. District Transport Office, Mandla
5. Nagar Palika, Mandla
6. District Urban Development Agency, Mandla
7. NIC Mandla

More and more departments are being involved in the system and hence stake holders.

4. Business Model

The project is run based on the self sustainable model. Fund is generated through selling application forms and service fee for different services being offered. A common application form is designed for providing various services. This form is sold at the fee of Rs. 5/-. And also service fee depending upon the service being provided is collected from the user. Amount thus collected has been deposited in the Jan Suvidha Kendra account each day. The fund thus generated is used for running the Jan Suvidha Kendras. IT infrastructure is procured using the MLA Local Area Development fund. Manpower and other infrastructure are provided by the respective departments.

5. Roles and Responsibilities

Collector Mandla is responsible for overall management of the system. Changes, if any, in the system are decided in the meeting of ADM Mandla, OIC Jan Suvidha Kendra chaired by Collector Mandla. Once changes have been decided, it has been implemented by respective Jan Suvidha Kendras and concerned departments. The software modifications and implementation is being done by NIC, Mandla. The operational management is done by respective HODs of the concerned departments. Overall management of JSK at Tehsils is done by Sub District Magistrate and whole system is working under prompt supervision of Collector, Mandla.

6. Necessity/Needs

The necessity of such a system was understood by the grievances of public and knowledge about the current working of the lower government functionaries

1. The system brings transparency and corruption-less atmosphere
2. All facilities are provided on the same day and at a single place. So public need not to go here and there for various things
3. No involvement of middle-man. So public is saved from economical burden and mental tension.
4. Since Mandla is a tribal district and most of the public are illiterate, the one roof system will make them convenient to access all facilities.

7. Project Plan

Requirements of process re-engineering and legal framework Technology Architecture

Previously it was a manually operated system with each department having their own procedures and criteria. When such a system was planned and thought about bringing different departments under one roof, a lot of practical difficulties aroused.

1. Designing of a common form for different services given by different departments
2. Finding of computer trained and also 'known department persons' who can handle various public queries related with concerned departments
3. Setting up infrastructure and scheduling the activities of the centre and the respective departments so that services can be provided on the same day itself.

For these activities a 'Process re-engineering' of the system was done and finally brought out a successful system.

8. Milestones

1. Around 21 services are provided in the District JSK and 9 services at the 3 Tehsil centres.
2. More departments and services are being planned to be included in the system and make it as one point access to all government functionaries.
3. Within a year of operation around 24,601 applications are disposed. Which is a record disposal in the tribal dominated district and 100% disposal rate is achieved which was the aim of the project.

9. Project Management Structure

Jan Suvidha Kendras are operated by computer operators from respective departments which are involved in the project. They are under the control of HODs of the respective departments. Tehsil activities are under supervision of respective Tehsildar and SDO. Mandla district JSK is under the supervision of ADM Mandla and all the other 3 Jan Suvidha Kendras are under the supervision of Respective SDMs. Collector Mandla is having overall control over the system and reviews all the activities of the centres through ADM, SDMs and respective OIC of Jan Suvidha Kendras. Software side is managed by DIO, NIC Mandla

10. Implementation

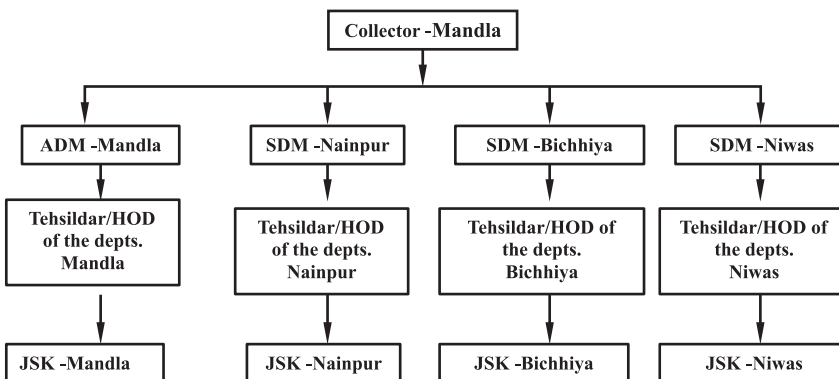
Strategy for Pilot to roll out

System study, Analysis and field trial is conducted at Mandla Collectorate premise for the initial two months. After getting suggestions and guidelines from the experts the project is constantly enhanced and first implemented at Mandla Collectorate premise on 31-07-2006. After its successful implementation it has been spread to all the Tehsil offices also.

11. Capacity Building

Governance structure, Project management teams, Exit management team, Change management and training

Fig. 1. Governance structure



12. Management and Training

The district administration controls over all operation of the system and gives necessary instructions time to time. The administrative management and operational training are given by the respective departments which are involved in the project. NIC, Mandla gives the technical training in the software side as and when needed to all the computer operators of the Kendras. Around 15 efficient operators are working in all the four Jan Suvidha Kendras; they are properly trained and well equipped with the operations of the departments they belong to.

13. Evaluation and Measurement

All Jan Suvidha Kendras are visited frequently by invigilators for ensuring its proper functioning. Database backup is taken and reports are generated frequently. Daily and weekly report is given to the collector regarding the summary of operations like number of applicants, number of certificates issued, fees collected and other details. Collector, Mandla reviews operations frequently and give instructions for smooth functioning of the system.

14. Issues and their Solutions

Lessons learnt

1. One of the success factors of the project is its theme. The catch theme of 'Samadhan Ek Din Me' (Solution/disposal within a day) reached the public well and they are well utilizing it.
2. Dedicated administrative system worked behind the success of the innovative idea
3. Use of IT and well trained employees are making the idea well going.
4. Custom made software developed by NIC, Mandla is also helped to implement the system quickly.
5. Constant monitoring by collector, Mandla also made the system error free and keeps it going successfully.

Replication in Other States

The project can be easily replicated all over India, since services which are being provided here are uniform in other states also. The basic government functionary is same through out the country. So the implementation of the project will be easy and public will welcome it in other states also.

The software is developed and maintained free of cost by National Informatics Centre, which has its Headquarters at New Delhi, State Units

in all the 28 State capitals and 7 Union Territory Headquarters and District centres in almost all the Districts of India. The Organization employs a large pool of efficient technical manpower. NIC has implemented a large number of Nation wide projects successfully. So the project is easily transferable and can be implemented all over India through NIC.

15. Status and Results

Table 1. *Present status*

Name of Jan Suvidha Kendra	Starting date	Application received	Application disposed	Revenue earned
JSK Mandla	31-07-2006	10139	10139	271975-00
JSK Nainpur	06-08-2006	7111	7111	159545-00
JSK Niwas	08-08-2006	2562	2562	58145-00
JSK Bichhiya	08-08-2006	4789	4789	119740-00
Total		24601	24601	609405-00

Specific Achievements during the year 2006-07

1. Mandla is first district to implement the project at Tehsil level in MP and 3rd to implement at District level
2. All the 4 centres recorded 100% disposal rate.

Future Plans for Readers Seeking more Information on Project More details about the project can be had from Mr. Subhash Jain, Collector Mandla through e-mail: dmmandla@mp.nic.in or Mr. Manoj Dixit E-mail: mandla@mp.nic.in.

Basic Services/Amenities Management Programme (PARAKH)*

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ABSTRACT

Government of Madhya Pradesh, recognizing the fact that access to minimum level of social infrastructure facilities must be an integral part of a strategy for improving the quality of life of the people and for eradicating poverty, has introduced the Basic Services/Amenities Management System called PARAKH for improving the delivery of the Basic Services/Amenities in Rural Areas of the state. For this purpose, a computerized system for maintaining the Basic Services/Amenities is put into place. A nodal officer is designated for each of the 52,000 village who collects the information from the village every month in a prescribed format about the services/amenities. The computerised system provides for registration of the Complaints by the public and also provides for appending the complaints reported by the nodal officers. The system allows for entering the Follow-up action taken on it by the concerned at the Block/District headquarters. It provides for monitoring of Complaints, information collected by nodal Officers and meetings held at the level of Chief Minister, Chief Secretary, Departmental Secretaries, Commissioners and Collectors. This has helped the District Administration to improve the delivery of services in all the 52,000 villages of the state.

1. Introduction

Project Conceptualization

Over the last decade, considerable progress has been made in improving access to primary health care facilities, primary education, safe drinking water and shelter as reflected in an expansion of coverage and also improvements in the indicators of human development. More than making a policy, its implementation at the grassroots level, the realization of its objectives at the village level requires more effort and planning. This will be successful only when it is interwoven with regular and systematic monitoring.

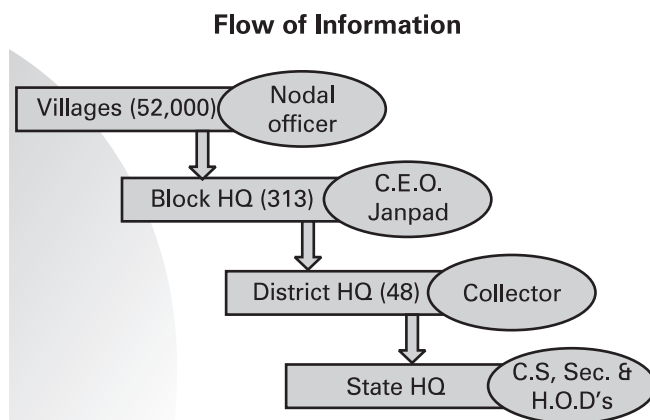
To this effect Government of Madhya Pradesh has been making consistent efforts since 1996 with Gram Sampark Abhiyan wherein, all the elected representatives and government officials visit the villages in a particular month of the year to tackle the problems faced by the people living in the

* CSI Nihilent e-Governance Awards 2006-07, G2G/G2E – Runner-up.

village. While this continued for a few years, the State started looking for more consistent efforts to show accountability to its citizen.

In 2000, the State devised an 11 point programme, which consisted of monitoring of 11 basic services that provided at the village level. The 11 services that were covered include drinking water facility, electricity, education, health, agriculture and veterinary services besides improving the functioning of Anganwadis, distribution of essential commodities through Fair Price Shops, distribution of old age and social security pension and disposal of revenue cases.

Fig. 1



Learning from the past experiences and to strengthen the existing monitoring system a comprehensive management system was conceptualized by the State Government and designed Basic Services Management Programme called PARAKH in Feb. 2007. The purpose with which PARAKH was conceptualized was to ensure the efficient functioning of the system for delivering the basic services to its citizens. It is intended to decrease the response time to mitigate the problems faced in the implementation of the programme at the grassroots level. The programme was designed to capture information on some of the basic services that are needed to be efficiently delivered at the village level. The programme was designed to bring up the information as to what are those services that require immediate attention to increase the quality of life of the people. This consisted of regular monitoring by nodal officers who are not associated with any of these services but belong to the government machinery. Comprehensive formats for assessing the benefits of the selected services were formulated for the purpose of monitoring. This initiative moved away from the conventional annual monitoring to concurrent monitoring. The programme provides an excellent feedback mechanism which in turn depicts administrative transparency in implementation of various schemes and programmes beneficial for the rural masses.

2. Project Vision, Stakeholders, Objectives and Services

Thus, with the purpose of Regular review and Monitoring of various Services/Amenities provided by the Government Departments in the far-flung rural areas of the State for ensuring effective delivery of Services to the common man, PARAKH, Basic Services/Amenities Management System was reintroduced with certain changes based on the past experience. The system is used by Sub divisional Officers, collectors, Commissioner, Departmental Secretaries and Chief Secretary for various purposes.

3. Objectives

Table 1

S.No.	Objective	Concerned Department which is to ensure
1.	Handpumps installed in the village must be properly functional and must be repaired within a week in the case of fault	Public Health and Engineering
2.	Transformers must be repaired within a week in case of fault	Energy
3.	i. Ensure regular opening of schools ii. Ensure regular presence of teachers iii. Ensure regular distribution of mid day meal (MDM) iv. Ensure regular disbursement of salaries to Gurujis and Shikshakarmis	School Education
4.	i. Ensure availability of continuous health services in villages and immunization once in a month ii. Ensure adequate family planning facilities for the interested families	Public Health and Family Welfare
5.	Ensure regular distribution of essential commodities through Fair Price Shops	Food and Civil Supplies
6.	Ensure proper functioning of Anganwadis and regular distribution of quality food in these Anganwadis	Women and Child Development
7.	i. Ensure regular disbursement of scholarship/ stipend to the students of SC and ST category ii. Ensure effective implementation of atrocity act and distribution of relief amount to SC and ST people	Tribal Development
8.	i. Ensure effective disposal of land related cases within 3 months ii. Ensure the possession of land to patta holder belonging to weaker sections of the society	Revenue

Table 1 (Continues...)

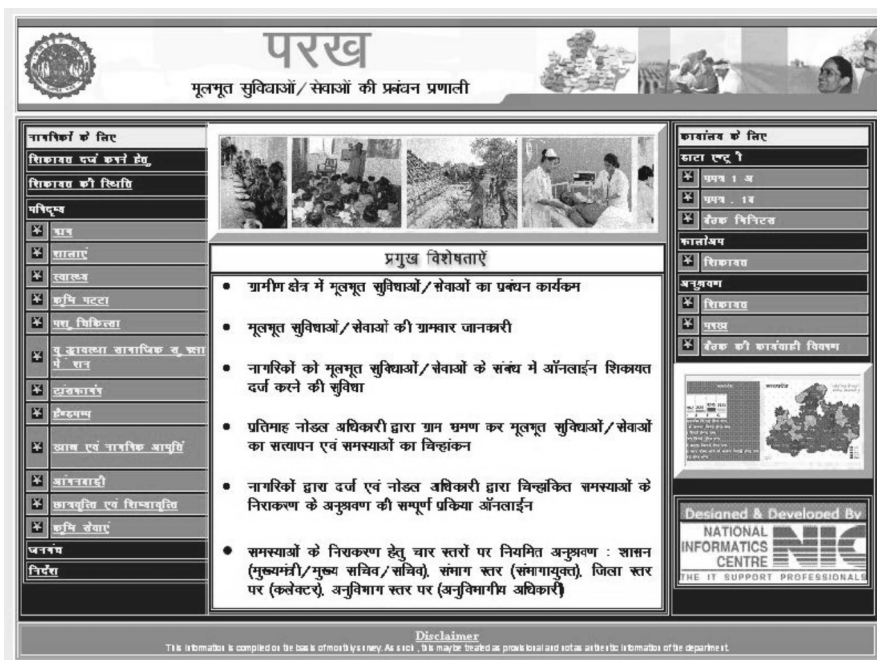
S.No.	Objective	Concerned Department which is to ensure
9.	Ensure regular disbursement of old age/social security pension	Social Welfare
10.	Ensure proper veterinary services	Veterinary
11.	Ensure availability of basic agriculture inputs to farmers	Agriculture

The computerised system provides two sections, one for the Public and the other for the Office.

The public-related section provides for

- Registration of complaints
- Facilitates retrieval of status pertaining to the complaint
- Disseminates the complete information pertaining to the village
- Disseminates statistical and detailed information pertaining to basic services/amenities
- Public forum for posting the views
- Instructions issued by the Government related to the implementation of the project

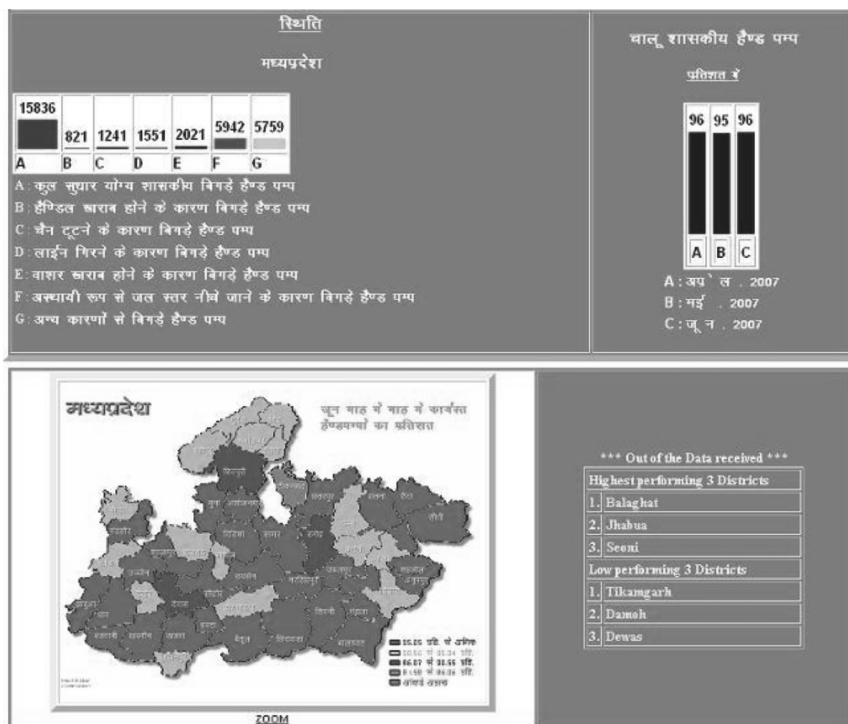
Fig. 2



The Office-related section provides for

- a) Data Entry
 1. Form 1A
 2. Form 1 B
- b) Uploading of Minutes of the Meeting
- c) Follow-up
- d) Monitoring
 1. Complaints
 2. Information submitted by Nodal Officers
 3. Meetings held

Fig. 3



The project is implemented by the State Government with the support of National Informatics Centre, MP State Centre, which is a premier Information Technology organization under the Ministry of Communications and Information Technology. The technical support is provided by the NIC to the state government in the implementation of the project. The following strategy is implemented by the State Government to collect the information about the Basic Services/Amenities every month from all the 52,000 villages.

About 25,000 Nodal officers are appointed to cover about 52,000 villages of the State of Madhya Pradesh. The collected information contains both quantitative and qualitative data. These officers are assigned to collect

information from about 2 to 3 villages and the data is entered offline at the block level in a software. This system ensures the cross verification of the data that has been provided at various levels. Data provided by the respective individual at block, district and state will be validated by the senior officials when visiting a sample of villages. If at any level it has been found that the correct information has not been provided then the respective persons will be taken to task. The software generates reports which are used by Chief Executive Officer (CEO) and Development Officer at the block level to monitor the respective departments and to act on the same. The Data is sent to the District Informatics Centre, NIC at the District Headquarters where it is consolidated using the NIC resources and sent to the State Headquarters over the NICNET where the State level data is consolidated and hosted on the web server at the Integrated Data Centre (IDC), NIC State Centre for the benefit of all the stake holders for the monitoring purpose.

No direct Capital investment is made for the project. NIC has designed and developed the system and provided the necessary training at the Districts. Existing computers at the Block Head Quarters are used for data entry/update and report generation. The cost of printing stationary and on the arrangements for the data collection is being borne by the State Government using it's own resources. Video Conferencing facility set by the NIC at the District Centres and at the State Capital is being used for the monitoring purpose by the Chief Secretary.

4. Necessity/Needs

Basic Services/Amenities to the rural masses have always been the top priority of the State Government. The advent of Information and Communications Technology has made it feasible to collect and analyze the data of this voluminous nature even from the remotest corner. It has made possible effective monitoring at all levels. It has made possible better planning and improvement of the delivery of Services.

Some of the inherent benefits of this project are:

- Creation of Resource inventory of all villages
 - Establishment of Department independent alternate feedback mechanism Better monitoring and planning
 - Improvement in delivery of services/basic amenities to the rural areas
- Promotion of participatory approach from the rural masses

5. Project Plan

Requirements of process re-engineering and legal framework

Proactive mechanism is evolved to collect the information about Basic services/Amenities from all the 52,000 villages of the State. For this purpose, the following are done:

a) *Selection of independent Nodal Officers*

The State established independent Nodal Officers who are not part of the system implementing the various services that are being monitored to be the watchdogs of the delivery system in the state. This enabled the Nodal Officers to report the data freely to the block. These Nodal Officers visit the villages assigned to them and write the details in the format that they are supposed to fill up. These formats are completed before the 22nd of the month.

b) *Established Objective Monitoring System*

The data entries are completed by 30th of the month and the required reports are submitted to the Chief Executive Officer (CEO) and Development Officer at the block level. The block officials take action on the problems that has been observed by the Nodal Officers and instruct the respective department to take corrective action. The same is submitted to the District Magistrate and the various officials at the district level. Similar exercise is done at the district level. Also when these district and block officials visit the villages, they follow up the various observations that they have received.

c) *Increase the accountability*

The state tried to implement this sort of monitoring system to improve the delivery system of services to its people. The officials at the block and district level are to visit on a sample of villages and check on the observations that they have received regarding the delivery of services in these villages. This ensures in creating more accountability to the agents of service delivery system. It also creates a pressure on them as these observations are being seen by the various officials at the block, district and state level. Similarly the accountability of the block and district officials are increased.

6. Technology Architecture

At the Block Headquarters

Looking into the huge volume of the data, an off-line Visual Basic based software is provided at all the 313 Block Headquarters. The software facilitates Data entry/updation besides generating various fault reports for field level action. The Software may be operated on any Window based System.

At the District Headquarters

Window based System is being used to consolidate the Block level data using the VB based consolidation software. Once consolidated, the software generate various district level reports.

At the State Headquarters

Data received from the Districts over the NICNET is consolidated at the State Head Quarters and hosted on the web server. The site <http://demo.mp.nic.in/bsmmp> which is developed using VBScript/ HTML may be accessed by all the stakeholders.

7. Milestones

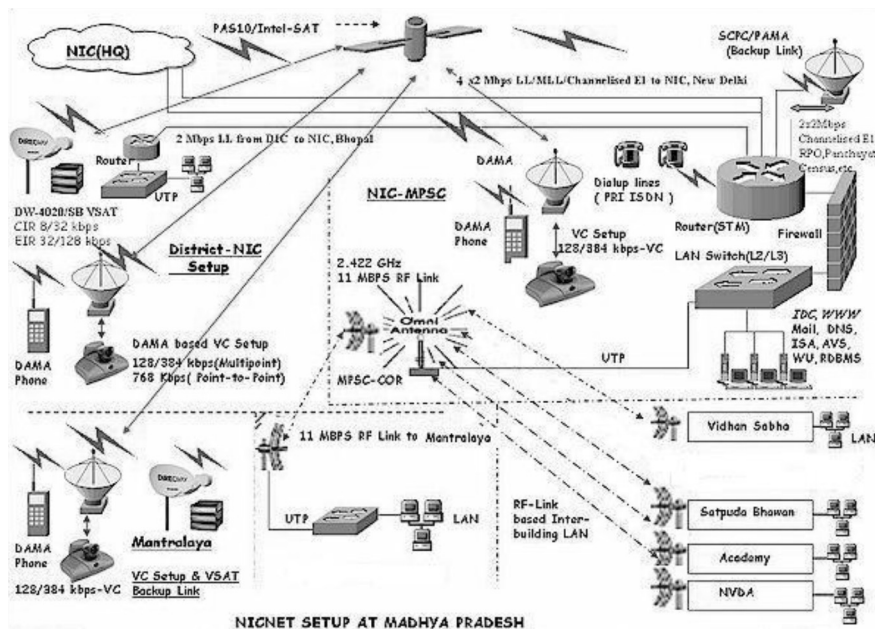
1. Study of different Schemes/Programmes of concerned departments
2. Understanding the implementation aspect of these Schemes/ Programmes with respect to benefits to rural masses
3. In-depth discussions with all the concerned for and preparation of Form-1 (A) for collection of basic information pertaining to a Village
4. In-depth discussions with all the concerned departments for and preparation of Form-1 (B) for collection of department specific information on various resources of each village
5. In-depth discussions with concerned departments for and preparation of Form-2 for collection of monthly information on functioning and availability of various services/amenities in each village
6. Analysis, design and development of appropriate software
7. Training to NIC Officials posted at districts for further guidance and Support for implementation of the project as well as associated software
8. Identification of Nodal Officers by district administration
9. Assignment of 2–3 villages to each Nodal Officer by District Administration
10. Training of Nodal Officers by district administration and NIC officials posted at districts
11. Availability and proper functioning of necessary hardware and software at Block and District level
12. Training on data entry software and support to Block level state government officials by NIC district level officials
13. Establishment of data transfer/consolidation mechanism so as to reach District Headquarters and State Headquarters within specified time period
14. Hosting of the data on the web after state level consolidation

8. Implementation

Strategy for Pilot to roll out

1. Nodal officer to be designated for every village to visit and collect the information in prescribed format between 20th to 23rd of every month.

Fig. 4



2. Information to be collected by the nodal officers is to be keyed in by 26th of the month in supervision of CEO Janpad at the Block HQrs.
3. Various fault reports are to be generated and distributed for follow-up/remedial action.
4. The data from all the Block Headquarters is to be sent on CD to the District HQrs. where it is to be consolidated and transmitted over the NICNET to the State HQrs.
5. Sub Divisional Officers and Collectors to review the status every month.
6. The data received from the Districts is to be consolidated at the State Headquarters and further kept on web server which will be accessed by all the stake holders through a monitoring system to regularly monitor, identify and rectify the problems, if any and improve the delivery of services to the rural masses.

9. Capacity Building

Training is organised on two fronts. One training is extensively conducted for the Nodal Officers in the collection of data and the other being in the use of ICT infrastructure for accessing the system for entering the data and retrieving the information for management purposes.

10. Evaluation and Measurement

The state implemented this Management System to improve the delivery system of services to its people. The officials at the block and district level are to visit on a sample of villages and check on the observations that they have received regarding the delivery of services in these villages. This ensures in creating more accountability to the agents of service delivery system. It also creates a pressure on them as these observations are being seen by the various officials at the block, district and state level. Similarly the accountability of the block and district officials are increased.

Evaluation and measurement Strategy comprises of

1. Regular Monthly monitoring at the level of Sub divisional Officers, collectors, Commissioner and Departmental Secretaries.
2. Regular review meeting by Chief Secretary with all the District Collectors through video conferencing.
3. Monthly Feedback obtained from the Nodal Officers from all the villages of the State.
4. Action taken on the complaints is fed into the computer at the block level which is monitored.

11. Issues and their Solutions

1. Verification of services/amenities by Nodal Officers—Nodal officer is designated for every village to visit and collect the information in prescribed format between 20th to 23rd of every month which is keyed in computer by 26th of the month in supervision of CEO Janpad at the Block HQrs. and is sent on CD to the District Headquarters where it is consolidated and transmitted over the NICNET to the State Headquarters.
2. Various fault reports generated and distributed for follow up/remedial action at the block headquarters.
3. The complete data, i.e., the complaints as well as the action taken on it is available on the web server which is accessed by all the stake holders through a monitoring system to regularly monitor and improve the delivery of services to the rural masses.
4. The performance is monitored at the level of Sub Divisional Officers, Collectors, Commissioners and Departmental Secretaries every month.
5. The performance is also monitored by the Chief Secretary with all the Collectors through video conferencing every month.
6. Provision of registration of complaints by the citizens incorporated in the system.

12. Challenges

1. Collection of data from all the 52,000 villages every month
2. Entering of voluminous data at the Block headquarters
3. Sustaining the programme for the last seven years
4. Huge manpower involvement
5. Sustaining interest in the programme

Replication in other states

The Project may be replicated in other States. The Government of Rajasthan has recently studied the system and is implementing a similar sort of system.

13. Road Ahead

Basic Services Management Programme (PARAKH) is a sustainable programme to improve the delivery of basic services to the people of the state. It has enabled the state to alert the key officials at the state, district and block level to the various observations being received through the Management Programme. As the generated reports are being reviewed at block, district and state level, officials implementing the various services have become more alert in administering their duties.

As the people have become aware of the established monitoring mechanism they are increasingly using the same and thereby establishing community ownership of the same. This has also enabled in mobilizing the community of improving the services available to them. The ownership of the community and the mobilization of the community members for the same will not only increase the sustainability of the services but also the Management Programme established in the state. The appointment of the Nodal Officers independent of the departments providing services has brought more credibility to the Management Programme. The earliest possible response to the problems identified has enhanced the success of the programme. This has improved the recognition of the Nodal Officers among the village community. This in turn has helped to sustain the enthusiasm of the Nodal Officers. It has integrated with the regular administrative structure, thus making the system sustainable in the state.

As Basic Services Management Programme (PARAKH) is looking at the necessary services that are needed by the people, there is a gradual increase both in the demand for the same and at the same time in the continuity of the service. This will continuously help the service providers to improve the delivery of services.

The state has improved the delivery of various basic services as a result of the implementation of Basic Services Management Programme (PARAKH). All the data captured in the programme has been owned by the respective departments of the state. It is a direct indicator of the performance or the efficient functioning of the respective departments.

The project pertaining to the creation of State Wide Area Network (SWAN) is under implementation in the State. It is proposed to capture all the information online once the SWAN becomes operational. Further, it is also proposed to develop the GIS based module for the purpose of planning and decision making using this data.

14. Status and Results

Present status

The Project is implemented in all the 48 Districts of the State.

15. Specific Achievements during the Year 2006–07

The System is being used extensively by all the concerned which has resulted in the improvement of delivery of services. The improvement may be gauged from the following:

“PARAKH is unique for its overt and covert mechanism inherent in the programme to evaluate the efficiency of grievance redressal and also to monitor the rate of grievance redressal. Thus it in turn alerts the administration and various field departments to make a citizen-centered responsive administration.”

Dr E Ramesh Kumar, Collector and DM, Khargone (MP)

“PARAKH, the initiative of the Government of MP for providing and maintaining the Basic Services/Amenities in Rural Areas is a unique initiative of the State Government as it captures ground level realities. This has enabled better monitoring, improve the delivery mechanism and thus improve the quality of services to the rural masses.”

Vivek Aggarwal, Collector and DM, Indore (MP)

“The Govt. of Madhya Pradesh has established an alternative system for flow of information about delivery of Basic Services/Amenities from all the villages of the State. Software support by NIC has made possible transfer of large and voluminous data. In-depth analysis, easy & comprehensible reports have helped us in improving the delivery of services in remote rural areas of the State.”

Rakesh Sahni, Chief Secretary, Govt. of MP

Child Record Information System—ChRIS*

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ABSTRACT

The administration of Jabalpur Division in the state of Madhya Pradesh, has implemented a tech. savvy project to identify, register, count and monitor every marriage, pregnancy, child birth in Jabalpur Division, known as ChRIS (Child Record Information System). The system so developed endeavors to bring all marriages, pregnancies, deliveries, ante and post natal care, inoculations, proper growth and elementary education of the child in the ambit of public domain by posting the relevant information on its website and on the websites of each of the eight districts in Jabalpur division. These functions used to be performed manually by different agencies/government departments at different levels; there was lack of coordination and data was collected by different sources leading to inaccuracies. Very often the data was fudged and there was no mechanism in place to check it and ensure accountability and responsibility in the delivery of various government schemes/benefits. Individual beneficiaries could not be monitored because of lack of availability of real time data in public domain. There was no effort to integrate data collected by different agencies leading to faulty implementation of various schemes.

Under this innovative project, ChRIS, it is mandatory for the field level functionaries of the Health and Women and Child Development Department in each village to record every marriage, each pregnancy in their areas as soon as it is declared, data is fed in the custom made software and thereafter put on website. This information is used for ante-natal and post-natal care for all expectant mothers whereby system generates flags giving tentative dates for various activities ensuring proper care to all carrying ladies. Each birth is recorded in detail, here again system generates flags for all necessary activities and a child's calendar for next 5 years is automatically generated keeping in record details of the birth as well tracing child's growth from 0 to 5 years. These reports are given to field level functionaries of different departments at cutting edge level resulting into targeted delivery of various schemes to each mother and each child leading to better results and achievements. Integration of the schemes of various departments, viz., Social Welfare, Women and Child Development, Health and Family Welfare, and Elementary Education has taken place through ChRIS. ChRIS, not only monitor each and every expectant mother but also acts as a watchdog to other socio-economic parameters like child marriage, institutional delivery, expected complications at the time of delivery, female foeticide, supplementary nutrition to carrying mothers and infants, IMR, MMR, immunization, inoculation and elementary education.

* CSI Nihilent e-Governance Awards 2006–07, G2C (Rural) – Winner.

1. Introduction

Project conceptualization

The project was conceptualized by the Commissioner of Jabalpur Division, which comprises of eight districts, viz., Jabalpur, Katni, Mandla, Dindori, Narsinghpur, Balaghat, Chhindwara and Seoni. (Area: 5836600 Hectares: 20% of the total area of MP, Population: 10,161,841: 17% of M.P, Villages: 10692, Blocks/Janpads: 64, Tahseels: 47). After several brainstorming sessions, various modalities were discussed and then “need-based” software on the lines of System Requirement Specifications (SRS) was developed by NIC. The administration of Jabalpur Division has implemented the ‘ChRIS’ (Child Record Information System) project to identify, register, count and monitor every marriage, pregnancy, child birth in Jabalpur Division. Lack of coordination and collection of data by different sources led to inaccuracies, data was fudged and there was no mechanism in place to check it and ensure accountability and responsibility in the delivery of various government schemes/benefits.

2. Project Vision, Stakeholders, Objectives and Services

India could be one of the fastest growing economies but it stands among the lower group of nations when we take a look at Human Development Index. The benefits of economic growth have to percolate down, when it comes to basic health, education and nutritional facilities to common person. The country is far from the standards prescribed by United Nations’ agencies. The grim socio-economic parameters call for a serious rethinking. Although there is huge manpower and a number of devoted agencies catering to the health and nutrition needs of the marginalized people, in the absence of proper database and information strict monitoring on developmental parameters becomes a complimented issue and the sufferer is the general populace. This system makes available the entire information about target populace and delivery of schemes on a real time basis in public domain. The project, pioneer in this area will facilitate:

1. Prevention of child marriages
2. Increasing institutional deliveries
3. Decreasing female feticide
4. Identification of beneficiaries for various government schemes
5. Reducing risks at the time of birth
6. Providing nutritional supplements to needy mothers and children
7. Timely delivery of health services
8. Monitoring the growth of every child from 0-5 years and finally
9. Child’s admission into his first school

It also provides factually correct information on critical parameters such as IMR, MMR, etc. Flags are automatically generated showing dates for the delivery for vaccination, immunization and routine check-ups for every mother and her child. The information is also collected on socio-economic parameters, like cast, community; land holding pattern, poverty/income level etc. which will result in focused attention to needy people.

Child Record Information System provides facility for storing, updating and manipulating information from various sources at village level. This information may be required for planning and decision making at different levels.

The main objectives of the project can be listed as:

1. Effective monitoring of the schemes of Health, Women and Child Development, School Education Departments.
2. Delivery of various Government schemes at right time to needy beneficiaries.
3. Transparency in implementation of Government schemes.
4. Helping masses to know about their vaccination and other details.
5. Statistical Information on births, deaths etc. to be used for planning and implementing new schemes.

3. Stakeholders

1. Commissioner Jabalpur Division
2. Collector and District Magistrate of Districts Jabalpur, Katni, Mandla, Dindori, Seoni, Chhindwara, Balaghat, Narsinghpur
3. Chief Medical and Health Officers of all the eight districts
4. District Women and Child Officers of all the eight districts of the division
5. Functionaries at different levels of Health, WCD, Planning, Social Welfare, School Education Depts.
6. National Informatics Centre, Madhya Pradesh
7. All carrying and feeding mothers of the division
8. All children up to the age of six years in the division
9. All married couples in the division

4. Public Private Partnership

Project does not need a business model because it is a transfer from the existing manual system to a web based system in public domain on a real-time basis. ChRIS, implemented without any additional cost to anybody is an effort to provide cutting edge to delivery mechanisms of the Government, it has transformed and institutionalized the earlier manual system to a technology based on-line automatic system. Since the infrastructure

required (computer and other accessories) to develop this was already in place at Block level, there were no additional expenses required on installing new infrastructure. The software and portal is developed and maintained by National Informatics Centre.

The Participating Department(s) in the project are
 Health and Family Welfare
 Women and Child Development
 Planning and Statistics
 Social Welfare and Social Justice
 School Education

5. Necessity/Needs

The following situation necessitated such a project:

1. There was not any monitoring system for higher officials to quickly monitor the delivery of health services in a village.
2. It was impossible to obtain accurate information about non recipients of specific services like immunizations, inoculations and vaccinations.
3. The manual activities were prone to lot of errors and top officials never got actual details about the realities at field/village level.
4. Attendance of beneficiaries in Anganwadi Centers used to be very poor because of poor delivery of services.
5. It was not possible to monitor each child's entry into elementary/primary schools.
6. It was not possible to monitor health deficiency parameters of each and every child and mother individually.
7. It was not possible to ensure and monitor delivery of various beneficiary oriented schemes to individual cases.
8. There was no mechanism for the common person/beneficiary to have complete knowledge of services due to him/her.

6. Project Plan

Requirements of process re-engineering and legal framework Technology Architecture

Long years of working experience in any government system and environment provides extremely practical insights into the system, procedures and lacunae (if any). It also provides an opportunity to understand real life situations in a better manner. To introduce some changes in the existing system an understanding of the system in its entirety is a necessary pre requisite. Child Record Information System (ChRIS) is one such attempt in this regard; because introduction of such a system was always a long

felt need, especially if one looks into the poor human development record of Madhya Pradesh in general and Jabalpur division in particular. Poor quality of human resource, high Maternal Mortality Rates (MMR), high Infant Mortality Rates (IMR), low immunization and vaccination, highly skewed sex ratio in 0–5 age group in rural areas, extremely low literacy rates, large number of non school going children suggest the dismal state of affairs in social, health, education and women and child sectors.

Numerous reasons can be attributed to this scenario and one of the most important among them is the lack of effective monitoring and incorrect data being presented for decision making. Data collection practices often results in its fudging. In this context the concept of ChRIS was visualized with an objective to provide a lease of fresh energy and bring about systematic changes in the archaic system of record keeping and database management.

7. Milestones

1. ChRIS project was implemented in all the eight districts of Jabalpur division, viz., Jabalpur, Katni, Mandla, Dindori, Narsinghpur, Balaghat, Chhindwara and Seoni.
2. Details of over 1.5 lakh couples, 1.2 lakh Pregnancies and 41 thousand children are collected and maintained since its launch.

In due course of time entire reproductive populace of Jabalpur Division would come under project's ambit. Besides regular updation, more than 10,000 new records are added every month.

8. Project Management Structure

Project Management Structure comprises of the following:

1. Divisional level officers of Health, Women and Child Development, School Education, Social Welfare under the leadership of Divisional Commissioner
2. District level officers of these departments under the leadership of District Collector
3. Block/Janapad level functionaries for data management, taking corrective actions and implementing the project
4. Village level functionaries for data collection and field level implementation of the project

Around 5000 Government functionaries at various levels are associated with implementing the project. Village level functionary of the Women and Child Department (Anganwadi Worker—AWW) locates, identifies and registers all the marriages, in her administrative area (normally a village or part of it) and sends it to the Block (Janapad Panchayat) where it is fed into

the software installed at the block level every month. Couples are tracked from here onwards and they are provided information on birth control, spacing methods, etc. Besides new marriages, all pregnancies are identified and registered by the workers of Health and Women and Child Development Departments as soon as pregnancies are announced. This in any case was done earlier also by AWW and health staff even before this computerized system. Once this information on pregnancies is stored and made available in public domain, further monitoring becomes easy.

Each couple gets a unique system generated identity and thus each pregnant lady and the newborn child. Health worker enters the expected date of delivery for each woman in the system and from here onwards system generates all action points.

9. Implementation

Strategy for Pilot to roll out

The project was implemented in one go and it was not taken from pilot to the final implementation stage. Application software was designed, developed and implemented for collecting information from block levels. The software is extremely user friendly and needs only minimum data to be entered by data entry operators. All details, viz., due dates for various kind of vaccinations, check-ups, the grade under which a child comes based on its weight, eligibility under various schemes are automatically generated. System was developed in stages, entries for various inputs and reports to be generated were gradually added to the system depending on the requirements. The system now generates more than 200 reports for monitoring and decision making. Critical information is separately highlighted, so that immediate necessary action may be taken. Development of software, its trial run, training and feedback collected in the pilot phase were of critical importance for making further improvements in the system. Inhibitions, fears and doubts of those working at the ground level were addressed by senior officers themselves during training and exercise sessions.

The road map followed for the implementation of the project is as following:

1. Data from villages reach block medical office on or before 23rd of each month. It consists of information regarding health services provided to the beneficiaries of villages up to the 20th of that month.
2. The data thus collected is computerized through ChRIS application software up to 30th of the month and it reaches the NIC of that District.
3. Data received from all districts is uploaded to the ChRIS site on or before 5th of next month.

10. Capacity Building

1. Governance Structure: Commissioner, Jabalpur Division, Jabalpur, MP is responsible for implementing and managing the project.
2. Collectors of all districts, Chief Executive Officers of Zila and Janapad Panchayat are involved at policy level. Divisional, District and Block level heads of Health, Women and Child Development, Panchayat and Social Welfare, School Education and Planning and Statistics departments are working at project policy level.
3. Project Management: Around 5000 functionaries of the concerning departments at village, block and district level are actively working for the project as a part of their job. Project is primarily a transition to web based computerized system from the earlier manual system.
4. Software Training is given by NIC district centers and the training for field level functionaries is given by concerned departments.

11. Evaluation and Measurement

The village wise data showing details of marriages, carrying women, new borne and infants generates services (assistance for marriage, guidance on family planning methods, health checkup, vaccination, immunization, transportation for institutional delivery, financial assistance for medicines/nutrition, supplementary nutrition etc.) to be delivered to them and actions to be taken. The concerned functionaries of villages deliver these services on pre-determined dates based on auto generated reports provided to them. After service delivery, compliance report is fed into the database by these functionaries of Health and Women and Child Development Department at village and Janapad Panchayat levels. This data is uploaded to web site, and thus this information, available in public domain through internet can be accessed by senior officers and can be verified while on tour in rural areas. It has not only led to absolute transparency but has also increased accountability of functionaries at ground level. Responsiveness in the public service has improved and delivery of services has also improved tremendously. ChRIS has ensured cent-percent monitoring of regular services in rural areas in its areas of operation for the first time.

12. Issues and their Solutions

The underlying theme behind ChRIS was to integrate low cost technology with an easy to use software bearing in mind the quality of manpower that would finally be using it. Its design and implementation has ensured that personality traits of those who actually conceptualized and conceived it do not come in the way of its successful implementation. ChRIS is also

sustainable because, there is hardly any change in the procedures and formats used earlier in manual system.

The Application software developed and implemented for collecting information from block levels is extremely user friendly and needs only minimum data to be entered by data entry operators. All other details, viz., due dates for various kind of vaccinations, check-ups, the grade under which a child comes based on its weight, eligibility schemes are automatically generated. The system generates more than 200 reports for monitoring and decision making purpose of departments. Critical information is separately highlighted, so that immediate necessary action may be taken.

Replication in other states

Child Record Information System (ChRIS) is an effective tool to create a comprehensive database of all its future citizens, which in the absence of any social security scheme in India is bound to be extensively used for all government schemes.

The ChRIS project can be easily replicated all over India, since the infrastructure required (computer and other accessories) to implement the project is already in place at Block level in other states also. There were no additional expenses required on installing new infrastructure. Formats in which data is collected for ChRIS are uniformly used throughout the country. In fact some other states have already sent enquiries for its replication there.

The project idea was put on board and suggestions were invited from various quarters in order to introduce a system which is easy to use and most importantly to develop it in such a manner that the same can be implemented in the entire state of MP including rural and urban areas. Continuous monitoring, evaluation and recording of feedback in initial stages resulted in things shaping up in a better manner. Several government functionaries were taken into confidence and their suggestions, inhibitions, doubts were all well received.

The software and website is developed and maintained by National Informatics Centre, which has its Headquarters at New Delhi, State Units in all the 28 State capitals and 7 Union Territory Headquarters and District centers in all the Districts of India. The Organization employs a large pool of efficient technical manpower. NIC has implemented a large number of Nation wide projects successfully. So ChRIS is easily transferable and can be implemented all over India through NIC. There are no additional expenses and its easy to use software makes it adaptable in any working environment.

13. Road Ahead

ChRIS Database provides complete record of an individual from his/her birth. Hence it can be used for various other purposes also. First and

foremost, it can be used for generating unique identity for all our citizens. List of beneficiaries under various schemes can be prepared with this. It can be linked with voter identification cards and electoral roll.

More and more monitoring schemes and facilities are being added to the project so that it can be used as one point reference for covering all health and citizen centric activities/ schemes of the state.

14. Status and Results

Present status

1. Real-time data in public domain of all future citizens of Jabalpur division.
2. Project to provide information, identify, register, count and monitor marriages, pregnancies, delivery of health services (like ante and post natal care, inoculations) availability of nutritional supplements, safe child birth, proper growth and elementary education of the child in the ambit of public domain in Jabalpur division.
3. Implemented in eight districts of Jabalpur division.
4. Implemented without any additional cost
5. Coverage Area: Jabalpur division: 5836600 Hectare: 20% of the total area of MP
6. Percentage of population covered: 1,01,61,841: 17% of M.P
7. Number of Villages Covered: 10692
8. Number of Blocks/Janpads covered: 64
9. Number of Tahseels covered: 47
10. Integrating schemes of various Government departments
11. Replication of Software: More than 150 locations.
12. It reduced the Check-up/Vaccination defaulters in the region
13. Proper follow-up of each beneficiary
14. Proper check on child marriages
15. Exact data on IMR, MMR and Sex Ratio
16. Generates health calendar for each pregnant women and child's calendar for 5 years keeping in record details of the birth as well tracing child's growth from 0 to 5 years.
17. Around 25 thousand transactions are taking place each month
18. Every month more than 10,000 New couples are added
19. Details of over 1.5 lakh couples, 1.2 lakh Pregnancies and 41 thousand children are collected and maintained since it launch.
20. The project is designed and implemented in Hindi and facilitated quick and easy reach to masses.
21. The application software for collecting data from blocks is developed using Visual Basic 6.0 as front end and MS Access as back end
22. Website of CRIS (www.cris.nic.in) is developed using ASP.net as front end and SQL Server 2005 as back end

23. Data is displayed in Unicode format so that Hindi data can be visible across the net without any problems
24. Technical support and implementation is done by NIC

15. Specific Achievements during the Year 2006–07

The project has won the Best Project award in the category 'IT for Masses' for the year 2007 from Department of Information Technology, Government of Madhya Pradesh. The award comprised of a cash prize of Rs. 1 lakh and a citation. The Chief Minister of MP, Shri Shivraj Singh Chauhan, presented the Best Project Award to Shri Anil Srivastava, Commissioner, Jabalpur Division, on 6 June 2007.

Future plans for readers seeking more information on project
The site is functional and menu driven, details about project can be obtained from its site <http://cris.nic.in>. The site is functional on real time basis.

Further details can be obtained from commissionerjbp@yahoo.com or anilshri@gmail.com.

National Rural Employment Guarantee Act (NREGS-AP Software)

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ABSTRACT

NREGS-AP software is a web-based end-to-end ICT solution with local language interface to ensure that the objectives and entitlements of National Rural Employment Guarantee Act (NREGA) reach the wage seeking rural households. The software developed by TCS has many modules that include wage seeker, work estimates, work execution and payments, material management, reports, analysis, and administration. The job cards, the work estimates and wage payments are handled through software to enable timely payments and ensure at least 100 days of wage employment to a wage seeking household within a financial year. By entering simple measurements, the estimates are generated within minutes. The technical approval, PO clearance, and administrative sanction of the works are captured. Any work after it undergoes these approvals becomes a part of 'Shelf of Sanctioned Works'. The works are opened and letters to executing agency and material supplier are generated from the computer to avoid any delays. The customized measurement sheet for that work also generated. The muster and the work done report for the week are taken to compute the wages and generate pay order along with pay slips. Within the working group based on the muster and out turn the wage is calculated equally among men and women. The wages are deposited into the individual saving accounts of the wage seekers thus avoiding any middlemen. Payments through smart cards or Village organisations' are also being planned. For material payment, based on the material supplied pay order is generated and the payment is made to the material supplier's account. The entire expenditure of the scheme is captured thus enabling accounts and auditing. All reports are system generated by picking transactional data from the work flows. Data is uploaded into Central server through proper backup. So irrespective of time and location, the stakeholders through the portal www.nrega.ap.gov.in can browse information about the villages, work status and wage payments. This instills transparency and accountability. The viewer can drill down up to household level and even up to works and muster level. By making data available for public scrutiny, the portal facilitates social auditing of the NREGS implementation. The provisions of Right to Information Act are fully complied.

The NREGS-AP software is developed after taking the inputs from all the stakeholders. It has many modules that include wage seeker, work estimates, work execution and payments, material management, reports, analysis, and administration.

1. Introduction

Project conceptualization

Tata Consultancy Services Limited (TCS) consultants studied the draft bill on NREGA, analyzed a similar scheme that was implemented in Maharashtra and proposed an Information and Communication Technology (ICT) solution to GOI. Based on the proposal Andhra Pradesh was taken as pilot. Stakeholders meetings were conducted. Direct interaction with the stakeholders and earlier experience in implementing such schemes necessitated the formulation of this project. When similar schemes were implemented earlier, in the absence of any extensive use of Information and Communication Technology (ICT), it was very difficult to address the matters of concern. GoAP set up an exclusive team for getting the software developed. This team provided domain knowledge of work estimates, the formulae involved and the calculations needed to the TCS team (Consultants). The nuances of the scheme, the business process and the required UIs were also explained. In fact the entire development of application is closely monitored and inputs are provided on almost daily basis.

2. Project Vision, Stakeholders, Objectives and Services

The broad vision is to have low cost and fail-safe technologies that will have a more efficient, strategic and inexpensive way of

- Putting the wage seeker at the centre of operations.
- Expediting payments and measurement cycle to ensure timely and correct payments to citizens .
- Providing a system driven accountability mechanism
- Ensuring open access to information to all stake holders and citizens of the country.
- Enabling reliable, timely and comparable information from the ‘ground-up’
- Minimizing administrative costs.
- Tracking every rupee spent on the scheme. In other words, open the black box of the missing 85 paisa as regretted by the Late Prime Minister Shri Rajiv Gandhi
- Minimizing leakages to ensure that the benefits reach the citizens, stakeholders, wage Seekers, village-level functionaries, Mandal-level functionaries, District-level functionaries, State-level functionaries, other departments, Govt of India, CBOs, NGOs and all citizens.

3. Objectives

The aim is to have a positive implementation of the scheme by:

Transparency and visibility. All the stake holders, viz., citizens, media, NGOs, officials, politicians are viewing the data live on the internet, and using the information for furtherance of the cause.

Increase in accountability. Details of personnel and officials involved in implementation at each stage are being logged into the system increasing the accountability.

Minimizing fraud. The system has effectively blocked all the possible leakages thereby reducing fraud to a great extent. By making available the Standard Schedule of Rates for each locality available online, there is no possibility for excess sanction of amounts and subsequent recoveries at a much later date.

Minimizing effort and administrative costs. A cumbersome process of preparing estimates has been simplified duly saving several man months of unproductive time which otherwise the field officials would have had to spend in the process. Use of this solution enabled the state to reduce the overall administrative cost, which otherwise would have costed many-fold.

Accurate and faster wage payments. The payment cycle has been significantly reduced to less than 15 days. Payments to wage seekers are being made entirely through agencies like banks and post offices ensuring that the right amount reaches the worker.

Change management of policies, rates etc. Changes in policies, work estimation standards, payment rates during the course of implementation of the scheme based on ground realities could quickly be adapted.

Program Monitoring. The program is being closely and effectively monitored using the system. Fulfillment of 100 days guarantee for every House hold 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.

Facilitating Social Audit. Another unique feature is that the entire information is available on Internet both in English and local language of Andhra Pradesh, i.e., Telugu. Officials or even public can take the social audit reports and check in the field. By making data available for public scrutiny, the NREGA pPortal facilitates social auditing of the NREGA implementation, under the Right to Information Act.

Easy tracking of all the processes of EGS to ensure that the entitlements like equal wages, work site facilities; timely wages etc reach the citizen.

Effective Decision Support System to avoid slippages in implementation

4. Services

- Job card generation and printing in vernacular languages

- Detailed engineering estimates of works proposed
- Generation of details of task-wise effort and material spent
- Technical and administrative approval processing of proposed works
- Direct payment of wage and material to beneficiaries
- Complete reconciliation of wage payments and work progress
- Real time tracking of number of days worked and wages paid
- Material indenting, receiving, payment and reconciliation capability
- Close monitoring and tracking of works and payments through 'Dashboards'
- Tracking of inflow and outflow of funds
- Detailed analysis of data for assessing and improving the system implementation
- Generation of MIS reports
- Facilitate performance evaluation of programme officer.

5. Roles and Responsibilities

The project is not based on business model. TCS developed the software as CSR. Only the operational and maintenance costs are involved. The funds are received from GOI and GoAP for NREGS-AP scheme. This project is looked upon more as a welfare measure to ensure that the entitlements in the scheme reach the target groups, than a business proposition.

6. Necessity/Needs

The following are some of needs that had to be addresses through the software:

1. Bogus registrations included registration of non-living persons, minors, medically unfit persons and they were even fictitious
2. Delay in preparing estimates and giving technical sanctions since thorough scrutiny of estimates was needed. As the Mandal-level functionaries had limited technical sanction powers the file had to be sent to higher officials thus adding to further delay. So the works started late though there was demand for work. Moreover there was no uniformity in preparing the estimates. The estimates were sometimes inflated to suit certain interests.
3. The musters were never maintained and even when maintained included ghost workmen and bogus attendance. Identifying a work with a muster was very difficult.
4. The requisition of funds were based on false measurement of work, inflated progress of works and even omitting an operation or work item. The reporting of inflated progress never revealed the ground reality. The implementation processes were not uniform as process monitoring was very difficult

5. There was underpayment of daily wages, as well as fraudulent wage payment and delays. There were no equal wages among men and women. The payment to wage seekers was irregular and often less than what they are entitled.

7. Project Plan

Job cards: The photo in the job card is captured from the database of the Civil Supplies Department's IRIS ration cards.

Estimates: A cumbersome process of preparing estimates has been simplified duly saving several man months of unproductive time which otherwise the field officials would have had to spend in the process. Use of this solution enabled the state to reduce the overall administrative cost.

Shelf of works: The sanctioning limits to AE/DEE have been enhanced to give quick sanctions and sufficient works are kept ready to meet the demand for work

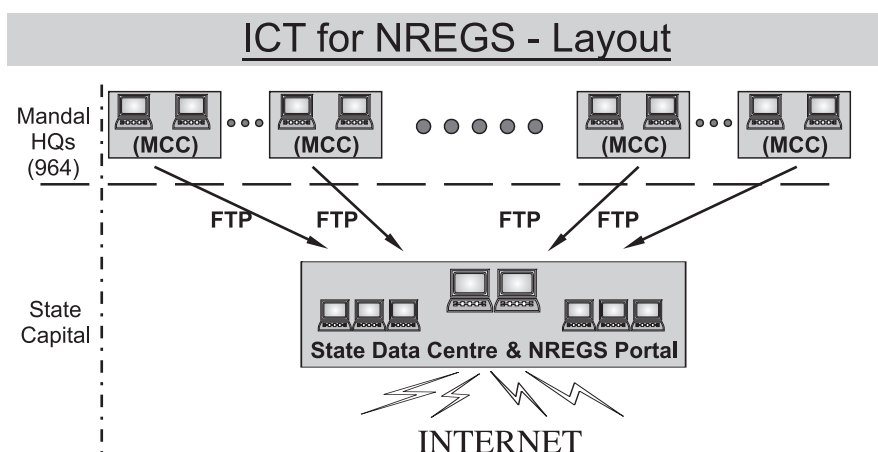
Wages: customised measurements sheets and musters with unique IDs taken for calculating wages based on internal formulae. So, uniform implementation all over the state.

Payments: pay orders with cheque are sent to post office accounts.

Accounting: Every rupee expended to be accounted in the software thus reducing the time and effort for auditing. Bank reconciliation is also taken care. Thus services through this system are invaluable

8. Layout of the System

Fig. 1

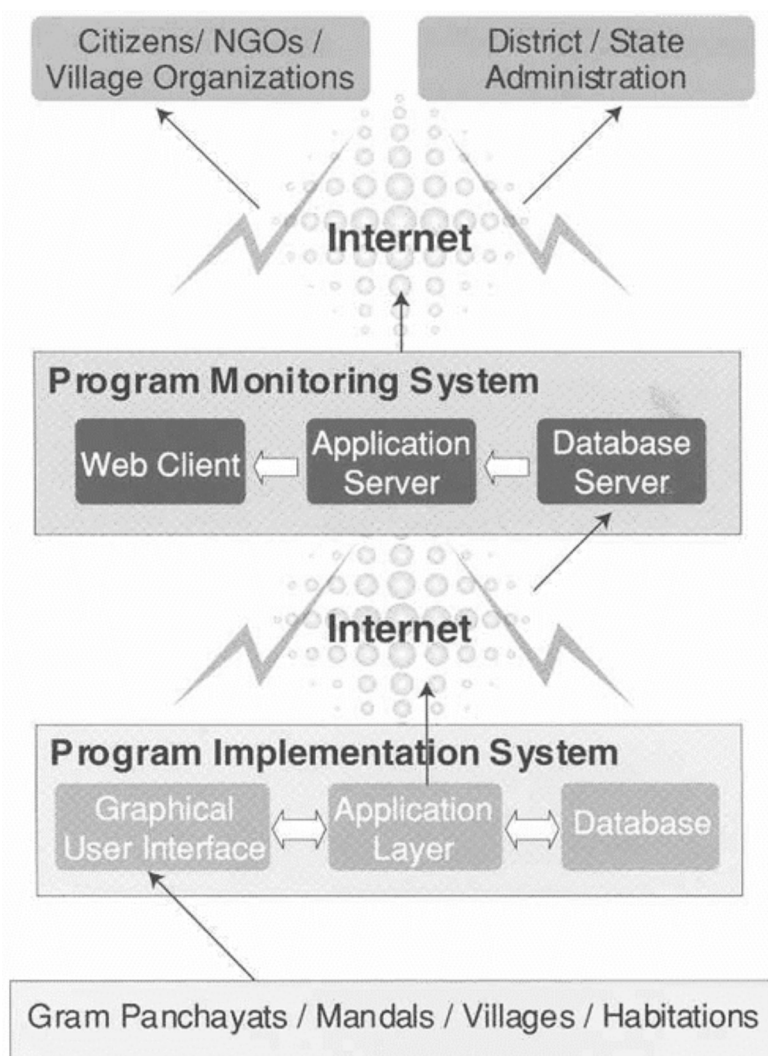


9. Technologies Used in the Project

The solution has two components:

- Program implementation system
- Program monitoring system

Fig. 2



10. Program Implementation System

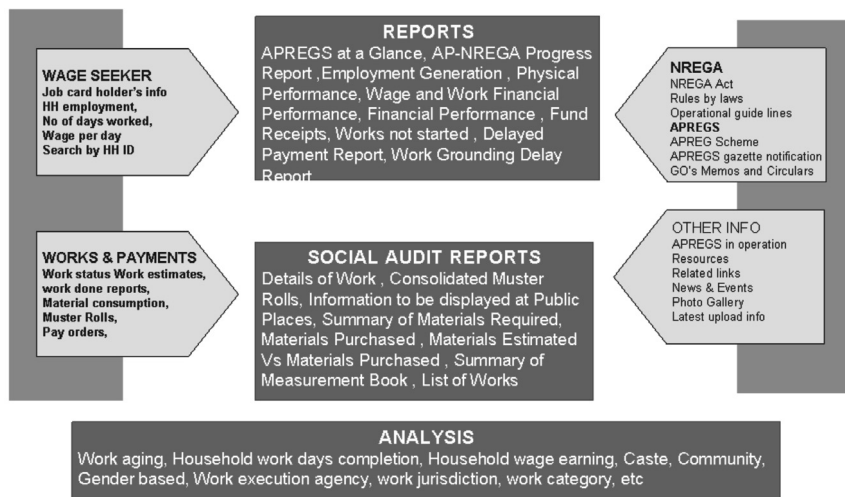
The program implementation system is a stand alone SW developed on Microsoft platform to implement the program at Gram Panchayat or

intermediary Panchayat. All the program transactions related the execution of the program is performed on this system. Transactional data can be uploaded to the state level data centre through various means WAN, dial-up or physical media depending on the availability of connectivity.

11. Technologies

- Windows-based software
- Dot Net framework, C# language
- MSDE data base
- Baraha Telugu language tool

Fig. 3



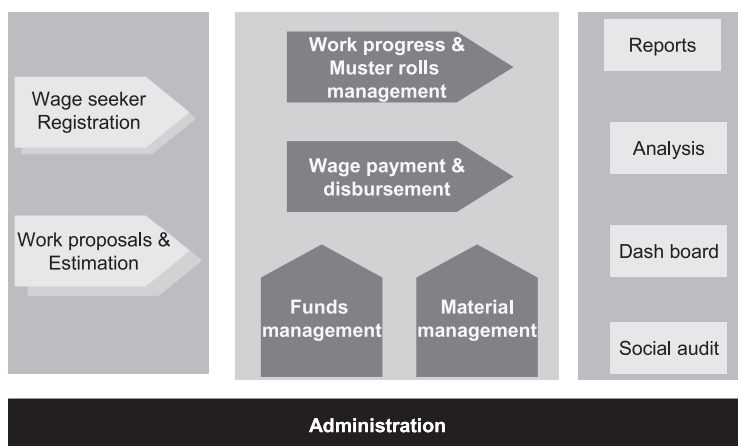
Program Monitoring System

This system consists of a data centre, which does consolidation of the entire states NREGA transaction information and a portal, which provides a consolidated view of the entire program information. This enables progress tracking, monitoring and social audit.

Technologies

- Web Application using J2EE, JSP
- Database : Oracle 10 g
- Baraha Telugu language

Modularity: Entire system has been functionally divided into the modules shown in the diagrams given below. The design has been done using OOAD and the classes delineated for easy maintenance

Fig. 4

12. Milestones

The aim is to have a positive implementation of the scheme by:

- Enrolment of wage seeker through speedy registration.
- Management of shelf of works i.e., Preparation of estimates and technical sanctions.
- Monitoring of work through M Books and musters.
- Management of wages and material payments ensuring accuracy and timeliness.
- Management of funds for transparency.
- Facilitating social audit.

The above milestones have been reached through the implementation of the e-Governance Project wherein all key processes are captured through work flows.

13. Project Management Structure

Table 1

Name(s)	Area of responsibility	Contributions
K. Raju, Prl Secy, Dept of RD, GoAP	Over all supervision	Inspiration, Support and guidance at all stages
A. Santhi Kumari, CRD, DRD,GOAP	Business Sponsor	• Budget support • Resolving escalated issues as needed • Overall monitoring
Dr. M. Padma	Officer-in-Charge of Project (from GoAP)	Responsible for the e-Gov project at all stages Dovetailing ICT solutions into the processes of scheme

Table 1 (Continues...

Name(s)	Area of responsibility	Contributions
A. Murali, Director, EGS	In charge of implementing the NREGS in AP	Conveying the policy decisions taken on the scheme and the processes involved. Providing domain knowledge on work estimates and execution. Ensuring implementation support to the project at all stages.
Col. S. S. Rao, Programme Director, TCS	Officer-in-Charge of Project (from TCS)	Responsible for the entire TCS project team
Sharat Chandra	TCS Project Manager	• Secures resources • Manages the day-to-day activities of the project • Plans and manages data centre operational support and documents for the project • Brings issues and change requests to the attention of the steering committee or TCS Program Director where appropriate • Ensures that project requirements are gathered, documented, approved and managed

Further the contributions as per the area of responsibility is given below.

Table 2

Area of responsibility	Name(s)	Roles and Responsibilities
Project Steering Committee	Dr. M. Padma A. Murali Col. S. S. Rao	• Monitors status • Resolves issues on a timely basis • Represents DRDGOAP or business area and ensures participation to support the project • Represents project stakeholders in reviewing change request materials, determining the disposition of change requests and supporting the Project Manager in the implementation of their decision according to the DRDGOAP change control process
Change Control Board	Dr. M. Padma A. Murali Col. S. S. Rao Sharat Chandra Vidyasagar	• Makes business decisions • Approves work products • Manages Requirements • Manages issue/change requests
DRDGOAP Business Representative	Dr. M. Padma A. Murali	

Table 2 (Continues...

Area of responsibility	Name(s)	Roles and Responsibilities
Business User Reviewer	Dr. M. Padma A. Murali	• Brings issues and change requests to the Steering Committee when appropriate • Reviews project deliverables and gives input on project decisions as requested by the project manager

14. Implementation

- *Strategy for Pilot to roll out:* The Pilot was run for 3 months and the entire solution was taken to scale while implementing the NREGS-AP scheme in Andhra Pradesh. So the scheme was implemented with the software solution imbued into its processes.
- *Capacity building:* Governance structure, Project management teams, Exit management team, Change management and training
Project Policy level 4 officers

Project Management: one officer of Joint commissioner rank kept in charge of the project. 10 to 12 domain experts give inputs for developing the software. (Profiles are given separately.). From TCS side exclusive team with Programme Manager and Programme Director provide the services.

Table 3 Domain experts

1. Dr. Thirupathaiah, IFS, Spl Commissioner (Development) O/o CRD	HRM & Capacity building
2. Mr. Srinivas Raju, Jt. Commissioner, O/o CRD	Affixing photos on job cards connectivity for MCC (Mandal Computer Centre)
3. Ms. Anitha Ramchandran, Director, SHG, O/o CRD	Customising the NREGS to AP and operational guidelines
4. Ms. K. Nirmala, Jt. Commissioner, O/o CRD	Plantations, Horticulture & Bio diesel works' estimates
5. Ms V.Karuna, Director, SPIU, Dept. of RD, GoAP	Social audit concepts and related MIS reports
6. Mr Kishan Das, Jt Commissioner, O/o CRD	Watersheds concepts and planning
7. Mr. Rajesham, Jt. Commissioner, O/o CRD (Former)	Job Cards design
8. Mr. Madhav Rao, Jt. Commissioner, O/o CRD	All forms and registers needed in the field for flow of information to MCC
9. Ms. Gayatri Kalia, OSD, EGS—Accounts	Accounts and auditing
10. Mr. Sudhakar. Programme Manager (tech) , EGS	General Works estimates and execution module
11. Rajendra Prasad, Programme Manager(MIS), EGS	MIS Reports

Change Management: 5 Computer DRPs (District Resource persons) per District and the state level team of Special Officers @ 1 per District

15. Evaluation and Measurement

The intangible returns - like speedy generation of estimates for keeping the shelf of works ready, the timely pay orders for wage seekers and system generated reports that enable the field staff to concentrate more on quality checking rather than preparing reports and the key personnel to take

Table 4

Sl.	Item of work/ process	Improvement	Result
1.	Job cards	Basic information captured and job cards with unique ID printed. Photos taken from Ration card IRIS data base of civil supplies Dept.	Speed in delivering job cards. Unique ID to track all events relating to the Household. Inexpensive photo capture. Link with the biometric ration card database for any future integration.
2.	Estimates	Templates are developed for each work. Simple measurements taken from ground. Internal formulae and calculations used to generate estimates.	Common methodology and common rates (Rural SSR) for generating estimates. Less than 5 minutes to generate a complex estimate. Proper validations and inability to change rates at local level make them tamper proof.
4.	Measurement and muster	Customised measurement sheet and material supply sheet. The muster ID is associated with the work.	Recording the measurement made easy even for an X class pass. The muster association gives the accountability.
5.	Pay orders	Through internal calculation of out turn and attendance for a group pay order is generated.	Accurate wages and speed in getting a pay order.
6.	Equal wages among men and women.	Amount distributed equally in a group.	Individual accounts also help in ensuring equal wages. Reach the women.
7.	Lack of information	Pay slips containing details of out turn, no of days worked, total number in group etc are printed along with pay order. Entire expenditure details to be entered in software	As wage seekers do not have access to internet, these pay slips give them the required details.
8.	Wasteful expenditure	All reports are captured from the transactional work flows.	Helped in tracking unnecessary expenditure and taking remedial measures.

Table 4 (Continues...

Sl.	Item of work/ process	Improvement	Result
9.	Exaggerated reports		As these reports touch the ground reality they are very useful for reviewing and corrective measures. Best decision support system is established.

decisions -outweigh the investment. Average user time savings in using the Govt. services as compared to the previous system is Job cards-3 min per card, Estimates-5 min per estimate. Pay order-15 min per work. Average user cost savings in using the Govt. services as compared to the previous system is estimated to be at least 30% of the overall outlay in terms of prevented leakage of funds and savings in time and effort as mentioned above.

The existing items of work or processes are tackled in an innovative way thus improving the delivery mechanism.

16. Issues and their Solutions

Critical success factors

1. All stakeholders' acceptance, change management and exclusive team with an officer having earlier experience in 'e-Gov' projects to coordinate.
2. Capacity building of all stakeholders especially that of actual implementing personnel at mandal.
3. All manual forms of reporting stopped. Review only through web reports
4. Immediate changes in software corresponding to feedback or any changes in policies and processes.
5. Software workflows part of scheme's processes to avoid manual switch over.

Failure factors

1. Earlier method of implementation through manual processes being more comfortable to at least certain stakeholders
2. The constant training of the mandal staff.
3. Manual system of reporting
4. Meeting the change requirement demands of different stakeholders
5. The geographical spread of the project involving initially 13 Districts. But the failure factors were tackled in the initial stages itself.

17. Replication in Other States

As this project is computerising the processes in the Government of India Act (NREGA), it is common to all the States in India. So with a local language interface and little customization this project can be used any where in India dealing with such land activities.

Road ahead

The software is extended to other Rural Development programme in Andhra Pradesh like watersheds and Comprehensive Land Development (CLDP) programmes. Now the integrated software is called Rastra Grameena Abhivridhi Samacharam (RAGAS).

18. Status and Results

Table 5 *Present status*

The software is being implemented in 19 Districts covering 964 mandals

Report as on Date 22. 08. 2007

Total number of Districts under EGS	19
Total number of Mandals	964
Total number of Gram-panchayats	19,323
Total number of habitations	64,030
Total number of job cards issued	65,02,683
Total number of adult members enrolled in job cards Issued	1,47,04,949

Table 6

		Financial year of 2007–2008	Cumulative since inception
Wage employment	Household (Nos)	22,55,486	32,41,290
demande	Individual (Nos)	33,68,746	49,66,798
Works administratively	Number	5,47,101	6,40,202
sanctioned	Value (Rs in Lakhs)	53,37,29.87	58,79,33.35
Works in-progress	Number	2,56,738	–
	Value (Rs in Lakhs)	27,70,13.68	–
Total Number of works	Number	22,134	1,15,235
completed	Value (Rs in Lakhs)	1,20,64.64	6,62,68.12
Total expenditure	Wages (Rs in Lakhs)	4,93,04.40	10,82,50.44
	Material and skilled wages (Rs in Lakhs)	74,97.00	86,00.15
	Contingency (Rs in Lakhs)	36,61.18	88,60.28

Table 6 (Continues...

		Financial year of 2007-2008	Cumulative since inception
Wage employment provided	Total (Rs in Lakhs)	6,04,62.57	12,57,10.87
	Household (Nos)	22,55,486	32,41,290
	Individual (Nos)	33,68,746	49,66,798
	Men (Nos)	15,44,469	22,96,580
	Women (Nos)	18,24,277	26,70,218
	Disabled (Nos)	24,120	35,352

Table 7

Total number of person days generated	5,98,07,624	13,29,00,168
Average wage rate per day per person (Rs.)	82.44	81.45
Average number of days employment provided per household	26.52	-
Total number of households completed 100 days of wage employment	46,141	1,26,398
Labour vs Material (%)	86.91	13.09 92.72 7.28

19. Specific Achievements during the Year 2006-07

1. Transparency in all EGS transactions
2. Job card data: 52,58,758 job cards are issued.
3. Shelf of works: 1,96,338 no of works worth 1,71,439.46 lakhs are available in shelf
4. Works Execution: 93,101 number of works are completed 1,97,520 number of works are in progress
5. Payment of wages. 58901.47 amount is paid as wages to 34,08,345 wage seekers of 23,26,138 Households
6. De-mystification of works estimation process. 4,86,959 works are estimated and have got administrative and technical sanction.

Demand satisfaction: 23,26,138 wage seekers demanded for work and are given work

Minimum wage: Average wage is 80.67 When State level average wage rate fell below Rs 80 in the months of February and March 2007 rates of certain tasks were enhanced in Rural SSR. So the information is extensively being used as effective decision support system.

Timely payment of wages: Out of 4,77,417 payments made 56.87% of payments are made before 15 days. So for delayed payments, circular instructions were given indicating the time schedule to be followed for all the tasks preceding payment to wage seeker

Equal wages: 1809173 women got employment as against 1598953 of men and their wage is 32314.23 lakhs as against 26584.8 lakhs that men got as wage.

Transparency in payments — muster level payments are available for viewing. For transparency, in pay slips number of wage seekers in the group is mentioned to avoid bogus entries

Facilitating social audit and Right to Information. Separate social audit reports enable any stakeholder to verify with ground position.

The guilty have been pulled out and punished

- Robust Accountability Mechanism
- Individual
- Institutional

Details of implementing personnel and officials are logged into the system increasing the accountability.

Comprehensive web-based monitoring and review mechanism as an effective decision support system. All the EGS transactions are reviewed only through web reports. Feedback from all the stakeholders is improving the software and the website.

Future plans for readers seeking more information on project

They can browse website www.rd.ap.gov.in or <http://nrega.ap.gov.in> or email directoregs@yahoo.co.in or comm_rd@ap.gov.in.

Web-Based Rail Reservation (Internet Ticketing)*

Sanjay Aggarwal

General Manager (Operations), New Delhi
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ABSTRACT

Indian Railway has set up a public sector company, Indian Railway Catering and Tourism Corporation Limited (IRCTC), owned by the Ministry of Railways. This company has been formed to function as an extended arm of the Indian Railways to implement, upgrade and professionalize the rail reservation system besides managing the catering and hospitality services of Indian Railway. IRCTC launched its official website <http://www.irctc.co.in> on 3 August 2002 for the purpose of railway ticket booking through Internet. Since its inception it has emerged as one of the largest online payment Internet site in India with annual growth of more than 300%, touched a daily high of 57,000 tickets (turnover of Rs. 9 crores) and crossed 10 lakhs in ticket sales per month during several months this year. Even the average number of tickets sold through IRCTC's website in a day is more than 40,000.

IRCTC provides tickets to the public in the comforts of their home/residence and save them from hassles to visit "Railway Reservation Centres." The delivery of tickets is made either through the courier or a person can himself take out the print out for traveling. By doing this IRCTC is not only saving time of public but also saving their cost of traveling/parking to these centres. For Railways it is saving on their infrastructure, i.e., buildings, air-conditioning, electricity, furniture, staff, etc. The spirit behind the project was to avoid the customer going to Passenger Reservation System (PRS) and instead bring PRS to the customer.

IRCTC has the highest *success rate of online booking and payment*. For the convenience of customers cancellation of ticket is also permitted online with easy refund process. Transactions carried out on the site are secure; since the site is certified and financial data is transferred across the Internet in encrypted mode (128 bit encryption). The ticket can be booked using any VISA/MASTER/AMEX/Diners credit card, Internet banking account of 27 banks or 3 cash cards. Tatkal tickets can be booked in 5 days advance (excluding the date of journey) through our site. For supporting the Customer 24 × 7 telephone/email support has been provided. For the last two years a Loyalty Program called "Scheme for Frequent Travelers (SOFT)" has also been launched. At present huge number of passengers plan their journey through IRCTC. Total number of registered user with IRCTC is more than 40 lakhs.

Booking facility was extended to railway agents (RTSA's) during 2006. Later, this facility was extended to IATA/TAAI/TAFI agents also. Until now more than 10,000 agents are enrolled for this e-ticketing facility and on an

* CSI Nihilent e-Governance Awards 2006–07, G2C (Urban and Rural) – Joint Winner.

average basis they book more than 2 lakhs tickets every month. IRCTC is in the process of setting up of ATM-based Internet tickets kiosk with various banks for which the integration is almost completed. The steady growth of IRCTC project emphasizes an increasing acceptance of the Internet ticketing system over time.

1. Introduction

The Indian government is using IT to facilitate governance. The last couple of years have seen e-Governance drop roots in India. The effective use of IT services in government administration has greatly enhanced existing efficiencies, driven down communication costs, and increased transparency in the functioning of various departments. The Indian Railways is Asia's largest and the world's second largest rail network that has adopted e-Governance in right earnest to reap the benefit of IT explosion. Indian Railways entrusted IRCTC with the task of conceptualizing, developing and implementing the software and the infrastructure for this project. The issues of flexibility, scalability and provision of totally self help arrangement (as different from the assisted process at the Reservation Counters) had to be permitted to the internet users. Further a variety of online payment mechanisms (like Credit Cards, Internet Banking, Cash Cards, etc.) were to be integrated with for convenience of millions of users. IRCTC has also developed and published Web services to enable access to the basic internet service using other media like phones. All this and more has been done by IRCTC since its inception. The entire Internet ticketing concept was conceived, formulated and implemented by IRCTC within a record time span of less than 9 months.

Internet ticketing

Internet ticketing operations of IRCTC were launched on 3 August 2002 in collaboration with CRIS, the Centre for Railway Information Systems. Tickets for Rail journeys in India can be booked including Tatkal tickets on the Internet on the web site www.irctc.co.in, by any user after registering at the site (Registration is free).

Payments for tickets are made by use of Master/Visa/Diners Club/American Express Credit Cards, Citibank Debit Cards and also through Direct Debits to the users' bank accounts; this is available to users who have their accounts in the 27 banks having Internet Banking facility like ICICI, HDFC, Citibank, IDBI, Bank of Punjab, UTI Bank, State Bank of India, Centurion Bank, Punjab National Bank, ABN Amro, Corporation Bank, Federal Bank, Union Bank of India, Oriental Bank of Commerce, Syndicate Bank, Indian Bank etc. and others which are being integrated shortly. There is also a cash card payment options from ITZ Cash Cards, Icashcard and Done Cash Cards. I-Tickets get delivered to the users' homes/offices or any other address of their choice in over 220 cities of India within 48/72 hours.

The service charges per I-ticket are very nominal, i.e., Rs 40 per ticket (Not per head) for Sleeper Class Tickets and Rs. 60 per ticket (Not per head) for AC Class/First Class Tickets.

From daily average sales of about 112 tickets in August 2002, the site today books more than 40,000 tickets daily. Though handling only a very small percentage of the tickets booked by the Indian Railways Passenger Reservation System, which book about 7 lakhs tickets daily, this website has today over 35 million registered users.

Besides delivery of the tickets, IRCTC also makes several value additions such as 24-hour helpline to assist customers, on line answering of email round the clock, facilities for time table enquiries on train timings and other particulars, email alerts to Customers regarding the status of confirmation of their accommodations and an Online Consignment Tracking System to know the status of delivery of their tickets at any time.

The I-ticket can be cancelled at any Computerized Reservation Counter across the country by submitting cancellation requisition along with the ticket. No cash is paid to the Customer at the time of cancellation. The amount is credited back to the Credit Card Account/Bank Account of the User. Other facilities like change of name, change of boarding point, etc., are also available only across counters

Reservation timings are from 05.00 hrs to 23.30 hrs from Monday to Sunday. Customers should ensure that, depending on the place of delivery required by them, they allow a minimum of 2/3 clear days (excluding the date of journey and date of booking) before the date of journey to ensure hassle free delivery of the ticket, as mentioned in the above Table.

e-Ticketing

On 12 August 2005 we have launched the e-Ticketing services. This scheme was initially introduced in only two Shahabad's. Now from 01-01-06 onwards, it covered all Rajdhani, Shatabdi, Jan Shatabdi and Super-fast trains and on 24-02-2006, e-ticketing services were launched to all trains. The user need not have to have a physical ticket with him; he can take print out the Electronic Reservation Slip (ERS) in the specified performa and travel. While traveling, the user has to carry the ERS along with the relevant Government issued Photo Identity Card, which together constitute the travel authority. To avail this service, the user can log on to www.irctc.co.in and book his ticket on the Internet just like any normal booking, and selecting 'e-Ticket' in the Plan My Travel page. The user has to give the photo identity card details of any one of the passengers, while booking the ticket. On confirmation of his booking, the user can take a print of the Electronic Reservation Slip (ERS) and can perform the journey with the ERS and the photo identity card.

- At present only confirmed/RAC tickets can be booked through e-Reservation, while WL tickets can also be booked in the normal Internet Tickets.

- The following photo identity cards are considered valid.
 - o Voter Identity Card
 - o Passport
 - o PAN card
 - o Driving License
 - o Central/State Govt. issued Photo ID card.
- Payments for e-Tickets can be made by Credit Cards (Master/Visa), Direct Debit or Cash Card

IRCTC levies a service charge of Rs.15/- (Second/Sleeper) and Rs.20/- (Higher Class) for the first passenger and an additional Rs.5/- for every subsequent passenger up to a maximum of Rs.25/- (Second/Sleeper) and Rs.40/- (Higher Class)

Cancellation of e-Ticket is permitted on the website (www.irctc.co.in) up to chart preparation. No cancellation is possible at Counters. Part/Complete cancellation is possible online, but if the passenger whose ID is recorded originally wants to cancel his journey alone, the entire ticket for the group has to be cancelled and fresh booking is to be done. In case person fails to carry ERS during the journey a penalty of Rs. 50/- is imposed. However, if a person fails to carry Photo Identity Card, then he is treated as without ticket.

2. Objectives

The objective of this project is to provide tickets to public in the comforts to their home/residence and to save them from hassles to visit 'Railway Reservation Centres.' By doing this, we are not only saving time of public but also saving their cost of traveling/parking to these centres. For Railways it is saving on their infrastructure i.e. Buildings, Air-Conditioning, Electricity, Furniture, Staff etc.

3. Stakeholder

The most important stakeholders of the project are the Centre for Railway Information Systems (CRIS) which manages Railway Backend Software i.e. PRS (Passenger Reservation System), Broad Vision manages e-commerce application, HCL for network and security, 23 banks for online payment through Direct Debit facility, 04 Payment Gateways for Credit Card Payment, 03 Cash Card for online payment, Overnite Express for Courier Delivery.

Government-to-Citizen Services (G2C)

Through the e-Ticketing project of IRCTC, citizens (Urban and Rural) are benefited by booking the rail tickets in the comforts of their home/residence and escape from the hassles of visiting 'Rail Reservation Centres.'

Sustainability

The project is self sustainable through various means. Selling Railway Ticketing Products (I-ticket, e-ticket, SOFT, and Agent Model), Sale of Advertising Space in Portal, Using IT Infrastructure resources, and (Promotional mail to captive customers.)

4. Technology Architecture

Three-tier architecture

- Presentation Layer—IIS 6.0 on Windows 2003 R2 Enterprise Edition at Web Servers Layer (6 servers) with 128 bit SSL GSID Certificate for secure transmission.
- Application Layer—Broad Vision Enterprise on Windows 2000 Advanced Server (40 Servers)
- Database Layer—Oracle 10g Enterprise Edition on Windows 2000 Advanced Server

IRCTC architecture

- Web services layer on Apache + Tomcat on Broad Vision providing XML based interface to our services to the interested technology partners who develop their front end e.g. on mobile devices with 128 bit SSL GSID Certificate for secure transmission.
- Protected by checkpoint firewalls at the perimeter and rear (Connectivity with internet and PRS/STEAM respectively)
- Protected by Trend Micro Interscan Messaging Security and Web security for internet access and mail access and CA and Symantec Antivirus systems for servers and desktops.

Connectivity

- 72 Mbps outgoing and 18 Mbps incoming served by MTNL for internet access and Website hosting.
- OFC link with PRS, New Delhi.
- 64 kbps leased line served by MTNL for connectivity to Mumbai Print Centre.
- 64 kbps leased line served by MTNL and 64 kbps RFC connectivity served by Sify as backup for connectivity with STEAM servers at Mumbai for MSST.
- 100 Mbps Ethernet Wired LAN.

5. Project Reach

Mobile Reservation Service: Covering four mobile operators currently posed to cover all major mobile and landline operators in the country making the system even more convenient by obviating the need for Internet access.

PNR Alert Service: An SMS based service through which the customer is kept apprised of the ticket status as it moves from Waitlist to Confirmed, before the journey.

SMS Booking: The simplest version of Mobile ticketing wherein the ticket can be booked using just 2 SMS.

Tatkal Booking: Tatkal Tickets can be booked through the site which is available in advance of 5 days excluding date of journey.

Scheme of Frequent Traveler (SOFT): A unique loyalty program for upper class railway customers whereby they accrue loyalty points for each railway journey performed by them. These points can be redeemed for complimentary tickets. Total registered customer – 33000 (IRCTC and SBI includes). Net Earning – Rs 1.2 Cr. Total tickets redeemed online – around 650 tickets.

Mumbai Suburban Season Tickets (MSST)

- IRCTC has launched a new service for the convenience of Mumbai suburban season ticket passengers.
- Registered user of www.irctc.co.in can book his/her Mumbai suburban season ticket through Internet.
- MSST cannot be renewed through Internet.
- User can purchase a fresh season ticket valid from 2 days up to 10 days from the date of booking.
- NO SERVICE CHARGES.

6. Scheme for Frequent Travelers (SOFT)

On 20 February 2006, a Scheme for Frequent Travelers (SOFT) was launched which offers generous reward points to loyal customers and these points can be redeemed for free Railway Tickets. Apart from SOFT, SBI Credit Cards in collaboration with IRCTC has launched a Co-branded Rail Credit Card.

- To earn the benefits of this scheme a customer necessarily must be one of the passengers on the ticket and he earns railway points for his individual fare only. Railway points shall accrue to his account only 5 days after the date of your journey provided his ticket has not been cancelled.
- First Year Membership Fee Rs. 500; Annual Renewal Fee Rs.300 (taxes and transaction charges extra, as applicable).

- Express Rewards Super-Fast Rewards; 4 Railway Points for every Rs. 100 spent; 10 Railway Points for every Rs. 100 spent (Valid on tickets with Date of Travel between April 1 – July 14 and September 16 – January 14) (Valid on tickets with Date of Travel between January 15 – March 31 and July 15 – September 15)
- Railway Points will be valid for a period of 3 years from the date of member's registration. However, irrespective of the 3-year validity period, Railway Points lapse if membership is not renewed.

Performance of SOFT

- Total registered customer: 33,000 (IRCTC and SBI Includes)
- Approximate earnings: Rs. 1.2 crores
- Total tickets redeemed online: 600 Tickets

To cater to the needs of the common man who have no knowledge about Internet. IRCTC is also giving e-Ticketing facility to IATA Agents, TAAI, Petrol Pumps, ATMs and Sify I-way, RTSA, and all Govt. bodies.

Mumbai Suburban Season Tickets (MSST)

- IRCTC has launched a new service for the convenience of Mumbai suburban season ticket passengers.
- Registered user of www.irctc.co.in can book his/her Mumbai suburban season ticket through Internet.
- MSST cannot be renewed through Internet.
- Users can purchase a fresh season ticket valid from 2 days up to 10 days from the date of booking.
- NO SERVICE CHARGES

Agents: e-ticketing facility was extended to Railway agents (RTSA's) during 2006. Later, this facility was extended to IATA/TAAI/TAFI agents also. Under the internet café scheme, major organizations like Sify, Done Card, ITZ Cash Card, Hughes communication etc. are registered for e-ticketing facility. Like wise various state Government's like Andhra Pradesh (e-Seva), Rajasthan (e-Mitra), UP (e-Suvidha), Kerala (Akshaya Project), Karnataka (Bangalore One) etc. are registered. Until now more than 10,000 agents are enrolled for this E-ticketing facility and on an average basis they booked more than 2 lakhs tickets every day which is a tremendous achievement. Also, GSA's of Indian Railways belonging to Nepal and Sharjah are registered.

Customer support

Customer Support is the backbone of any organization. We at IRCTC offer excellent customer support on a 24 × 7 bases at the following numbers/e-mail.

011-23345500, 011-23344787, 011-23344773, 011-23345800, 011-23348539, 011-23348543

For Railway tickets booked through IRCTC

General Information I-tickets/e-tickets: care@irctc.co.in

For problem in online cancellation of e-tickets: etickets@irctc.co.in

For Shubhyatra users shubhyatra@irctc.co.in

For Mumbai Suburban Season tickets seaintickets@irctcc.co.in

*Specific achievements***Table 1**

Financial year	Tickets booked on website
2004–2005	1,281,033
2005–2006	2,573,612
2006–2007	6,823,481

Increase in number of e-tickets since its initiation in August-05

Table 2

Period	e-Tickets booked On website
August 2005 – March 2006	188,473
April 2006 – March 2007	3,940,422

7. Conclusion

The steady growth of IRCTC's internet ticketing project emphasizes an increasing acceptance of the Internet ticketing system over time. In general, the conclusion is that if online ticketing initiatives fulfill a perceived consumer need, they are acceptable to a wide range and increasing number of customers.

Gazettes on Web

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ABSTRACT

'Gazettes on Web' is part of IMPRESS (Integrated Management of Press with e-Services) software developed by NIC, Puducherry for Directorate of Stationery and Printing, Govt. of Puducherry. The Department of Stationery and Printing is the nodal facilitator to meet the printing needs of the departments under the auspices of the Puducherry Administration including the Government companies, Corporations and local bodies. This department procures and supplies various types of stationery articles, both paper and non-paper items along with appropriate header info etc. There are as many as 119 direct indenting offices including 43 commercial departments that are supplied materials from the Directorate. The department has to maintain records on the nature of the job, raw materials used, manpower utilized and cost involved.

The Director, Directorate of Stationery and Printing are the Printer and Publisher of Official Gazettes of Puducherry. Presently the Gazette is published in Tamil and English.

Four types of Gazettes are printed in the Government Central Press, Puducherry by the Authority of Government of Puducherry.

Ordinary Gazette

The Ordinary Gazette is published every Tuesday regularly. The issues relating to: Acquisition of lands, Government notifications, Tender Notices, Auction Notices, Dangerous Establishments, Announcements and Corrigenda are published as per the requirements of various departments.

Supplementary Gazette

It is published as supplement to the ordinary gazette. Issues relating to recruitment rules, statistical reports, any other notifications as required by the Government of Puducherry are published in this gazette.

Extraordinary Gazette Part-I

Issues relating to republication of Government of India notifications and any other important notifications of Government of Puducherry are published in this gazette.

Extraordinary Gazette Part-II

Issues mainly relating to acts and rules of Government of Puducherry are published in this gazette.

A website is developed for Directorate of Stationery and Printing, Govt. of Puducherry where the activities and roles of the department are made available. The Gazettes are published on-line in the website with the help of VPN connectivity. The Gazettes are available in such a way that the documents are available by navigating through types, months and issue.

1. Introduction

Project conceptualization

The Gazette contains the important decisions of the Government, other notifications of the Government (here Government includes all the Departments of the Government) and all other important activities of the Government. A gazette is an authenticated source of information and also it gives legal support on an issue. Particularly, after the introduction of Right to Information, the Gazette documents help the citizens in knowing the important notifications, orders, rules, acts and details about land acquisitions etc., [Ref: e.g., See The Gazetteer. of...]

Project vision, stakeholders, objectives and services

To make this entire published Gazette transparent to public and also re-engineering the complete work flow in the composition of Gazettes; NIC had recommended and provided necessary suggestions in the publication of Gazettes on Web. In this direction, NIC, Puducherry had worked and implemented online publication with the current state-of-art tools and VPN connectivity.

G-G

Government-to-Government: It serves as a one-stop-source for all Government Publications. Therefore, all the related Gazettes could be given a link from the necessary department websites. The recruitment rules, notifications, G.O.s are now made available on the website of the Directorate.

G-B

Government-to-Business: All the important Acts, Rules, Announcements, Land Acquisitions, Law and Order and other relevant Government Notifications are now made available for the benefit of the business organizations.

G-C

GovernmenttoCitizen: The Gazette documents are easily available to public without hassles by simply downloading the pages from Web. A search option is also provided to quickly identify the desired document.

The targeted beneficiaries include all Citizens, NGO, Departments, Employees and others.

2. Public Private Partnership (PPP)

The entire preparation of Gazettes and publication over web is totally prepared in-house. The section officials are trained for the preparation of Gazette documents in .PDF format and catalogue with the database. The development of the s/w is done with NIC resources and deployed at Directorate of Stationery and Printing. Client systems are installed at Gazette section and are networked with Intra Net server at Govt. Press. The Dept. had purchased the hardware systems with their funds.

3. Necessity/Needs

1. The official document in detail about Acts, Rules, Announcements, Notifications from Government are made open to public.
2. A repository of all publications is now made available
3. People from all walks of life can be made aware of all Government Publications.
4. The e-format is easy to maintain, preserve and retrieve as and when it is required.
5. The Directorate has only one sales counter that operates during working hours. All those who need published copies of the Gazettes had to come to this counter and make requests against specified rates. Now, the online gazettes have eliminated the difficulties on information of the published gazettes.
6. Request from the department to device a mechanism for publishing the Gazettes in Net.
7. Every citizen is bound to look for authenticated information at one place regarding Government official announcements. As Directorate of Stationery and Printing is the official publisher of the Government, the 'Gazettes on Web' would solve in part the public need to get the information through the Gazetteer.

4. Project Plan

Technology Architecture

- o The Gazette documents are composed in DTP unit which was earlier managed by Letter Press technique.
- o A separate section called Gazette section was opened and officials who had experienced with DTP s/w are taken up for this purpose.
- o These officials are trained on the objectives. Once they prepare the Gazette documents in Gazette DTP, they generate the .PDF formatted Gazette documents and catalogue the same with the database available at the Directorate. From the EDP, it gets uploaded in the website pages.

5. Milestones

- o The old gazettes which are in old paper format are in poor condition. In an effort to preserve gazettes that are published since merger of Pondicherry, they can be scanned, archived and made available to public. A detailed plan is under consideration.
- o All Gazettes that are published can also be prepared and released in CD. Already efforts are started by the Directorate.

6. Implementation

Strategy for pilot to roll out

- o Initially identified the requisite structure of the Gazette catalogue and publications.
- o A template showing the Gazette issue, month and subject are created. It had been linked with the Gazette documents. The links are provided year-wise.
- o Necessary s/w for DTP to PDF format is made available on the same system of DTP.
- o For Cataloguing, a net-based system which quickly tags the generated documents with the subject, date of issue, title is made available.
- o For the first month, on every issue, NIC trained the officials for generating and porting the same over the net.
- o After substantial collection of Gazette documents, the search facility had been deployed for the catalogue. Scope for improvement is noted.

7. Governance Structure

Table 1

Department	NIC
Minister	DG, NIC
Secretary(Sty and Printing)	DDG, NIC TNSC
Director, Directorate. Of Stationery and Printing	Technical Director and State Informatics Officer
Deputy Director (Production, Planning and Control)	Principal Systems Analyst Programmer
Section-in-charge DTP officials	

Project Management Team

1 dedicated Project Director
 1 dedicated Project Leader (PSA)
 1 outsourced Programmer/Asst.Programmer for training, hand holding and onsite support to fix bugs, etc.

Exit Management Team

1. EDP-in-charge is available and trained with the overall objectives, functionalities of the s/w.

NIC had prepared necessary Technical User Manual, Software Design Document for the entire project.

Periodical review was carried out by the Director, Directorate on the project enhancements and amendments.

Change Management

An IT-Plan broadly envisaging the major objectives had been arrived for the change management with the Top Management of the Directorate, whole heartedly participating in the same. A detailed SRS is prepared by NIC and approved by the Department. The Director reviewed the existing procedures and accordingly suggested the new procedures based on the review meeting with the concerned section and NIC. The following officials were involved with the change management.

Gazette section holder – 1
 Gazette section compositor – 1
 EDP official – 1
 Trainee – 1

8. Evaluation and Measurement

On completion of every module, feedback is collected from the respective sections on the usage. Consistent reviews at the level of Director, Stationery and Printing and Director, NIC is being done at every stage.

9. Issues and their Solutions

Critical success factors

- a. Easy user-friendly method for creating a Gazette in .PDF format from DTP software.
- b. Work flow re-engineering by forming a separate Gazette section in Press, and entrusting them to own the responsibility not only to compose the gazette but also to create the Gazette in .PDF format and update on Internet.
- c. Reliable update mode using FTP over VPN for uploading the gazettes.
- d. Consistent training and encouragement for Gazette section
- e. Stores indenting and processing for publication works is online
- f. Support from higher officials

Replication in other states

Replication is possible with the technology adopted by NIC, Puducherry.

Road ahead

- o The IMPRESS project once get completed will help the department to conserve the stationery requirements by quickly monitoring the delivered items to the state Government departments.
- o By installing the s/w in the branch units, the complete system will help to improve the work performance effectively.
- o The comprehensive MIS will also help to quickly ascertain the progress of on-going works, identification of the stage where the delays can be avoided, price computation for the actual work etc.

10. Status and Results

Present status

The system is functional and all the gazette publications are published over net since 2005.

11. Specific Achievements during the Year 2006-07

VPN facility had been provided and the site had been shifted to the current state-of-art data centre at NIC, Delhi. With this facility, the entire Gazette contents are backed up with all the disaster recovery, audit analysis, FTP-over-VPN facility. The department is already trained on FTP-over-VPN and totally operated through NET by them.

12. Future Plans for Readers Seeking more Information on Project

Similar to Gazettes, other important announcements of the Government like circulars, weather statistics, socio-economic publications, budget, plan documents can also be archived online on the similar model for Puducherry UT. Discussions are continuing with every department of the Government.

Fast Reliable Instant Efficient Network for Disbursement of Services (FRIENDS Janasevana Kendram)

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ABSTRACT

Fast Reliable Instant Efficient Network for Disbursement of Services (FRIENDS) is a 'Single Window Mechanism' where citizens have the opportunity to pay all taxes and other financial dues to the Government. FRIENDS seeks to extend the benefits of full fledged computerization of individual departments to the citizens, even before the whole backend computerization is completed. The salient feature of the project is the effective integration of IT and logistics for citizen services. The project was launched in Thiruvananthapuram in June 2000 and was replicated in other district headquarters during 2001–2002. The centres work from 9.00 AM to 7.00 PM on all days including Sundays, except national holidays. The counters are equipped to handle around 1000 types of bills (in various combinations) originating out of various departments.

FRIENDS renders services to millions of customers by way of collection of rents, fees, charges, and taxes due to various government departments and agencies. FRIENDS Janasevana Kendram, Thiruvananthapuram, has bagged the ISO 9001: 2000 certification awarded by DNV (UKAS), which signifies the presence of a quality system that is managed and maintained with a quality policy and quality objectives, and is always aiming at continual improvements in customer services.

At present FRIENDS Janasevana Kendrams are located at all District headquarters of the state.

1. Project Vision and Objectives

- To provide an integrated electronic interface, where citizens can access Government services, pay bills and taxes, and obtain information from the Government,
- To implement 'any centre any payment' concept,
- To provide collection centres for the Government at every two to three kilometers without any additional infrastructure cost,
- To treat the citizen as a valuable customer and to maintain and upgrade services,

- To induct a philosophy of better service delivery in Government departments.

2. Stakeholders

- Government departments like Revenue, Motor Vehicles and Civil Supplies,
- Government agencies like Local Self Government Institutions (LSGIs),
- Electrical inspectorate, Universities, Kerala Water Authority, Kerala State Electricity Board and BSNL (land line and mobile bills),
- Railway ticket booking (piloted and continuing at FRIENDS, Wayanad)

3. Necessity/Needs

Stakeholder need assessments are largely based on the citizen feedback and their expectations about the services. Similarly, the participant departments propose introduction of new services through FRIENDS centres, based on the feedback received from their respective target groups.

4. Project Plan

Requirements of process re-engineering

The need for process re-engineering of FRIENDS, to cope up with the times, has been felt and we are in the process of implementing the same with the technical support of NIC-Kerala. Web-based applications will be created and 'any centre any payment' facility will be introduced in all the FRIENDS centres in the near future.

5. Milestones Achieved

- Increased citizen acceptance over the years, as can be evinced from the increase in the number of transactions over the years,
- Introduction of new services (for example, Electrical Inspectorate) at all FRIENDS centres,
- Periodic refresher training programme to Service Officers,
- Reduced transaction time and cost after implementation of ISO 9001 : 2000.

6. Project Management Structure, Project Management Team

The FRIENDS project is headed by the Director, Kerala State IT Mission, and his team includes a Manager, Business Development and a Project Assistant. At the district level, all the FRIENDS centres have two Project Managers and staff who are designated as Service Officers. The physical distribution of scrolls and other information to concerned participating departments are done with the help of Women's Self Help Groups (Kudumbashree). A detailed flow-diagram indicating the FRIENDS project management structure is given towards the end of this brief note.

7. Implementation

The project was piloted at Thiruvananthapuram in 2000; subsequently it was rolled-out in the remaining 13 districts during 2001/2002. Presently FRIENDS centres are located at all the district headquarters of the state, totaling 14.

8. Capacity Building: Training

All the 14 FRIENDS centres taken together have 284 Government employees working on a full-time basis as Service Officers. Refresher training for the staff is being conducted periodically at all the FRIENDS centres.

Evaluation and measurement

Regular evaluation of the project is conducted as part of the ISO implementation

9. Issues and their Solutions

FRIENDS is a successful model of achieving 'front-end computerized service delivery to citizens' without waiting for the completion of back-end computerization which would involve complex process re-engineering in the participating Government Departments.

Replication in other states

This is a simple front-end delivery model. It could be easily replicated in any geographical location. It is recommended that this model of citizen service delivery using ICT may be tried out and implemented in the states which have prioritized on establishing innovative service delivery modules.

Road ahead

With the implementation of the 'FREES' (FRIENDS Re-engineered and Enterprises Enabled Software) with the technical support of NIC, 'any centre any payment' mode will be enabled. FRIENDS is further geared up to add to its repertoire more popular and sought after G2C services in the coming years with back-end integration in the participating departments. Also with the integration of Akshaya centres located in rural areas, FRIENDS is bound to cater to the entire citizens of the state.

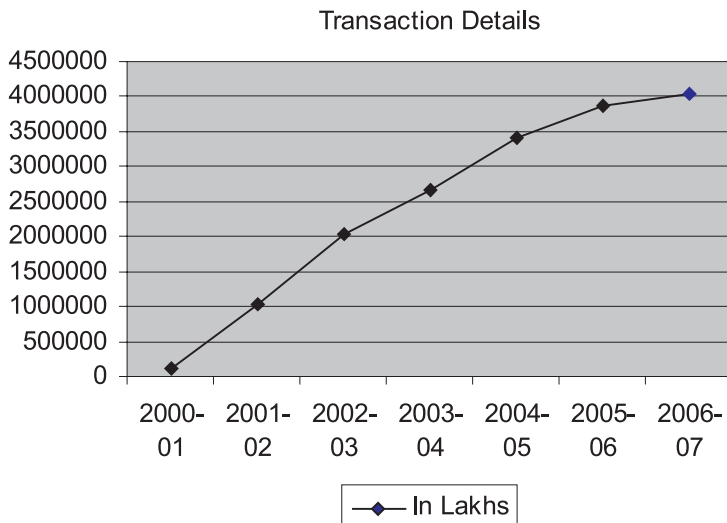
10. Status and Results

Present status

Table 1

Year	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07
No. of transactions	1,23,709	10,26,919	20,23,811	26,68,071	34,00,182	38,70,391	40,28,287

Fig. 1



11. Specific Achievements during the Year 2006-07

- Re-engineering of FRIENDS software has been initiated and is progressing in a time-bound manner

- Integration of e-pay facility from village level Akshaya centres spread out in 7 districts of the state, namely,, Kollam, Pathanamthitta, Ernakulam, Thrissur, Kozhikode, Kannur, Kasaragod with the respective FRIENDS centers
- Also, steps have been initiated to implement the collection of LIC payments, Passport applications and others through FRIENDS

12. Future Plans for Readers Seeking more Information on Project

To enhance the security aspects of the FRIENDS centres, the Government has decided to implement Information Security Management System (ISMS) and get the centres certified as per ISO 27001. The process of implementation of ISMS is in progress.

Centralized Allotment Process for the Professional Course Admissions—CAPNIC*

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ABSTRACT

CAPNIC is a project for Commissioner of Entrance Examination (CEE) to conduct the counseling for the allotment of seats for the Professional Courses in Kerala. The web based software developed using the Open Source, aimed at, conducting Counseling from multiple locations. The application is having the features like Online Option Receiving, Trial Allotment, Trial Result publishing, Allotment Processing, Result Publishing, Fee payment at Bank, Joining at college, Online Option Rearrangement, Re-allotment, etc.

1. Introduction

Project conceptualization

NIC, Kerala State unit has developed the software, CAPNIC (Centralized Allotment Process) for conducting online counseling for the allotment of seats for the professional courses in Kerala. The software is developed by taking care of all the existing rules of Communal reservations and Special Reservations. Floating seat concept is also implemented in the system. This G2C, G2G solution is implemented in the year 2005 and 2006.

The system is for conducting the counseling for Medical, Engineering, B.Pharm and Architecture courses and allotment of seats. Under the Medical Stream there are 11 courses and in engineering stream there are about 23 branches. The counseling is conducted for about 19,000 seats in medical/engineering/B.Pharm. stream.

This web-enabled solution used the LAMP model. The application is hosted in the Government Data Centre with data replication mechanism. The candidates access their data by using the Roll number, application number, key number and password. Options of the candidates get updated in the data base which is used for the Allotment/re-allotment process. The allotment/re-allotment list is published and the colleges were provided the list of allotted candidates. List of eligible candidates to be admitted were

* CSI Nihilent e-Governance Awards 2006–07, G2C (Urban and Rural)– Joint Winner.

available only after paying the prescribed fees. Fee collection is taken care by the fee collection module. After each allotment candidate were provided with the cancellation/re-ordering of the options. Non-joining details were entered by the college authorities. Based on the non-joining and the non-payment of fee the re-allotment list was published. Unlike the previous years, the system is having the advantage that the candidate can give their options from anywhere. Colleges and courses can be added ever after the counseling started. The candidate can change or re-arrange the options at any point of time. Lot of money and time is saved by adopting the new system.

2. Project Vision and Objectives

- A student should have freedom to give his/her options freely, without any pressure.
- A student should have freedom to change his/her options any number of times with in the given time frame.
- The system should be transparent.
- Ensuring Right to Information to all the stakeholders.
- Payment of fees and refund (due to movement from self financing college to Govt. College on re-allotment).

3. Stakeholders

- CEE
- Higher Education Department
- Students/Parents
- Bank
- Colleges
- Internet Cafe

4. Services

- Online options registration
- Trial allotments and trial allotment result publication
- Re-arranging of options
- Actual allotment and result publication
- Online re-allotment process
- Payment and refund mechanisms were automated and integrated to the system, which eliminated manual compilation and reconciliation. System handled the transactions worth more than Rs. 35 crores.
- Re-allotment process made easy

5. Public Private Partnership (PPP)

CAPNIC is fully owned by Government of Kerala.

Necessity/Needs

- A student along with his/her parents/guardian was forced to travel to the counseling center and stay there for the days.
- A student was forced to select a course/college combination across the counseling counter. No proper time available for consultation/decision making.
- The counseling process was taking more than a month to complete a single counseling.
- Policy changes were happening frequently
- Requirement for a transparent system

6. Project Plan

Requirements of re-engineering process

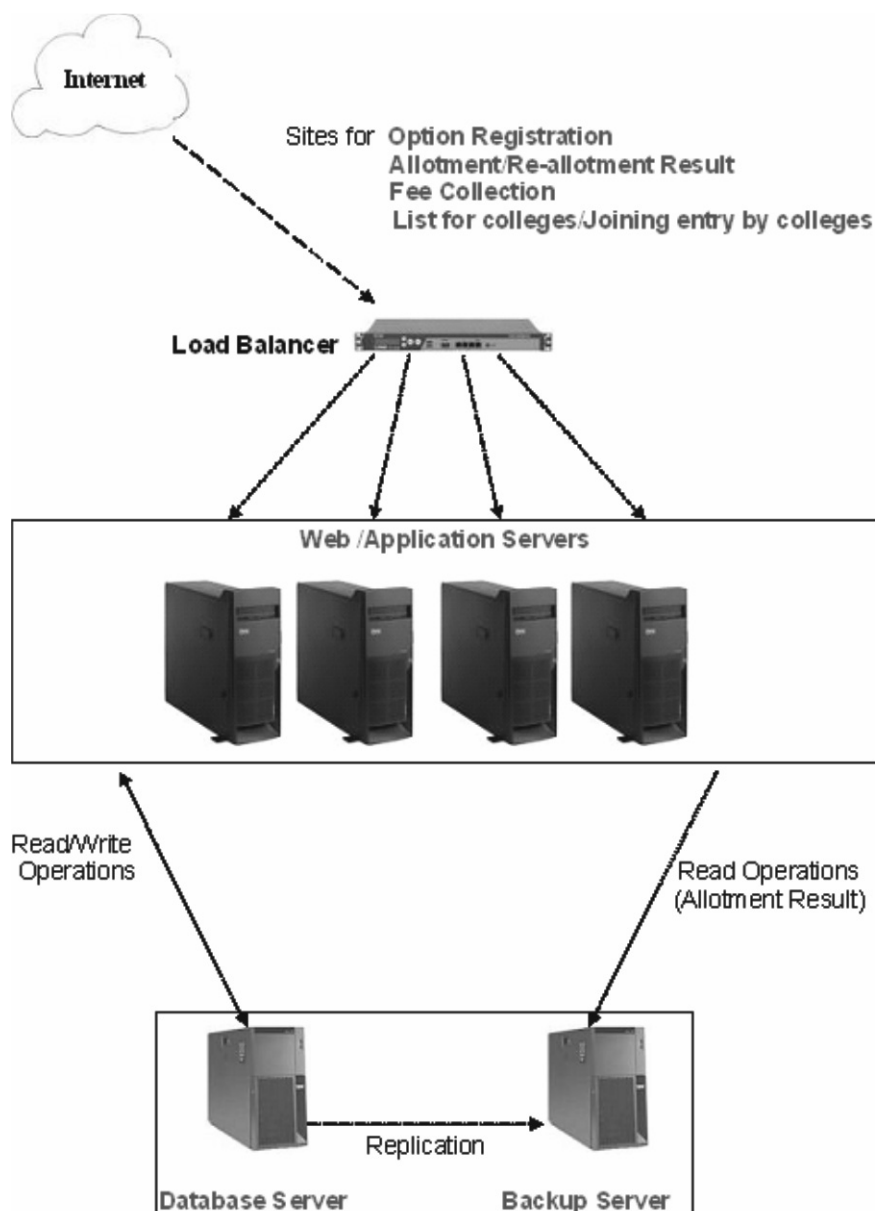
- To introduce a transparent system
- Avoid travel by parents and students to the counseling centre
- To reduce the allotment time schedule

Platform/Technology used in the project

CAPNIC is developed in Linux-Apache-MySQL-PHP (LAMP).

7. Architecture

Fig. 1



8. Milestones

Achieved milestones

- Approximately 1.5 lakh students and their anxious parents/ relatives benefited from the system
- Maximum number of seats were filled due to unrestricted number of options receiving from the candidates
- Minimum number of vacant seats
- Transparent allotment system implemented
- Trial allotments enabled the students to fine tune their option priority
- Centralized web-based application and the participation across the continents.
- 24 × 7 Service through the Web.

9. Project Management Structure

CAPNIC is a joint venture of CEE (Commissioner for Entrance Examinations), Higher Education Department and National Informatics Centre. Ownership is entrusted jointly with IT and Revenue Departments. CEE is the implementing agency. A Core Committee is formed for guiding, reviewing and assisting the project implementation.

10. Implementation

Strategy for pilot to roll out

The acceptance of the system by the public was tested in the pilot implementation in 2005 and 2006 and currently it is being implemented for the admissions in 2007.

Capacity building: Governance structure, Project management teams, Exit management team, Change management and training

- Awareness about the usage of the system to the public was provided through
- Print Media
- Visual Media
- Internet
- News Channel
- EDUSAT telecast to Higher Secondary Schools
- Help desks were made available in all the districts in selected colleges and CEE

11. Evaluation and Measurement

- Regular meetings conducted by Addl. Chief Secretary & Principal Secretary, Higher Education Department, Govt. of Kerala
- To improve the Server response, better infrastructure is in plan.
- Bandwidth of the internet connection is increased during the peak period.
- To improve the Server response, better infrastructure in the plan.
- Bandwidth of the internet connection is increased during the peak period.

Measurement

- News paper column reports, news paper editorials, visual media reports etc regarding the advantages of CAP
- Every student is giving his/her options from their house/Internet cafe.
- No more travels for the student/parents and no need of staying near to the counseling center.

12. Issues and their Solutions

Success factors

CEE

- The allotment and re-allotment could be completed in time.
- Easy settlement of the accounts with colleges and students

Government

- Policy changes could be incorporated easily.
- New colleges and courses could be included even after the allotment process started.
- Cost effective solution for the allotment process.
- Managing a counseling centre for 30+ days in the state capital
- Hiring big hall (to accommodate 500 candidates and their parents)
- Set up infrastructure like computers, projectors and deploying staff for the counseling

Students/Parents

- Save lot of time and cost in travel and stay.
- Quick information.
- Easy payments and refunds.
- Any number of options.
- Approximately Rs. 30 crores. (i.e. Average Rs 3,000/- for stay, Rs.3,000/- for traveling for student/parent of 50,000 students)

- Traveling to the counseling centre with their parents/guardian
- Staying for 2 days
- Difficulty to get accommodation in the city due to heavy demand for accommodation on these days
- 2–4 days to be reserved exclusively for the purpose

Bank

- Easy settlement of the accounts
- Banks get the benefits of transactions and easy payment of the fees and reunds

College

- Colleges get the online list of allotted candidates with photo
- Due to the transparency in the system the seats are easily filled
- Easy fees management at colleges

Failure factors (Risk)

- Convincing the users
- No proper infrastructure in plan at the time of implementation
- Frequently changing allotment rules
- Educating the students/parents for registering the options online

Replication in other states

The concept of CAPNIC has been taken up by many states. The CAPNIC application was demonstrated to the Higher Education Secretary, Director Technical Education and other team officials of Andhra Pradesh who visited Trivandrum for studying CAPNIC.

Road ahead

Based on the acceptance of the system by public, Government is decided to implementing the system for the admissions of

- Higher Secondary
- MCA
- LLB
- LLM
- B.Ed

13. Status and Results

Present status

CAPNIC has been successfully implemented for admissions in the year 255 and 2006. Now the system is being used for the Engineering/Medical counseling for 2007.

14. Specific Achievements during the Year 2006–07

As per the policy decision taken by the Government, the CAPNIC system has been extended to Higher Secondary admission (hsCAP). The hsCAP system has been successfully implemented in Trivandrum district as pilot for the year 2007.

Future plans for readers seeking more information on project

- Can be contacted over e-mail
- Please visit the site <http://cee.kerala.nic.in>.

System for Computerised Registration—SCORE

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ABSTRACT

With the intervention of —a noble ICT solution incorporating all instruments under Acts for property registration in Bihar, all hurdles in the way of development and implementation have been eradicated and 105 registry offices of the state have been SCORE enabled in the record time of three months with a cost effective Hardware on Hire Basis (HOHB) model yielding increase in state revenue, accrual of 1.5 crores of fund in BICRORE society within 9 months, creating ample job employment, healthy competition amongst the entrepreneurs. Also demonstrates the innovative use of state-of-the-art technologies like finger print biometrics devices, web camera, scanners, etc., excelled in performance sine last one year, completely adapted to the age old govt. working environment and effectively changed the 200 old system of manual property registration. The SCORE system is also exemplary in healthy result oriented public/private collaboration and entire scheme is self-sustainable and verifiable. Moreover, a unique innovative and first of its kind concept in Bihar was adopted by introducing the bank challan for deposit of stamp duties/registration fees/addl. Stamp duties by eliminating the binding of stamp papers only. The cash transaction is completely stopped. The SCORE system facilitates the Online Registration of deeds with following reforms in the business which has not only helped the Registration offices internally but sound in record keeping, search and copy, EC, but acted as an online instantaneous help desk for public in exactly evaluating their properties in terms of required stamp duty, registration fees and requisite enclosures. The monotonous jobs like maintaining so many registers for these documents have been taken care by the SCORE Back Office Computerization.

1. Introduction

Project conceptualization

The object of Registration Act is to provide not only a guarantee of the genuineness of the instrument, but also a record from which a person who

may desire to enter into dealings with respect to the property may be able to obtain information as to the title. Registration is mainly designed for the purpose of giving legitimacy to the deed. The most important thing about registration system is that it provides safeguard against fabrication of document of title from time to time and to check fraud and forgery.

The history of the system of registration in Bihar is as old as of presidency of Bengal. At present there are 111 registration offices located at different places of Bihar functioning under the Registration Department. Out of which 38 offices are at district headquarters headed by District Registrars and 73 offices at sub-district level headed by District Sub-Registrars/Sub-registrars, who discharge all the duties of the district Registrar except to hear appeal against his own orders. The administrative responsibilities of department are Registration Act, 1908, Indian Stamp Act, 1899, Societies Registration Act 1960, Partnership Act, 1932, Special Marriage Act, 1954, Birth, Death and Marriage Registration Act 1886, Bengal Mohammedan Marriage and Divorce Registration Act, 1876, Quazis Act, 1880, Parsi Marriage and Divorce Act, 1936, and Indian Christian Marriage Act, 1872.

Main functions of the department includes registration of all type of instruments, administration of the Duties related to Stamp and Stamp Duty including Court fees stamp, Registration of Societies and Partnership firms, etc.

The department earns the *second position* in Revenue Collection in the State. The sources for the revenue are Stamp duty, Registration Fees and Court Fees.

During current financial year 2005–06, Rs. 301.37 crores were collected during the first 6 months, which is more than 50% of the Annual Target of 600 crores.

The manual registration process had its own complications and time requirements. The deeds are generally written by deed writers in different offices, which take at least an hour to prepare it. With the introduction of duplicate system it would consume another one hour. Then the deed is presented before the concerned registering officer. Some clerk checks the Stamp duty and registration fee is revised by another. Then the document is placed again before the Registering Officer. The executants come and admit his execution. Then the document with serial no and deed no. is entered into different fee books and total collection is entered as receipt of the day in the cash book. Generally, the entire fee collected is deposited in the bank next day. Then the document is copied down in appropriate Register Books, indexed and returned to the parties after final endorsement.

The process at a glance seems very simple and effective. But in practice the system of manually copying of deeds in the registers has completely collapsed and utterly failed. All over Bihar there are about 20–25 lakhs of documents still to be copied. The backlog is about 7 to 8 years. An executant who presented his document in 1998 would probably get back in 2005–2008.

Some of the manually copied register books at district headquarters are as old as 100 to 150 years. The papers of the register books have lost their potency. The valuable records of public utility are decaying day by day. This may lead to innumerable litigations in future.

SCORE is an innovative ICT based complete solution for e-registration of properties in Bihar. The SCORE started on 5 September 2005 as pilot project at Patna Registry Office on the universal model of BOOT by ECIL, Hyderabad. Manual registration was completed stopped. Soon, an innovative cost effective implementation model of Hardware on Hire basis (HOHB) was suggested to the Registration Department, Government of Bihar by NIC for implementation of the SCORE. Accepting the perceived efficacy of HOHB model and low cost, simultaneously the Registry Office, Muzaffarpur where pressure of Deeds registry is around 300 per day at peak time is experimented with HOHB. Success was remarkable! Immediately, two more offices Hazipur and Danapur were made SCORE enabled.

After a series of brainstorming sessions with department, finally presentation was made at the level of Hon'ble CM, Bihar showing the factual comparative analysis for BOOT vis-à-vis HOHB. Benefits of HOHB was so dominant and pervasive that Hon'ble CM, Bihar within no time issued a direction that neither ECIL nor any other organization will be allowed to carry out SCORE in BOOT model rather it has to be done with HOHB model.

The decision in this regard was taken in mid March 2006. 14 vendors were identified for implementation of the project on HOHB through open tender. The average monthly rent for a unit comprising of 5 computers, Scanner, laser printer, switch, DMP, web camera, finger print scanner along with OS, Oracle RDBMS, D2K was come up around Rs. 15,000/-. The experiment on HOHB in three Registry Offices resulted that 60 Deeds per day can be easily registered and delivered to the concerned parties with one unit. Likewise, 60 to 140 deeds can be handled by two set of units and more than 150 three units are enough to sustain the load. In HOHB model Rs. 20/- per page was charged from parties to meet the monthly rent for hardware unit, genset and diesel, consumables and stationeries, etc., contrary to Rs. 30/- per page on BOOT model by ECIL.

In terms of these vendors, registry offices could get the human resources. Training programmes for Registrars/Joint Sub-registrars and staff were held. Each vendor identified one technical supervisor to whom NIC gave exhaustive training for replication of SCORE at their designated Registry offices.

Seeing the user satisfaction and augmentation in registry resulting remarkable revenue increase for the state Hon'ble Dy. CM, Bihar directed NIC to replicate SCORE at all 111 Registry/Sub-registry offices of Bihar by 30 August 2006. But, surprise to all, 105 Registry offices were SCORE enabled by the end of July 2006. It will be not an exaggeration that the HOHB model can only do this kind of miraculous project implementation, which was experimented and successfully executed in Bihar contrary to BOOT model executed in Karnataka, Maharashtra and few other states.

In order to sustain this concept of HOHB, BISCORE State level and District level societies were formed which keep track of funds generated by each office against services charge of Rs. 20/- per page. Again, revelation to all, within a span of 8 to 9 months time span BISCORE has record accumulation of Rs. 1.5 crore besides overall increase in number of deeds registry and revenue growth for the state. The deed registry has come up to 10,00,000 per year.

Strategy of Hardware on Hire Basis (HOHB) has proved its worth in healthy growth and development of state revenue. It motivated state entrepreneurs to contribute their share for the state growth, created a competition amongst them towards qualitative service, open up avenues for job employments.

In the entire process Registration Department has not incurred a single paisa. The software is exhaustive and contains all instruments, which are registered in Bihar or any other state of our country.

The enormous accumulation of funds in the BISCORE Societies can change infrastructure facilities and also the work culture of these offices and moreover govt. offices will be self-sustainable. Above all, it will be an **eye-opener** for the Government Sector as far as large-scale ICT public utility project implementations are concerned.

2. Project Vision, Stakeholders, Objectives and Services

The vision is to have exemplary e-Governance in the registry offices, complete automation processes with less paper use, to adopt the best practices, to provide the efficient G2C public services, and to have state-of-art record archival system at all registry offices of Bihar.

Study divulged the facts and issues that are most significant with the manual way of registration of deeds are assessment and valuation of the property, calculation of stamp duty and fees, recording of the property in the registers, search and copy, issue of encumbrance certificate, archival of records etc.

Hence, objectives were very touch and challenging:

- Complete stop of manual registration for all instruments
- Design, development of work-flow based ICT solution
- Rapid replication of software solution to all 111 Offices
- Quick delivery of original registered deeds to parties within 20 minutes of time.
- Extensive uses of state-of-art technologies like web camera, finger print scanners etc.
- Simplification, transparency, accountability to be achieved through Business Process Re-engineering (BPR)
- A software solution, which incorporates technologies along with auto-calculation of, stamp duties, additional stamp duties, registration fees and other miscellaneous fees depending upon the location, land type,

local body applicable, construction type, structure type criteria based on market value.

- Time targeted project completion
- Technical support to 111 offices and timely incorporation of amended rules in the software solution.
- Generation of Index I, Index II, Index III, Index IV, daily fee book, monthly fee book, Finger print registers, non encumbrance certificate, search and copy etc.
- Preservation of old records and current scanned documents. And so on.
- Statistical exception reports for DSS and EIS like highest five property registered at particular office, revenue earned for municipal corporation, head wise revenue accrued etc.

3. Stakeholders

The stakeholders are Registration Department, NIC Bihar State Centre and the entrepreneurs by public-private partnership through Hardware on Hire Basis (HOHB) model of project implementation.

4. Public Private Partnership (PPP)

HOHB (Hardware on Hire Basis) model has been devised for implementation of SCORE Ver. 2.0 for 111 registry offices in Bihar. The concept is that per unit 5 computers (One server, 4 clients) with laser printer, DMP, Digital camera, fingerprint scanner, OS, Oracle) will be supplied by the selected vendor. They will also provide one technical man at each registry offices for immediate services. One unit is meant for those offices where deed registration is within 50 ~ 60 deeds. Similarly, depending upon the deed the units will be multiple in the same ratio. Altogether, 11 vendors have been involved with the restriction that each vendor will be on job allotment for maximum at 10 offices. The average monthly rent has come up around Rs. 15,000/- per month per unit. From public per page @ Rs. 20/- is taken as service charge. For example, at Registry Office, Patna Sadar on 29th June 2007, revenue collection from 241 registered deeds was 1 crore 27 lakhs, similar is the cases with other offices. The number of units is three and monthly rent is Rs. 12000/-. Thus against income 1.27 crore per day and monthly rent for 3 units is Rs. 36,000/-. For, curiosity, for the entire month of June 2007 for above office the revenue collection was around 31 crore. Hence, registration department has not invested a single paise on this project but with small service charges through HOHB the project has been not only self-sustainable but day by day it is improving and becoming smooth.

5. Necessity/Needs

Manual way of registration was very tedious and time consuming

Deed writers in different offices, which take at least an hour to prepare it, generally write the deeds. With the introduction of duplicate system it would consume another one hour. Then the deed is presented before the concerned registering officer. Some clerk checks the Stamp duty and registration fee is revised by another. Then the document is placed again before the Registering Officer. The executants come and admit his execution. A receipt is granted to the present the executants put his LTI on LTI Register. Then the document with serial no and deed no. is entered into different fee books and total collection is entered as receipt of the day in the cash book. Generally, the entire proceed of fee collected is deposited in the bank next day. Then the document is copied down in appropriate Register Books, indexed and returned to the parties after final endorsement. The process at a glance seems very simple and effective. But in practice the system manually copying of deeds in the registers has completely collapsed and utterly failed. All over Bihar there are about 60–70 lakhs of documents still to be copied. The backlog is about 7 to 8 years. Executants who presented his document in 1994 would probably get back in 2000–2003.

Intentions of the Registration Department towards efficient Citizen Centric Public Services

The department proposed that entire working of the registration offices should be computerised. The prorated stamp duty, fee, valuation of this properly under transaction would be scrutinised within 5 minutes, which at present 4 hours. Similarly after all the formalities under the law, rules are completed. The whole contents of the deed would be scanned through hardware and a disc with the contents of the deeds shall be kept in a safe place as permanent records. Then the original deeds would be returned to the party the same day of presentation. The system also has to have a database of market value of all the plots/properties in the area in sufficient details. So that checking of the document as to the correctness of the valuation and stamp affixed, which is done manually at present, is done electronically to make it faster and remove subjective description.

Archival of old records of 100 to 150 years

Some of the manually copied register books at district headquarters are as old as 100 to 150 years. The paper of the register books has lost their temper. The valuable records of public utility are decaying day by day. This may lead to numberless litigations in future. Moreover, record room space is also an issue when records are increasing day by day.

The department desired that the old records copied in the register, which take up huge storage space and their permanency is doubtful, should be transferred into electronic/digital form and stored on hard disks/CD-ROM/USB based external hard disks. This will facilitate the record safety and durability. Record traceability will also be instantaneous. The department has the clear cut intentions to have a computerized system which will facilitate workflow based ICT Solution for complete automation of each and every registry offices of Bihar.

Complete back office computerization

As per the statutory procedures laid for registry of document each registry office has to maintain several registers such as book wise index registers Index I, Index II, Index III and Index IV, Photo and Fingerprints register, MVR registers for Land and Structure, daily fee book, monthly concise fee book, various other MIS reports and so on. The Registration Department had manpower crunch and due to that above routine works were not up-to-date and there was huge registered deed laying pending for maintenance in various registers. Seeing all these unending works being pending and somewhere public interest being hampered, there was ample reasons and scope for computerization of back office for better citizen centric services from registry offices.

To convert an office as old as presidency of Bengal i.e., 150 years old into a modern, hi-tech, and model offices

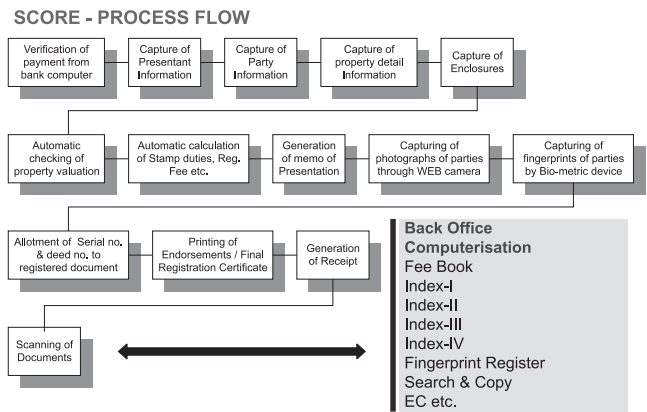
Registry Offices are the only office where activities are very systematic and logical, i.e., to say there is a chain of predecessors and successors. Above all, for one deed registration there are several workflow based activities like presentation of deed, admission of deed, witness details, photographing of parties, having fingerprint impressions of the parties and witness, confession of the parties before registrar at 'Ezlas', registration of Deed, recording the abstract of deed in various registers and finally delivery of deed to party. At all these steps there were human intervention in some form and as a result of which there was heavy dependency on manual processes. Hence, there was need to speed up the processes with active intervention of modern technologies like computers, laser printers, ups, digital camera, fingerprint biometric devices etc. which will drastically cut the time and facilitate quick and error free public services.

6. Project Plan

Technology architecture

SCORE (System for Computerised Registration) has been designed and developed by National Informatics Centre Bihar Centre—a premier IT

Fig. 1



organization under the Ministry of Communications and Information Technology, Govt. of India, with a sole objective to provide one-stop non-stop online registration of deeds blended with task accountability as well as process transparency. SCORE has been a user-friendly software package designed on the Windows-based clients/server technology. The database has been on ORACLE8i and the front-end application is on D2K with security feature like user-id, password along with roles and privileges.

In order to run a office of where load of deeds presented 50 to 60 in number, a **Unit** comprising of a P-IV Server with 512 RAM, 80 GB HDD with CD-Writer having Windows 2000 server OS, P-IV clients with 256 RAM, 40 to 80 GB HDD with CD-ROM having Windows 2000 professional, ORACLE 8i and D2K, Laser Printers, DMP, Hindi (TTF) Fonts, Digital Camera, Fingerprint scanner, Duplex Mode ADF Scanner are required. In the similar manner the units will get multiplied with multiplication of number of average deeds.

7. Milestones

Increase in revenue and adoption of new PPP model i.e. HOHB (Hardware on Hire Basis) is the significant achievement of the project.

8. Project Management Structure

Administrative and logistic supports were borne by BI-SCORE society for replication of SCORE in all Registry Offices. NIC project team is responsible for technical aspects of SCORE. Policy decisions with respect to addition of new features and modules and other category of registration deeds were generally taken by IG Registration, who happens to be Secretary of

the Department. Project coordination committee meets fortnightly and discusses various issues/aspects of the project implementation.

9. Implementation

Strategy for pilot to roll out

Pilot implementation of SCORE was carried out at the Patna Registry Office, Patna, with an objective to have direct supervision and control of IG Registration in dealing with the resistances of few stakeholders. As a lot of middlemen were involved in the registration process, a resistance was obvious and some time IG Registration has to be present on site and supervise the processes. There are instances of issue of a large numbers of showcase notices to various stakeholders for not cooperating during the pilot implementation phase. In a challenging environment SCORE was allowed to function, without the parallel run of the manual system.

After the smooth implementation at Patna, it was decided to implement SCORE at Registry Offices at Hajipur, Danapur and Muzaffarpur. Thereafter all District HQ registry offices were covered followed by other sub-registry Offices. These entire roll out took place within record time of 3 months.

10. Capacity Building

A number of operational trainings were imparted to Official and staff of all Registry Offices in phases prior to SCORE implementation.

Evaluation and measurement

Due to implementation of SCORE application, revenue due to Registration has been increased many fold for the government. At the same time BI-SCORE society has also earned a lot for managing various infrastructures of the Registry Offices and other other requirements.

11. Issues and their Solutions

The experimentation in Registration department, Govt. of Bihar has in terms of ICT based software solution and HOHB model of implementation has compelled many to change their mindsets for BOOT model, which is just a 'LOOT' model where all funds are transferred to the service provider. The graph depicted in Figure 7 above reveals the truth.

On the contrary to BOOT, the present model of HOHB is appropriate to context yielding localization of best practices at the farthest and remotest

area of ICT implementation where it can only be said the '*seeing is believing*' as there are registry offices where no power supply for 24 hours and even a complete year but SCORE system has enlightened the rays of hopes and prosperity by delivering the deeds electronically, timely and bug free to the maximum satisfaction of the public.

Above all, Software solution within the umbrella of HOHB model would be an *eye-opener* for the Government Sector as far as large-scale ICT public utility project implementations are concerned.

The SCORE system in Bihar has gone the tough time of rigorous testing and mind boggling innovative ideas and concepts and documentation like SRS, user manual and other documents have been proved as the 'Bible'—the ready reference for registers for SCORE system.

- Replication in other states
Not yet
- Road ahead
Looking into the benefits SCORE accrues to the public and the user department, is has been decided:
 - o To provide incumbency certificate on demand and any time
 - o To interface with land Records system for verifying the genuineness of any deed

12. Status and Results

Present status

Registration is mainly designed for the purpose of giving legitimacy to the deed. The history of the system of registration in Bihar is as old as of presidency of Bengal. At present there are 111 registration offices located at different places of Bihar functioning under the Registration Department. Out of which 38 offices are at district headquarters headed by District Sub-Registrars and 73 offices at sub-district Sub-registrars.

13. Specific Achievements during the Year 2006–07

All 111 Registry Offices of Bihar was SCORE enabled, i.e., replicated in a record time. There is a significant increase in collection of registry fees across the state. The BI-SCORE society has earned more than 1 crore into its kitty in this single year. For example, At Registry Office, Patna Sadar on 29 June 2007, revenue collection from 241 registered deeds was 1 crore 27 lakhs, a record collection in a day.

Revenue Administration through Computerized Energy (RACE) Billing, Bihar State Electricity Board (BSEB)

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ABSTRACT

Energy billing computerization of Bihar State Electricity Board (BSEB) is one of the early e-Governance projects of NIC in energy sector. The project was conceived when BSEB was in search of an appropriate application software solution, which can help in enhancing the revenue realization through effective data management.

In the manual system, the Board had hired five to six private agencies for preparing the bill showing the details of arrears and previous meter reading information only. The Meter Reader (MR) goes to the consumer's place, notes the current meter reading, then calculates the bill on the spot with the help of a ready-reckoner and hands it over to the consumer. The counterfoil part of the bill is filled up with the current meter reading by the Meter Reader and is provided to the private agency through the Division. With the help of counterfoil payment receipts provided by the collection counters, along with meter reading data and corrected full ledger, the private agency prepares the fresh full ledger and the bill for further spot billing. In this process the frequency of the Meter Reader visiting the consumer's place to deliver the spot bill and to take the current meter reading data takes place every two to three months. This indicates that the bill cycle of the consumer of the locality is 3–4 months depending on the speed of processing by the Agency. At the Division level, the books (group of Consumers belonging to a particular area) were distributed among the Bill Clerks to handle bill related activities/processes along with any grievances relating to billing.

After implementation of Revenue Administration through Computerized Energy (RACE) billing, the manual system has been completely stopped and every activity relating to billing data is automated. Bills for more than 3 lakh consumers are being generated on monthly basis at the divisions. With the introduction of barcoded bills and billing data on net, consumers can now see and download their bills and also pay in any of the collection counters. With new value additions in process, consumers can benefit from any-time payment shortly.

1. Project Conceptualization

Patna Electric Supply Undertaking (PESU) is one of the seven Area Boards of BSEB spanning the Patna Urban Area and catering to the energy requirements of more than 3 lakh consumers. There are 10 Electricity Divisions for bill preparations and 31 collection counters spread across the city. The entire billing process was manual and done with the help of a Private Agency till 2001. The bill collection process at the counters was also manual. There were long queues in the counters and the average time taken to complete the payment formalities for a consumer was more than 5 minutes. Bradma crunching machines were used at a few counters to provide acknowledgement receipts and manual receipts at other locations.

There were a large number of shortcomings in this process as:

- De-regulated and delayed bill cycle resulted in loss to the Board. Sorting of the bills route-wise for distribution in many cases took more than 2 days.
- Previous meter reading data on the sheet prompted many Meter Readers for intentional manipulation in calculating the current bill in collusion with the consumers.
- There was no verification of the full ledger prepared by the Agency at the Division level. In many cases the consumer ties up directly with the Agency to manipulate their arrear figures.
- In case of error in the bill prepared by the Agency, the consumer goes two or three times to the Division for correction in the bill. Handling consumer grievances and issue of duplicate bills, if required, was at the mercy of the Bill Clerks.
- Consolidation and collation of collection figure at Counter, Division and Board headquarters was very cumbersome.
- There was no control or ownership of consumer database on power consumption and payments at the Board level. Whenever top management required any report, the Division used to pass it on to the respective Agencies. As different agencies were involved for different Divisions, the report hardly got prepared on time.

In view of the above crisis, RACE implementation was initiated at Kankarbag division in 2001. Initially, in the absence of any working manual, it was very difficult to understand the system and proceed. Mr. Rajiv Amit, the then Asst. Engineer took personal interest in explaining the detailed processes involved in billing. He was also instrumental in testing various components of the system to check correctness of the billing. Thereafter it was replicated to other Divisions and all collection counters.

To carryout the project smoothly, manpower with adequate training was arranged internally. A separate IT department was made functional at the Board HQ to coordinate all IT related activities. All divisions were connected with RAF Network with the Board HQ for flow of timely information on revenue figure. All counters were connected with their Division with dial-up facility for data transfer.

In the second phase in 2007, all counters, Divisions and Board HQ were connected with SAN Server of NIC Bihar through broadband and the entire billing data was hosted on SAN. This facilitated online bills and anywhere payment with the objective for any-time payment in future.

2. Vision

To provide value added services to the consumers on demand thus making Board transparent, accountable and consumer friendly

3. Stakeholders

1. Bihar State Electricity Board (BSEB)
2. Patna Electric Supply Undertaking (PESU)
3. Dept. of Energy Govt. of Bihar
4. Different types of consumers of the Board
5. National Informatics Centre as Service Developer
6. Hardware supplier NICSI, a section 25 company under NIC

4. Objectives

To overcome the difficulties of the manual system and to make the service convenient for the customers, it was imperative for the Board to re-define the strategy for achieving the new objectives with the help of ICT technology.

- Accurate and timely energy bill preparation and its distribution by different divisions
- Tracking the habituated defaulters in bill payment thus enhancing the revenue collection.
- Building up appropriate Management Information System (MIS) for monitoring revenue collection in its totality, thus helping decision making
- Establishing modern web-based interface for greater transparency between the Board and its consumers. This will act as a grievance monitoring system, effective medium for distributing notifications regarding changes in tariffs, announcement of upcoming load-shedding schedules and an explanation for power failure (if any) in their area of residence, source for telephone numbers of local helpdesks for consumers across the city and future plans
- *Total interconnectivity for single-point monitoring of revenue collection. This will facilitate the convergence of data across the network at the Board HQ for the convenience of the Board Management for taking decision in real-time basis.*

5. Services

The following services are rendered by the Board by implementing RACE

- Generation of monthly energy bills for the consumers at the Division level
- Maintaining ledgers of each consumer at the division level
- Calculating arrears and dues and incorporating the same in the bill
- Generating notices to the consumers as and when required
- Generation of various statutory forms
- Collection of energy bill from the consumer at the collection counters and issue of receipt to them
- Preparations of daily collection report and summary reports at the counters
- Maintaining collection figures and related accounts at the counter
- Collation of collection figure at the counter and bank-wise segregation of collected cheques for deposit
- Reconciliation of dishonoured cheques

7. Project Plan

RACE has been implemented as an in-house model with funding from the Board for creation of required ICT infrastructure. A total of 3.14 cores was spent by the Board for creation of required ICT infrastructure for the project. Details of the ICT infrastructure includes setting up of computer centres at Board HQ, 10 billing divisions, 31 collection counters and two circles. Establishment of RF network in each billing division and inter-connecting them with Board HQ was also met from the same expenditure. The necessary manpower to manage the divisional computer centers and the Department of IT of the Board was organized by internal adjustments and trained accordingly. RACE software was developed free of cost by National Informatics Centre, Bihar. The implementation, rollout and maintenance of RACE have been carried out under the technical guidance/supervision of NIC RACE Project team. In the second phase, broadband connection between Divisions, Counters and Board HQ with SAN server of NIC Bihar was also met by the Board.

RACE application has been documented as per ISO requirement of NIC. It has also been subjected to Quality audit by Internal Quality Auditors of NIC.

The need for implementation of RACE can be understood from the following points

Irregular billing cycle: Bill preparation for about 3 lakh consumers in all 10 billing Divisions was in a mess. The private party looking after the job (using Bradma systems) was not able to cope with the changing requirements of the Board from time to time. Bill preparation and circulation to the consumers

was not in time and generally bills get served to the consumers at the last moment. The report of manipulations in consumer bills in collusion with some of the employees of Board was a serious matter.

Ineffective data management: In the absence of any effective data management on consumer billing, the Board was not in a position to monitor the defaulters. It was also not in a position to monitor the individual consumers with respect to their dues, payments and arrears. Calculating dues on Government users was a difficult task. Dues on correction and adjustments in the bills were not recorded and reflected properly; sometimes old records were also not available on demand.

Lack of Transparency in the billing system: Consumer grievances with respect to their bills could not be addressed properly. There were instances of unfavorable means and approaches in settling the bill of consumers. There were reports of manipulation of meter reading data and the bill amount by the Meter Reader while preparing the spot bill with the help of the ready reckoner. Manipulation was easy as previous meter reading data was made available to the Meter Reader when visiting consumer premises for spot billing. Secondly, in the manual process, the bill cycle of a consumer ranges from 2–4 months. This had eroded the credibility of the Board on the revenue front and harmed its image in the society.

Delayed Accounting: Getting up-to-date data on revenue collection for all the Divisions was a difficult task for the management. It used to take months to compile the figure correctly. Separating various heads of the collections like surcharge, fuel cost and energy duties was equally difficult. Urgent reports hardly got prepared in time.

Providing value added services at the collection counters: Handling consumers at the counter was a slow process due to manual activities. Fewer consumers could be served in a given period. Sometimes it was difficult to cope with the large number of consumers at peak periods, especially near the rebate period of each month. There were long queues at the counters and the average time taken to complete the payment formalities for a consumer was more than 5 minutes. Bradma crunching machines were used only at a few counters to provide acknowledgement receipts, while receipts were issued manually at other locations. This resulted in delayed services to the consumers.

8. Technology Architecture

- A new department, that is, the Department of Information Technology was created in the Board HQ and the required human resources were mobilized internally to support and take up the ongoing computerization from NIC.
- Kankarbag Division was the pilot division for the implementation of the RACE Software. As the collection counter was attached to the

division, bill generation and its receipt at the counter were tested effectively under the guidance of the user. Then it was implemented at New Capital Division and its counters before replicating at all other locations.

- During the implementation the manual as well as the computerized work ran parallel for a month and thereafter the manual methods were discontinued.
- After RACE was established in all locations, data transfer from Divisions to Board HQ was initiated with the help of established RF network and dial-up modem for the counter to send collection data to the Division and get bills from the Division.

RACE deploys two-tier Client-Server Architecture with Oracle at the backend and Developer at the front end. The server runs on WinNT whereas the clients use Window NT workstation/98.

9. Milestones

- The pilot run of RACE started in 2001 and by the end of the year all 10 Divisions and 31 collection counters were made RACE enabled.
- In July 2003, RACE was implemented at GPO Patna for collection of bills. At GPO bill collection was made possible at any of its customer service counters.
- In February 2004 another module was incorporated in RACE to take care of the cheques collected by the Meter Reader from the consumers.
- In July 2007 it was decided to facilitate the consumers to pay their bill at any one of the 31 collection counters as per their convenience. Bills with a barcode were generated and systems at the collection counters were equipped with barcode scanners. Consumers were given the option to download the bill from the net as per their convenience.

10. Project Management Structure

The pilot phase of project implementation was carried out with the help of hired technical manpower through NICSI. Thereafter the Board created a separate Department of IT and technical manpower was created from internal staff by imparting adequate training. Operational training to staff managing the RACE was imparted. Thereafter the IT department of the Board took over the implementation responsibilities and started coordinating with all Divisions and counters, facilitating smooth implementation of RACE. The Director, IT, became the Coordinating Officer between NIC and the Board.

11. Implementation

Kankarbag Division was selected as the pilot division for implementation of RACE Software. As the collection counters were attached to the division, various activities of the project got smoothly tested at this site. Here new systems and the manual system co-existed for a month. Then it was implemented at New Capital Division and its counters for a month. Minor changes were incorporated in RACE here. Thereafter it was replicated in the other 8 Divisions and its counters.

The IT department of the Board is acting as the coordinating department for RACE. Any change in the requirement of RACE is initiated by the IT department in consultation with NIC. NIC carries out impact analysis of the changes to be incorporated and thereafter initiates changes. Necessary changes in the project documents also get updated. Then it is tested both by NIC as well as Department of IT before implementing the same in the Divisions and counters. Required operation training is imparted to the operational staff.

As part of NIC QMS strategy, Feedback forms were distributed to officials in DIT and at different divisional offices with a request to provide their feedback on the performance of RACE and support from NIC. One set of feedback was collected in August 2004 providing an average 48% satisfaction index. Low level of satisfaction was in expected line due to inherent differences between DIT and the Divisions on different aspects of RACE implementation. Another round of feedback was collected in May 2005. This time the satisfaction index was 64%. Individual components in the feedback form were analyzed and the appropriate strategy was devised with an objective to get higher satisfaction level in the next survey. It was communicated to the Project Manager, that is, SIO.

A formal internal quality audit was carried out by the Project Leader (who happens to be Internal Quality Auditor of NIC and was a core member of NIC QMS documentation group) in July 2004. Many deviations from the practice standard were noticed in terms of non-conformities. This helped the project team in setting things in right. Another IQA was conducted in September 2005 and most of the things were found to be in order, except non-availability of formal test logs.

In addition to the above, whenever any change request comes from the user, after incorporating the same and testing by the user on site, NIC insists on an acceptance certificate. As per NIC QMS policy, implementation of any changes for 2 months assumed by default that the same is accepted by the user.

12. Issues and their Solutions

The learning gained throughout the RACE project have been enumerated below:

- As the user had set the target for implementation of the new system, there was not adequate time to carryout seminars, workshops, trainings and brain-storming for various stakeholders to sensitize them towards the new system. As the IT culture had not percolated to all levels in the Board, the Department of IT was hesitant to own up that the application lacked support and coordination inside the user organizational structure. This internal problem had a bearing on the progress of computerization.
- Before starting the project and in the absence of any documented working manual, proper planning could not be made with respect to system study, clear requirement of technical manpower and provision of contingency expenditure. This is a perennial problem particularly with Government departments as they have their own style of functioning and progressing.
- In the course of change in tariff there is no coordination between sections like Commercial and Finance wings with the Department of IT at the Board HQ which involves clarifications on various aspects of rate structure for timely incorporation of changes into software.
- In the absence of active support from the Top Management there is un-noticed/un-spoken resistance in the Board to the goals of the project.

After successful implementation of RACE at BSEB, Patna, it has attracted interest from many SEBs. RACE was successfully demonstrated and appreciated by Dakshin Haryana Bijli Vitran Ltd., Meerut-based Pashimanchal Vidyut Vitran Sansthan, Delhi Vidyut Board and Jharkhand State Electricity Board,

The energy billing has been prepared in an almost similar pattern all over India. Only organizational structures and bill tariff are likely to change. RACE has been successfully replicated/customized in the states of Tripura, Mizoram and UT of Dadra and Nagar Haveli, catering to the requirements of the respective consumers.

RACE has been successfully implemented in PESU Area Board (Headed by General Manager or Chief Engineer) of BSEB. There is a plan to replicate RACE in six other Area Boards to cover the entire state. The solution may be provided in web application and consumers facilitated by providing a payment gateway and bill SMS alert.

13. Status and Results

RACE has been implemented in all the 10 billing divisions and 31 collection counters of PESU in Patna. It is generating and collecting the bills for more than 3 lakh consumers on a monthly basis. All counters, divisions and Board HQ are now connected with SAN server of NIC Patna for facilitating anywhere bill payment as per the convenience of the consumer.

Specific achievements during the year 2006–07

The concept of anywhere payment of electricity bills has been introduced. To provide this value added service, RACE has been web-enabled and consumers can download their bills and also see the history of bill payments. Entire billing data has been placed in SAN server at NIC connected with the divisions, collection counters and Board HQ with the broadband connection to facilitate online payment from any of the designated counters.

There is value addition in the generation of bills too. Each of the bills has been barcode enabled. With the help of barcode scanners at the counters, the process of bill collection has to been made error-free and fast.

14. Future Plan

Talks are in the progress with banks to introduce a payment gateway interface with RACE for online payment of bills at any time and from anywhere along with SMS alert.

With the help of barcoded bills using ATP (All Time Payment) machines installed by Canara Bank, bills can also be paid by the consumer any time at these designated ATP centers. The Board is in the process of discussion with the implementing agency. that is, Canara bank.

Stamps and Registration Automation with Technology and Information (SARTHI)

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ABSTRACT

The successful implementation of Project Sarthi in the year 2003 was instrumental in reinforcing citizen's confidence in Government to serve citizens. The simple, effective, time bound and innovative project has proved to be the role model for similar e-Governance Projects in the State of Rajasthan. Project Sarthi depicts the commitment of the State Government towards providing prompt and quality service to the Citizens.

Subsequently, in the year 2004, Department of Information Technology (DIT), Ministry of Communications and Information Technology, Government of India, sanctioned the Registration project to Rajasthan State. The project was a part of the countrywide initiative aimed at spreading the benefits of e-Governance to all citizens. Under this project technical and financial assistance was provided for implementing the said project in one pilot district of Rajasthan State. 3i Infotech Limited was appointed as Consultants by DIT to provide consultancy and facilitate the state in the implementation of the said project.

1. Introduction

To continue with the 'Citizen Centric' approach, the Department of Information Technology and Communication (DIT & C), Registration and Stamps department and Finance Department planned to implement 'Anywhere Registration' project, wherein registration services can be provided irrespective of the jurisdiction of the Sub Registrar Office (SRO). Initially, the project was planned to be implemented across 11 Sub Registrar Offices in Jaipur District. The aim was to bring registration services closer to the citizens. The project was envisaged to create more values to the citizens by improvements in process, technology, people capacity and infrastructure.

With computerized registration system as the only official system for registration, one of the major tasks was to upgrade the application to facilitate 'Anywhere Registration' concept. The entire process was re-engineered with the active involvement of all the stakeholders in the project. Once

the concept and approach was finalized, the team of DIT and RajComp developed the new and improved software in J2EE framework and Oracle as backend. Necessary upgradation in hardware configuration was done as per the needs of the new software.

To facilitate the 'Online Service Delivery Concept' envisaged under the project, legal and procedural changes were suggested to Registration and Stamps Department. Further, all SROs under the pilot district were networked through dedicated lease lines. With an objective to increase 'Convenience' to the citizens, site infrastructure across all SROs in the Pilot District was relocated to the nearest *service consumption point* and suitably upgraded with the project cost. Citizen friendly utilities like sitout, water cooler, display of citizen's charter at a prominent place were prominent features of site upgradation.

The new and improved system revolves around software and hardware, and their maintenance, training, site infrastructure, consumables, manpower and self-sustenance of the system. To sustain the system in the long run, men (operators) and machines (hardware) are deployed on 'hire' basis. Continuous monetary support—being a critical component of the project—is ensured by suitable user charges for copying, scanning and inspection (csi).

As the project is getting implemented in the Pilot District, there is a positive change in citizens' perspective about this novice delivery concept. In this scenario, the biggest challenge is to sustain the system and to use it as a platform for launching more citizen-centric services. The State is committed to replicate the system across all Sub Registrar Offices within a short period of time.

2. Project Vision, Stakeholders, Objectives and Services

The vision of the project is overall economic development of the State supported by public– private Partnership to transform it into an ICT powered State with the help of the following:

- Good governance,
- Improved delivery of citizen services,
- Effective and efficient collection of state revenues and the use of the same for the development of the state and its people,
- Implementation of e-Governance as a tool to control and monitor various departments of the State,
- Creation of new jobs by bringing in new ICT industry,
- Implementation ICT as local economic booster,
- Co-ordinating political will and leadership of Chief Minister .

The program will provide citizens easy and secure access to Department services through the district, e-Governance infrastructure, from anywhere and in a manner that best suits the citizen.

The focus of the program is on bringing about a fine balance of the stakeholder requirements—between facilitation and control—as a blend of well-defined goals and performance metrics.

Adopting International best practices, the goals have been set to bring immense value to the stakeholders and have been succinctly articulated as under:

- Public to get easy access to relevant records, get their grievances redressed effectively, and get their property registered;
- Registration and Stamps Department to ensure proactive and effective compliance of relevant laws and corporate governance; Employees enabled to deliver best services

3. Objective of the Project

- To simplify the Registration procedures
- To reduce revenue leakage
- To provide Registration of documents in one single day
- To avoid undue delays in service delivery
- To provide user friendly, efficient and transparent system
- To provide honest valuation for the system
- To enhance the speed, reliability and consistency of the system
- To automate the back-office functions
- To create a system that enables setting quality and time standards for all registration services
- To smoothen the Citizen–Government Interface

4. Services

The citizen can go his nearest located Sub Registrar Office to get his property registered. The Web portal for citizens will be facilitating for most interactions. Downloading deed templates, instructions to fill up the deed, process of registration, methodology of registration, property evaluation, obtaining general information, lodging complaints and a slew of other services will all be facilitated by this portal anytime, anywhere. The digital signature technology will ensure security, confidentiality, integrity, non-repudiation and authenticity of transactions. This will be an added advantage to practicing professionals as they can ensure more effective service delivery to their clients by using such services directly from their offices. And all of these can be done just with a simple Internet connection.

5. Public–Private Partnership (PPP)–roles and responsibilities, audit, SLA, business model; If not PPP, funding process

The Pilot Project has been implemented with PPP option. In this model

- Man with machine (desktop clients, printers and scanners) has been hired from private partner.
- Database/Application Servers and networking equipment have been procured, installed and maintained by the department with the help of NICS and BSNL.
- The responsibility of the private partner is to maintain the IT infrastructure and operate the Sarthi application.

6. Project Plan

Requirements of process re-engineering and legal framework Technology Architecture

Table 1

Sl.	Particulars	Present Scenario	Future Scenario
1.	Registration	The citizens have to register the property and other deeds at the SROs under which the property lies.	The citizens would be able to register the property and other deeds at any of the SROs in the city of Jaipur.
2.	Site inspection	The site inspector is provided with information on site inspection from the SRO itself.	The site inspector would be informed about the properties to be inspected before property registration from the Central Record Room. And list will be generated at each SR office for site inspection of his jurisdiction.
3.	Storage of documents	There is no unique indexing mechanism for storage of registered deeds.	All the hard copies of the registered deeds would be stored at the Central Record Room through an indexing mechanism. The SROs would however for audit and inspection purpose maintain a printout of the registered deeds that fall under it's jurisdiction. Alternatively, by making suitable amendments in audit procedures, the original hard copies available at central record room could be accessed by auditors and inspectors. In other words, maintaining a hard copy at SROs can be eliminated.

Table 1 *(Continues...)*

Sl.	Particulars	Present Scenario	Future Scenario
4.	MIS reports	Presently no reports are sent to the Collector. ADM/DIG do not receive reports on registered deeds, impounded cases and revenue generated from each SRO on a regular and timely basis.	The central server will generate and submit SRO wise MIS reports on deeds registered, impounded cases and revenues collected on a daily basis to the ADM/DIG and Collector. Monthly and Annual reports would also be sent.

7. Milestones

- DIT and C has developed the application software for anywhere registration system
- In the pilot project 11 sub registrar offices have been covered which are connected to district database server located at collectorate Jaipur.
- All SRO in Pilot District was relocated to the nearest service consumption point and suitable upgraded with the project cost.
- Hardware and network equipments procured from NICS/BSNL and got the same installed at all the project sites.
- Deploy the application software and test the same.
- Final launch the application at all the locations and the new system has replaced the old system.

8. Project Management Structure

After successful implementation of the pilot project the department of Information Technology and Communication is maintaining the entire system

9. Implementation

Strategy for pilot to roll out

Capacity building: Governance structure, Project management teams, Exit management team, Change management and training

Infrastructure required for pilot project:

- Computer Hardware: The district database center located at collectorate is equipped with central database server, application server, desktops, printer, Router, lease line modems, UPS, etc.
- All the information regarding registration of the document like DLC rates, region, locality, etc., has been installed at district database server (11 SRO only)
- At Sub Registrar Office the local database server installed in which the information regarding that particular SRO is stored for registering a document.
- Each SRO is equipped with one local database server, desktop clients, Printers, scanner, Biometric device, web camera, router, lease line modem and switch.
- All the Sub Registrar Offices have been networked with 64Kbps lease circuit with central database server from BSNL.
- The entire project is managed by DIT/Rajcomp Govt. of Rajasthan.
- Multiple training sessions has been conducted for the departmental officials, operator and higher authorities

10. Evaluation and Measurement

Process Re-engineering

- Age old procedures and work culture
- Lack of transparency in valuation
- Errors in calculation of duties.
- Large degree of litigations and audit paras
- Heavy manual work in the back- office (Cash book, Index, Register, Minutes book, challan for cash deposit)
- Non-availability of MIS reports for higher management
- Delay in Service delivery system.
- Haphazard Record keeping and archiving of documents

11. Human Resource Development/Change Management

To restructure working of the department of registration and stamps for increasing revenue and decreasing revenue leakage and to provide seamless and friendly services to the public. The right to information and access as required and desired by the department by adopting SARTHI

- In-house system development
- Use LRC Computers in some offices
- Project has been implemented by hiring Man and machine
- Operational training to hired manpower and departmental personnel of ten days duration.

- Standard formats have been designed by department and available on internet for citizens to reduce the mediators

12. Sustainability

- Department is taking registration charges from the applicants in the form of csi fee.
- The same is being used for hiring the computers and other items required to run the project.
- Computer Software will facilitate handling, processing and interpretation in whatever desired format.
- Computer software developed as per user department and update time to time as per user department requirements.
- Improve the public faith in department image.
- Create an environment of no pending documents.
- Reduce revenue leakage.
- Accurate valuation of the property by objective valuation system.
- Correct calculation of stamps and registration duty.
- To access information to any one and from any where as desired/required by the department.
- Substantial reduction in paper work and shortening case processing cycle.

13. Status and Results

Present status

The Pilot Project has been launched on 8 March 2006. Based on the successful working of the pilot project Govt. of Rajasthan has embarked on statewide rollout of the anywhere registration concept for the same the state has approve the project on BOOT basis.

Grievance Management System through Call Centre

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ABSTRACT

Citizens of Delhi are submitting their grievances/complaints to the departments/agencies of the Government of NCT of Delhi by visiting the Department personally or by post, courier or Internet which are time-consuming processes. Moreover, the departments have their own Grievance Monitoring System to receive/register the grievances of the citizen. In absence of a centralized system, there is no mechanism in place to have consolidated figures on grievances received from the citizens through various modes by the departments/agencies. There is no escalation mechanism to bring unserved grievances to the notice of senior authorities after specified periods. Thus there is a need for Government to have an efficient system of grievance handling system in place of traditional Grievance Management System. The use of latest technology to monitor each and every grievance filed to increase citizen satisfaction with the Government in the field of management of grievances

Initiating a new beginning to the Citizen Centric Government, the Govt. of NCT of Delhi introduced a centralized Internet (web)-based Grievance Management System (GMS), which is functioning 24 hours and 7 days a week since 9 May 2007. A citizen can call the telephone number 155355 from any landline or mobile phone within the National Capital Region (NCR) and can register their grievance related to any Delhi Government Departments and Autonomous Bodies. The system issues a Grievance Unique Number (GUN) to the calling citizen for future reference and follow-up. The integrated Government call centre solution provides Citizens with more personalized service, faster problem resolution and easier access. The GMS provides citizens, a direct access to the Delhi Government. The GMS is a shared system for grievance handling for all Government departments and agencies thereby reducing redundancy, operational overheads and costs. It provides a centralized helpdesk for guidance/information to citizens on various services offered by the Government. It is a single access point having sufficient number of trained staff to reply to the citizens' queries received through telephonic calls on 24 × 7 basis. It provides one system through which we may get all grievances and action taken of various departments and agencies. Centralized monitoring of all grievances of various departments and agencies can be done effectively with proper escalation mechanism through a web based public grievance management system. Analysis of grievance and queries will provide long-term solutions to Government. It automates the complete process of

service delivery thereby increasing overall citizen satisfaction through quality of service. It generates a database to identify weakness of the Department/Agencies it provides long-term solution, and systemic policy improvement for the problems of citizens.

1. Introduction

The Government of NCT Delhi and autonomous bodies/agencies provide large number of services to citizens. Like any other Government, it is responsible for providing various kinds of infrastructure, issue licenses/certificates and implement Rule of Law. The implementation in the field is not always as prescribed in rulebooks, which leads to discontentment amongst people. The Government accordingly needs mechanism for getting response of citizens it serves. Existence of a good feed back mechanism is a must, not only to get feed back on what is happening in the field but also to identify weak points of governance, to take remedial measures whether systemic or procedural. The citizen today has higher expectations from the Government and they want the ability interact with the Government on what they want, when they want and how they want basis; the Government on the other hand has to achieve better citizen service delivery standards in a cost effective way. Since Governments are typically large and work in many fields it is not possible for common citizens to know everything about it, its services offered to citizens and how one can get the same. This brings out the need of an efficient information dissemination system in the Government. Thus, the Government should have a good system for information dissemination and an efficient system of grievance handling system.

Old system

Citizens of Delhi submit their grievance to the department by using one or more of the following methods.

- Letter/Representation
- Internet-based grievance redressal system, i.e., the website of the department
- Personal meeting with the officers

The problems with the traditional grievance handling system are given below:

- There is no mechanism in place to monitor disposal of grievances submitted on paper or as verbal representation.
- All departments are not covered under the Internet-based grievance redressal system of the Government.
- Even for departments covered by this system, sorting/allocation/follow-up of grievances to field level functionary is not possible.

- There is no escalation mechanism in the present system, which can bring un-serviced grievances to the notice of senior authorities after specified periods.
- There is no mechanism in place to collate grievances received, serviced or un-serviced.
- There is no mechanism, which can allow citizens to lodge grievances using landline telephone or cell phone.
- There is no mechanism in place to have consolidated figures on grievances received through various modes for performance analysis and identification of weak spots of governance.
- The present systems require actual travel by citizen, which is time consuming and expensive.

Initiatives taken so far

In absence of a centralized system for grievance handling, departments started setting up their own call centres to cater to the needs of people. All the departments have different telephone numbers public access and support. Six departments are running call centres with six different telephone numbers. Call centre of each department will not be advisable, as citizens can't be expected to remember all these numbers. The grievances received takes long time to get redressed and there is no escalation mechanism to ensure redressal of all grievances. By use of technology there is lot of scope for improvement in grievance redressal. The project envisages use of latest technology to monitor each and every grievance filed and thus increases citizen satisfaction with Government in the field of management of grievances and delivery of information to citizens on various services/schemes of the departments.

2. Objectives

- The GMS will provide citizens, a direct access to the Delhi Government. It will be a shared system for grievance handling for all Government departments and agencies thereby reducing redundancy, operational overheads and costs.
- Provide centralized help-desk for guidance/information to citizens on various services offered by the Government. Set up a single access point having sufficient number of trained staff to reply to the citizens' queries received through telephonic call.
- To provide one system through which we may get all grievances and action taken of various departments and agencies.
- Centralized monitoring of all grievances of various departments and agencies can be done effectively with proper escalation mechanism through a web based public grievance management system

- The Internet and IVRS being self-service medium will reduce the load on the Call Centre and also provide an opportunity, to Government in future to integrate, web enabled and automate the complete process of service delivery thereby increasing overall citizen satisfaction through quality of service.
- To enables online (web based) public grievance registration service to the citizen from the Call Centre as well as from employees of Government of Delhi
- Analysis of grievance and queries will provide long-term solutions to the problems of the citizens.
- Generate a database to identify weak spots of governance to provide long-term solution, and systemic policy improvement for the problems of citizens. To ensure that the Government is more accountable to the citizens.

3. Roles and Responsibilities

Responsibilities of Implementation Partner

1. Study of Government departments, collection of required material from all departments and agencies.
2. Design, Development, Testing, Implementation, Maintenance of Integrated, Web Based Citizen Relationship and Grievance Management System (CRGMS).
3. Deployment of CRGMS at Call Centre for which the company will have to arrange IT Infrastructure – PCs, Servers, Network Equipment, Operating Software, Firewalls and Security Software, Backup and Storage Devices and third party software, Operating System, Database and other required equipments with all requisite redundancy and disaster recovery arrangements for the uninterrupted, optimal running of the CRGMS. Government of NCT Delhi will not provide any equipment (including packaged software, if required) or manpower to manage the centre.
4. Provide System Administrator and User Training from time to time as per schedule agreed with DoIT, GNCTD.
5. Undertake training of the Call Centre agents from time to time as required for the smooth running of the Call Centre such that the agent has full knowledge about the functioning of the CRGMS.
6. Implementation at Call Centre using Voice, IVR, Internet, Email, WAP Enabled mobile phones, Fax and Paper Media.
7. Provide Call Centre Operations
8. Do all inbound communications with Citizens via various media.
9. Do all outbound communications via various media with Citizen - Revert to citizen via fax, email for detailed information queries received.

10. Do all outbound communications via various media with Department Officials as required.
11. Provide information for update of <http://delhionline.nic.in> and <http://delhigovt.nic.in> by DoIT.
12. Coordinate with Participating Department Monitoring Officers (PDMO) and Action Taking Staff.
13. Maintenance Support
14. Take up CRGMS upgradation work as and when required.

Responsibility of Department of IT (DoIT), Government of NCT Delhi

- The DoIT is supervising the project
- The DoIT is coordinating with all the departments/agencies on regular basis.
- The DoIT has formed a Project Management Team (PMT) for the smooth and speedy execution, management of CRGMS Project

Responsibility of the participating departments

The participation, adoption and support of the participating departments are a critical success factor of CRGMS Project. Enabling the department officers and other field staff appropriately to access and update CRGMS on a real-time basis for the particularly grievances addressed / serviced by them on a real-time basis.

SLA

Service Level Agreement (SLA) will govern the performance of PPP Partner for the Call Centre under two categories. a) CRGMS Design, Development, Testing, Implementation Services b) Call Centre Services. The Implementation Partner is penalized if they fail to meet any of the SLA parameters.

4. Stakeholders

This is a G2C, G2G and G2C application. The Stakeholders for CRGMS project are:

- Delhi Government departments/agencies
- Sparsh BPO services Ltd.

5. Business Model

- It is a PUBLIC PRIVATE PARTNERSHIP Model

- CRGMS Project is based on Public Private Partnership between Government of Delhi and Private Organisations.
- The PPP Partner will provide the IT infrastructure to run CRGMS on Build Own Operate (BOO) Basis. The PPP Partner will have to arrange required equipments and manpower to run the call centre uninterrupted with all requisite redundancy and disaster recovery arrangements. Government will not provide any equipment (including packaged software) or manpower to manage the centre.
- The ownership of software will remain with the Government.
- The ownership of content and all other data will also be with the DoIT, GoD.
- Service Level Agreement (SLA) will govern the performance of PPP Partner for the Call Centre.

6. Funding Process

The project is completely funded by the Government of NCT, Delhi. The project is on no profit basis. The PPP Partner will provide the IT infrastructure to run CRGMS on Build Own Operate (BOO) Basis. The PPP Partner will have to arrange required equipments and manpower to run the call centre uninterrupted with all requisite redundancy and disaster recovery arrangements. Government will not provide any equipment (including packaged software) or manpower to manage the centre. The expenses for making a call to call- centre is borne by the caller (citizen).

7. Needs

Citizens of Delhi are submitting their grievances/complaints to the departments/agencies of the Government of NCT of Delhi by visiting the Department personally or by post, courier or by Internet, which are time-consuming processes. Moreover, the departments have their own Grievance Monitoring System to receive/register the grievances of the citizen. In the absence of a centralized system, there is no mechanism in place to have consolidated figures on grievances received from the citizens through various modes by the departments/agencies. There is no escalation mechanism to bring un-serviced grievances to the notice of senior authorities after specified periods. Thus there is a need for Government to have an efficient system of grievance handling system in place of traditional Grievance Management System. The use of latest technology to monitor each and every grievance filed and to record less hopefully increases citizen satisfaction with the Government in the field of management of grievances.

Initiating a new beginning to the Citizen Centric Government, the Govt. of NCT of Delhi introduced a centralized web-based **Grievance**

Management System (GMS), which is functioning since 9th May 2007. The call centre works on 24×7 basis. The call centre in future also works as a helpdesk to the citizens of Delhi. Citizen can call 155355 from any landline, wireless or Mobile phone and can register their grievance related to any Delhi Government Department and Autonomous Bodies. The system issues a Grievance Unique Number (GUN) to the calling citizen for future reference and follow-ups. The integrated Government call centre solution provides citizens with more personalized service, faster problem resolution and easier access to knowledgeable help.

For people

- To inculcate knowledge of procedures/rules/regulations
- To make people aware of which office to approach and what the department/agency location is.
- To know the status of application/grievance filed and also get the action-taken report.
- To get status of work done by government agencies.

For government

- To get feedback on what is happening in field
- To have one system accessible to all, containing details on all grievances and action taken irrespective of channel of its receipt.
- To generate a database of queries and grievances of the citizens.
- Analysis of grievance and queries to provide long-term solutions to the problems of citizens.
- To identify weak points of governance, to take remedial measures whether systemic or procedural.
- To have a system to assess the performance of its officials.

8. Project Plan

Requirements of process re-engineering and legal framework Technology Architecture

The architecture used in CRGMS is two-tier. The Application and Data resides on the web server and Agents/Departments access it through the web browser (Client Application).

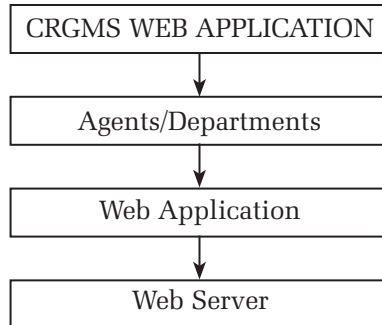
The following Technologies are used

Operating System: Windows Server 2000

Backend: SQL Server 2005

Fronend: Dot Net 2003 (ASP.NET, VB.NET and C#, Java Script and CSS

This Web Application is scalable in terms of Processes, threads, Memory Management, CPU Cycles, Database Connections and Network Connections.

Fig. 1

Allocation and re-use of the resources happens on per-resource basis. Caching of pages and paging of requests are the main technology used for better scalability. The Security standard adopted can be divided into following heads:

1. Authentication
2. Authorization
3. Encryption
4. Integrity

These are getting implemented by using technologies like HTTP Authentication, SSL/TLS, and Session State. We have also taken care of SQL Injection.

9. Project Management Structure

Project Management team has been formed with 13 members to decide policies related to Project and for smooth and speedy execution and management of CRGMS.

10. Implementation

Strategy for pilot to roll out

Study, Design and Development Phase is completed for Grievance Management as well as Information dissemination stage for all the departments. The project is broadly divided into 5 Phases:-

5. Study Phase
6. Design and Development Phase
7. Testing and Trial Run of
8. CRGMS Deployment/Implementation
9. Go Live

11. Capacity Building

Governance structure, project management teams, Exit management team, Change management and Training

Training/Change management

- Training is provided to the staff at all levels before they are put on the job
- Training of a cadre master trainers to train other operators
- Training is given to the existing staff, when a new module or changes takes place.
- PPP partner will provide necessary training to the staff
- Efficient change management policy is in place, and the changes are done with the consent of the Department.
- Change management with stakeholders is very critical to the success of the project, the implementation needed enormous efforts in change management. The stakeholders were slow to adapt to the change during the initial period and the leaped up once the users were comfortable with the new system.

Evaluation and measurement

1. For every Milestone expected date is defined. In case of any delay the same is calculated and Service Provider will be penalized based on agreed terms.
2. Every milestone achievement comprises of submission of deliverable. The service provider submit document, software code etc to Project management team which further review it and give its acceptance/rejection. In case of non-satisfactory performance the corrective action is taken while taking service provider into consensus.

12. Issues and their Solutions

Lessons learnt- critical success factors, failure factors

It was learnt that Grievance Management System (GMS) through call centre is most suitable to the citizen against the traditional GMS i.e. registering the Grievance through Postal/courier by visiting personally, since the citizen no need to visit and even holidays the citizen can register on 24 × 7 basis. Some times there is a communication gap between the citizen and the call agent, to avoid this type of problems necessary training has been provided to the call agent.

Replication in other states

Any Government can use this system with little modifications according to their needs.

13. Status and Results

Present status

Currently the first phase of the project has been implemented and is in enhancement stage. The second phase has been planned to be implement in end of December 2007.

14. Specific Achievements during the Year 2006–07

The Project was launched on 9th May 2007 and CRGMS statistics for the period 9 May 2007 to 31 August 2007 are given below. More than 84% grievances are redressed:

Total grievances registered: 10,083

Total grievances Redresses: 8542

Total grievances Pending: 1541

Future plans

The future plans for the GMS are given below:

- Paper based grievance registration.
- The call centre should be enabled to disseminate information using the following mediums
 - o Voice—telephone—landline/fixed wireless
 - o IVR—Interactive Voice Response
 - o Internet—<http://delhionline.nic.in> and <http://delhigovt.nic.in>
 - o Fax—in case of detailed information the caller gives a Fax number to which the information is faxed.

e-Mitra

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ABSTRACT

e-Mitra, is an ambitious e-Governance initiative of Government of Rajasthan which is being implemented in all 32 Districts of the state using Public-Private Partnership (PPP) model for the convenience and transparency to the citizen to deliver the services almost at their door steps. It aims to use an e-platform to provide all Government information and services to rural and urban masses under one roof through centres and kiosks on a PPP model. The scope of services that can be provided through e-Mitra centres/kiosks is not limited to State Government domain but it may also include services of Central Government departments and also private sector organizations like LIC, BSNL, ICICI Prudential, Mobile phone service providers, Internet Café and many more. In private domain, it will provide services like cable TV, insurance, ticket booking, gram haat, tele-medicine, tele-education, Internet access, etc.

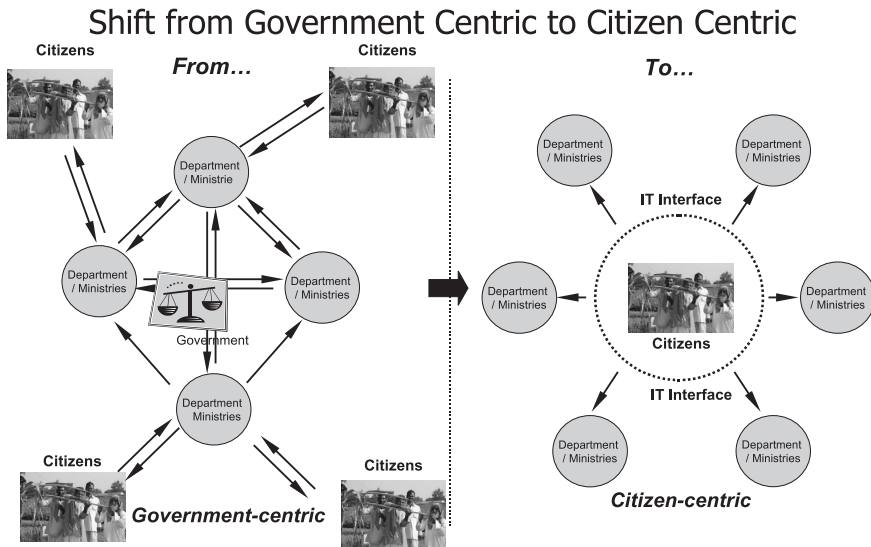
1. Introduction and Background

Project vision and objective

A vision for Rajasthan defines that the State leverages information technology to attain a position of leadership and excellence in the information age and transforms itself into a knowledge society. The idea has been to use information technology to improve the quality of life of its residents and help them achieve higher incomes and employment. It also seeks to accelerate e-Governance at all levels of Government to improve the efficiency, transparency and accountability at the Government- citizen interface.

The vision of the State Government has been manifested through a series of well delineated steps beginning with launching a comprehensive IT Policy in the year 2000. The objectives of this policy were to:

Fig. 1



- promote Rajasthan as a preferred location for IT and ITeS industry,
- strengthen IT and telecom infrastructure,
- build core competencies in HRD,
- promote e-Governance

The objective of e-Mitra is to provide wide range of citizen friendly Services of different departments under one roof so that the citizens do not have to run around various departments. Its aim is to deploy information technology (IT) for the benefit of the masses.

1. Introduction

There are two major components of the **e-Mitra project**. One is Back Office processing and the other is Service Counters.

Back office

- Includes computerization of participating departments and establishing an I.T. enabled hub in form of mini data centre at district level.
- The district level data centre (e-Mitra data centre) will be the platform on which customized software will run to ensure service access for citizen.
- The e-Mitra data centre will be managed by a Facility Management Service Provider (FMS) on behalf of the district e Governance Society (under the chairman ship of district collector).

- All the participating departments and service counters will hook on to e-Mitra data centre to make the system work.
- Financial resources for the purpose will have to be provided by government.

Service counters

- The counters to be set up in rural area will be known as JanMitra kiosks and in the urban area LokMitra Centres.
- Citizen will get registered on the counter.
- Citizen will be able to avail of services related to multiple departments/organizations at the same counter.
- Right from deposition of application to financial transaction to final deliverable collection, every activity will take place at these counters. Only for the cases where there is some statutory requirement of personal verification, will the citizen be required to go to the concerned government functionary.
- As many activities as possible out of complete cycle will be I.T. enabled but where ever there are legal limitations, the activities will be carried out manually. The main objective is to prevent common man from harassment of running to multiple points in the government offices for getting his work done.
- To make this contact point efficient, either the interface will be through web or counters, which are managed by private partners (Local Service Providers).
- The service delivery will be on charge basis so as to make the system self-sustaining. For services that any government department/organization wants to avail of, like bill/taxes collection and awareness generation, the payment of service charges will be made by the concerned department. While in case of services which are rendered on citizen's demand, e.g., Caste Certificate, Death/Birth Certificate etc. the payment will be made by the citizen himself.

Besides the State Government domain services, LSP is encouraged to introduce additional citizen centric, Government-to-Citizen services and private sector services, for example:

- Central Government Services, e.g., services of Regional Passport Office
- Private sector services, e.g., sale of insurance services, loans, ATM services, mobile bill payment, credit cards and drop boxes
- STD/ISD
- Photocopy, fax and courier services
- Internet café
- Hospitality Services, e.g., coffee/tea/cold drinks counter, sale of movie tickets

LSP can offer any number of services via the counter and kiosk except those services which are prohibited by Government. Given below is an indicative

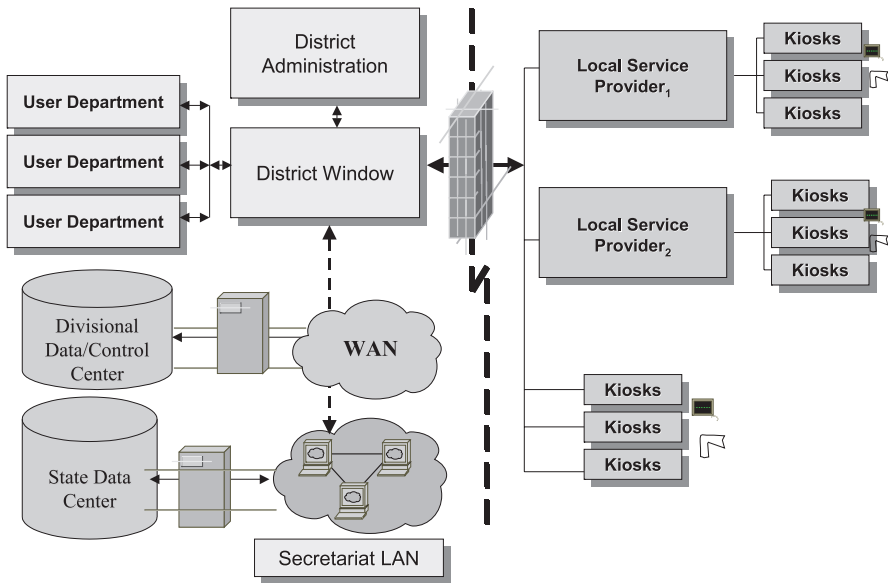
list of prohibited services:

- Sale of lottery tickets
- Gambling
- Any other services banned or restricted by GoR or Government of India or which is against the provisions of the law of the land.

2. Project Plan

The State's e-Governance framework developed by the government is represented as below:

Fig. 2



The e-Mitra project is an integral part of this framework. In the picture above, the left hand side depicts the integrated ICT infrastructure created and owned by the State Government. This will include state level and district level data centres interconnected with Secretariat Network and enterprise networks of various departments (District Collectorates, agriculture, registration and stamps , and transport departments.) over a statewide WAN. This is going to be the integrated IT enabled back office of the State Government.

The right hand side of the picture denotes the e-enabled service delivery channels of the e-Mitra model. Citizens are going to interface with the State Government through these access points. These e-Mitra front offices are going to be owned and operated by private partners on a sustainable revenue model.

Stakeholders

Given below is the description of various stakeholders in the aforesaid e-Governance framework.

Table 1

Sl.	Role player	Relationship
1.	District e-Mitra Society	– Main owner and driver of e-Mitra project in a district – Appointing authority of LSP – Will sign the SLA with the LSP – Will coordinate and monitor the functioning of LSP – Will be the owner of e-Mitra's main bank account. LSP will deposit all cash/cheques collected from citizens in this account. Society will thereafter forward the amount due to the concerned department. – Can inspect LSP's centres and authorized kiosks – Will issue guidelines for publicity material, uniform of LSP's counter personnel, etc. – Will vet all MIS reports generated by the LSP
2.	District administration	– District Collector will be the chairperson of e-Mitra Society – Will identify and provide space for LokMitra Centres in Government owned premises – Will allow and finalize conditions in case LSP wants to open LokMitra Centre at any place other than Government building – Will address all issues related to grievance redressal
3.	Participating departments	– Will provide base information in the form of printed manual data and in electronic format like master files, forms, procedures, etc. – LSP has to reconcile accounts with the participating departments – LSP will send the applications and related documents to the concerned participating department and follow up for any action required
4.	Department of IT and C	– Will ensure timely disposal of cases referred – Main trustee of the e-Mitra project – Developer of the e-Mitra application software including database structures – In case of any modification/enhancement

Table 1 (Continues...

Sl.	Role player	Relationship
5.	e-Mitra Data Centre	required in e-Mitra application software, LSP will request e-Mitra Society which in turn will forward the same to DoIT and C. – Main hub for recording of all electronic transactions – LSP's centres and authorized kiosks will hook on to the e-Mitra Data Centre through appropriate medium for all transactions, data transmission, generation of MIS – All logins, passwords, authorizations for LSP and for its authorized counters will be maintained at e-Mitra Data Centres. – e-Mitra Data Centre will be under the control of district collector and will be governed by the policies laid out by DoITandC.
6.	Counters (LokMitra Centres/JanMitra kiosks)	– Owned or authorized by LSP – Will be set up by LSP or local entrepreneurs selected and authorized by the LSP – LSP will be accountable for working of its authorized counters in terms of SLA, security of financial transactions, document receipt and transmission, etc.

3. Implementation Plan

With a view to deploy IT for the benefit of citizens of the State, the State Government of Rajasthan had launched two ambitious e-Governance projects in the year 2002, namely **LokMitra** and **JanMitra**. The pilot LokMitra centrecentres were established at Jaipur and catered to the needs of the urban populace. The JanMitra project was piloted at Jhalawar and catered to the needs of the rural populace. These projects have provided an integrated e-platform through which urban and rural population of Rajasthan can get desired information and avail services related to various government departments under a single roof. The LokMitra-JanMitra operational model is a participative project having various stakeholders like District Administration, State Government Departments, NGOs, public sector organizations like BSNL, financial institutions and private entrepreneurs, etc.

The success of these initial pilots has now led the government to enhance and expand the scope of these projects, both in terms of geographical reach and number of services. This vision has given birth to the **e-Mitra Project**. The e-Mitra framework is based on integration of LokMitra and JanMitra

models in to a unified platform aimed at bringing Government closer to citizens in a '**multi-service**' - '**single-window**' mode.

LokMitra and JanMitra projects were launched to bring together all the departments under one single umbrella and give citizens of the State a '**multi-service**' - '**single-window**' experience. The key objectives were to:

- Provide for hassle free one-stop solution to the citizen
- Minimize multiple interaction points for the citizen and hence reduce the wastage of valuable time
- Provide for better turn around time in receipt, processing and issue of services
- Provide efficient and transparent contact point through private partnership.
- Increase access to Government services by providing Government at doorstep.
- Implementation of 'Right to Information' in right earnest.

LokMitra-JanMitra projects have significantly contributed to improved overall productivity of citizen because of the facility of anytime, anywhere services and information.

Legal set-up-general (Applicable to both urban and rural areas)

- LSP will set up registration Counters for registration of citizens where the process of registration gives a unique identity to a citizen. LSP shall also recruit necessary skilled and experienced manpower at its own cost in such numbers as may be necessary.
- LSP will pay all operational expenses like electricity and water bills and any other levies dues for the electricity consumed by it at the Centres and at its authorized kiosks.
- LSP will open at least one Central Back Office where all cash/cheques and other documents may be collected from its different counters. In case of rural areas this may be done at Tehsil level where day-end sorting and dispatching of forms/documents/material to the respective departments will be done.
- e-Mitra Society would have right to inspect and audit LSP's LokMitra Centre or any of its authorized kiosk.
- LSP could add private domain services other than government domain services to e-Mitra service basket for the sustainability of the model in conformity with law of the land and in conformity with guidelines issued by District Administration from time to time. LSP or its authorized Kiosk owner would be accountable for rendering these services..
- LSP shall not allow Government's data to be misused or abused by its personnel, and will protect it from being misused or copied by any of its employees. LSP will indemnify e-Mitra Society from any claim or suit for damages that may be filed against it for breach of privacy laws by LSP's employees or authorized personnel.

- LSP/Kiosk owner would maintain a hard copy record of all the transactions at his end for proper verification in case of misplacements and other mishaps.
- LSP will get the signatures of the authorized kiosk owners and its other functionaries authenticated with the e-Mitra Society. Copies of the signatures will be stored electronically in the e-Mitra database.

Legal set-up-applicable for urban areas (LokMitra Centres)

- The personnel deployed by LSP for duty in Centres will wear distinctive uniform and photo ID cards duly signed by the competent authority of the e-Mitra Society and as provided by the LSP.
- LSP will put up signage on Counters for guidance of visitors and the helpdesk shall deal with all the visitors in a polite manner and guide them appropriately.
- LSP will keep a complaint and suggestions book at a prominent place inside the LokMitra Centre to enable the members of the public to make complaints and suggestions in writing. This book will be sent to the Nodal Officer of e-Mitra Society every week for his perusal and such action as may be considered necessary.
- Wherever and whenever required, LSP shall provide suitable space and facilities at LokMitra Centres/kiosks for government functionaries.

Applicable for kiosks

- LSP would assist individual entrepreneurs in obtaining loan facility from the suitable agency for setting up Kiosks and would help Kiosk owner in procuring and installing required computer hardware and communication equipments. LSP would assist kiosk owner in training on e-Mitra application software.
- LSP would provide necessary connectivity in rural area for e-Mitra Kiosks to connect to e-Mitra data centre. It will also make fallback alternative connectivity arrangements between e-Mitra data centre and Centres so that minimal disruption is faced if the original link is down due to some technical problem. LSP would also arrange for standby H/W for the kiosk owner in case of hardware failure.
- LSP would arrange and help Kiosk owner in getting the telephone connectivity for e-Mitra Kiosks

Financial set-up

- In case of collection of payments of utility bills and other government levies, LSP will not charge the citizens any additional fee but will get the pre-decided service charges/transaction fees reimbursed from the department/organization concerned through e-Mitra Society.
- In case of all other services, the LSP would charge the pre-decided transaction fees from the citizen as decided by e-Mitra Society.

- LSP shall deposit, at the end of the working hours, money collected by its personnel at the Counters of Centres and kiosks with the e-Mitra bank account with details of payments collected. It shall retain its share of transaction fee and deposit the remaining amount with the bank. In respect of money collected through cheques, demand drafts and credit cards/debit cards or such electronic payments that might include transaction fee, e-Mitra Society will open an escrow account with its designated bank from where the amount collected as transaction fee will be credited to the LSP's account within 24 hours.
- LSP will carry out reconciliation of all financial transactions carried out by its centres and kiosks with e-Mitra Society and designated banks on weekly (or as may be required) basis.

Business modeling

The LSP will be able to charge for services rendered through counters as per following schedule:

Table 2

Type of service	Amount	From
Utility bill payments and Government levies	Rs. 3.95	Concerned department
Grievances	Rs. 5.00	Citizen
Applications processing (caste certificate, birth and death certificate, land records, etc.)	Rs. 10.00	Citizen

4. Issues and their Solutions

Online accessibility of stored information from remote locations to government officials to serve any citizen from a government office located in any part of the state.

LokMitra–JanMitra significantly contributes to improved overall productivity of the government officials as it ensures faster interaction instead of moving paper files and letters.

The information base of e-Governance integrated for the purpose of LokMitra–JanMitra helps planners and decision makers to perform extensive analysis of stored data to provide answers to the queries of the administrative cadre. This facilitates taking well-informed policy decisions for citizen facilitation and accessing their impact over the intended section of the population. This in turn helps them to formulate more effective strategies and policies for citizen facilitation.

LokMitra–JanMitra models use the integrated information approach for keeping all information at one place in electronic form.

To summarize, the issues and their solution may be depicted as below.

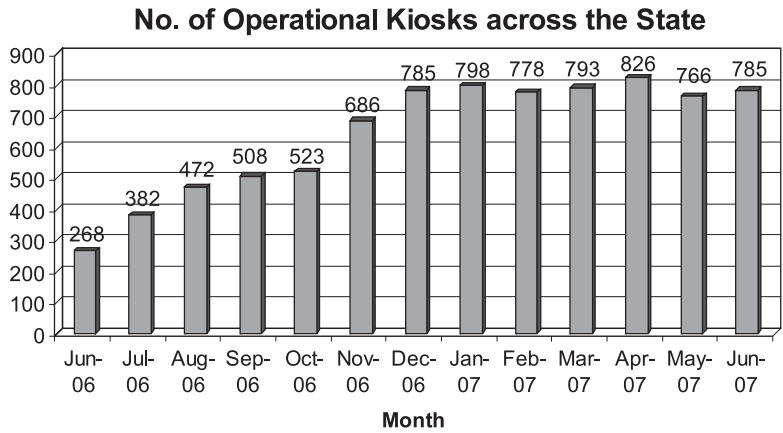
Table 3

Citizen/Business View	Government's View
Speedy service	Efficiency
Fair trial/audit-ability	Transparency
Accessibility/Spread/Regional language	Equity/Social justice/Inclusion
Affordability, value proposition	Cost effectiveness
User-friendliness, self-service	Simplicity
Interactivity	Responsiveness
Consultations, democratic	Participative
Trust	Security
Expect-ability	Consistency
Convenience, cost and time saving, citizen centric	Integration/Collaboration

5. Current Status

Till date the Project has been implemented in al the 32 districts and 800 kiosks are operational across the State. The graphical representation of the progress of the project is as under .

Fig. 3



The Government has already taken necessary steps to roll out CSC project in Rajasthan as an extension of e-Mitra project to increase the reach of e-Mitra at village level. NeGP and MMP of the department are also making route to e-Mitra services basket. e-Mitra is also considered as attractive option by various private partner for enjoying the benefit of ever increasing footfall in e-Mitra Centres.

Fig. 4

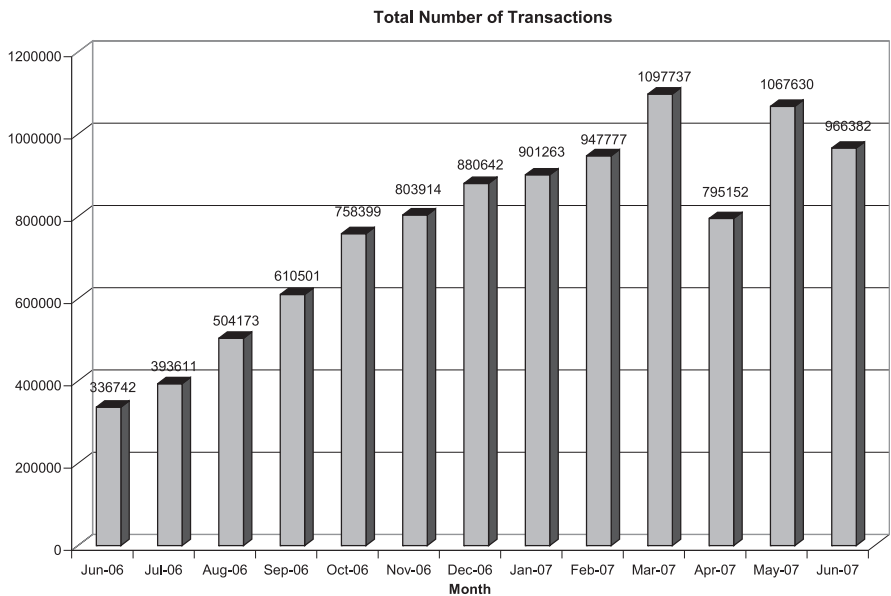
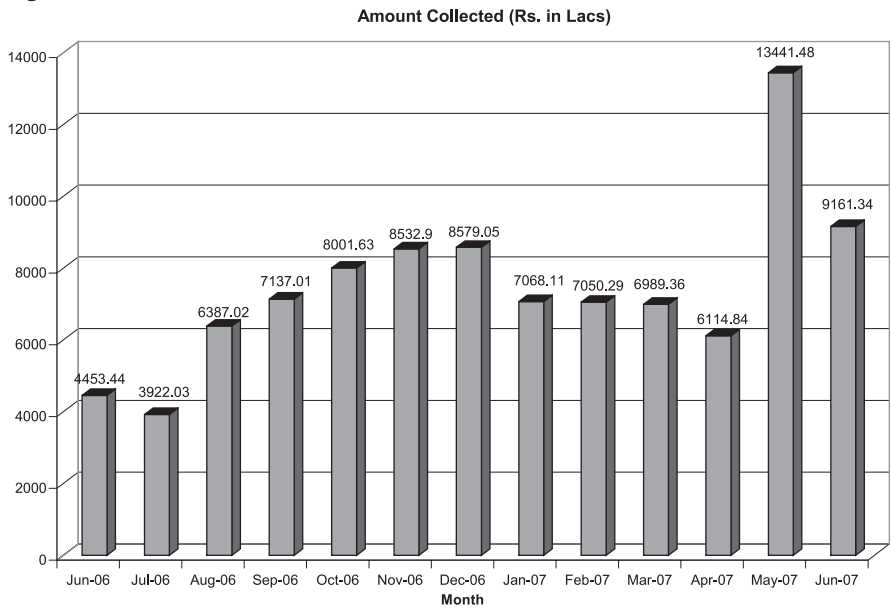


Fig. 5



Health Management Information System—HMIS*

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ABSTRACT

The Government of Gujarat has identified quality health services and the efficiency of Government managed hospitals as key contributors for building trust and confidence for the general hospitals in the hearts of the citizen of the state. In order to be able to take prompt decisions at appropriate times required a holistic view of the functioning of all district level hospitals at the state head quarter level which mandated integrated information system deployment across the hospital processes.

The Health Management Information System (HMIS) has been envisaged to not only help the administrators to have better monitoring and control of the functioning of hospitals across the state using decision support indicators but also assist the doctors and medical staff to improve health services with readily reference patient data, work flow enabled less-paper process and parameterized alarms and triggers during patient treatment cycle.

HMIS enables monitoring pre-defined health indicators and the embedded exception reporting facilitates decision making by the hospital management and state level administrators for policy and strategic decisions. HMIS has enabled providing better care to patients by automating all the major functional areas of the hospitals and the entire gamut of hospital activities.

HMIS has gone live in 12 out of the 30 Government hospitals in the state and target is to go live in all the 30 hospitals by March 2008.

1. Introduction

Project conceptualization

HMIS project was conceptualized by the department of health and family welfare to ensure the quality health care by IT application in such a manner so as to provide standard clinical and diagnostic protocols, hospital management tools and integration of management information at the state level so as to ensure online review and monitoring.

* CSI Nihilent e-Governance Awards 2006–07, Department – Joint Winner.

This is aimed at management of vital patient records, analysis of the critical health related data so as to provide an updated planning and policy tool towards provision of quality health services.

2. Project Vision, Stakeholders, Objectives and Services

Vision

Access to quality health care services for all

- by providing improved patient care
- through effective clinical and administrative processes
- with the help of Information Communication Technology.

Stakeholders

- Citizens (patients and their relatives)
- Government hospitals
- Commissionerate of Health, Medical Services, Medical Education and Research
- Health and Family Welfare and Medical Education Dept., Medical GoG.
- Science and Technology department, GoG - GSWAN.
- Total solution provider (Tata Consultancy Services Ltd.)

Objectives

- To provide access to quality health care.
- To create electronic medical records.
- To improve clinical and diagnostic services.
- To provide early alerts on disease trends and cause of deaths as per International codes for disease surveillance and rapid action.
- To get integrated state-level holistic view of the resource utilization.
- To monitor identified indicators and to get comparison of efficiency and performance among hospitals.
- To provide evidence based effective and responsive hospital management.
- To provide tools for effective health policy making and planning.

Services

The various services provided through HMIS are as given below.

Patient care services

- Registration
- Wards

- Pharmacy
- Billing
- Patient education
- Information kiosk
- Nursing care

Clinical services

- Clinical/EMR (gynecology, ophthalmic, orthopedic, ENT, gastro medicine, general medicine, nephrology, pediatric, surgery, urology, skin, etc.)
- Laboratory (pathology, microbiology, biochemistry, radiology)
- Blood bank
- Imaging

Hospital administration

- Hospital administration
- Human resource
- Payroll
- Financial accounting
- Stores/Inventory
- Purchase
- Complaints and redresses
- Transportation
- MIS Reports
- EIS Reports

Ancillary services

- National programs
- Linen management
- Equipment maintenance
- Resource scheduling
- Special camp and training
- Biomedical waste
- Application security

3. Public Private Partnership (PPP)

HMIS project is not implemented on PPP model. The entire project has been funded by the State Government.

4. Necessity/Needs

HMIS project was necessitated for the following reasons.

- Difficulty in integration of patient records and hospital activities affected quality of health care services adversely,
- Difficulty in getting real time information regarding the outbreak of epidemics,
- Need for an integrated tool for timely monitoring of services,
- Lack of timely information resulting in inefficient utilization of resource.
- Adoption of quality standards for processes such as NABH, NABL and ICD 10 for diseases, death causes, etc.
- Necessity for effective tool for health policy making.

5. Project Plan

Requirements of process re-engineering and Legal framework

- Process of registration re-engineered so as to form the basis for e-database, workflow and work list.
- Templatized Clinical treatment protocols.
- Diagnostic process simplified through single sample collection.
- Administrative formats are standardized to cut down on repetitive work which resulted in saving of time for administrative staff, doctors and nurses.
- Online stock management: procurement and issue of medicines, consumables, other house keeping materials is re-engineered so as to identify the fast moving items.
- Convergence of standardized Biomedical Waste Management, death causes, NABL, NABH compliance and Codification of Diseases (ICD) with HMIS.
- Provision of number of financial, technical, managerial and policy tools to help take right decisions at right time.
- Integrated management of inpatient through linking surgeries, nursing care, ward management, laboratory, radiology and blood bank.
- HRD management through allocation of work list, workflow resulted in to optimum resource utilization through tracking breakdown and maintenance of equipments and effective usage of ambulance services.

Technology architecture

HMIS has been developed on .NET technology with SQL Server 2005 as backend. The technology architecture for HMIS project is as follows:

Tier 1 (Presentation logic): Includes simple controls and user input validation

Tier 2 (Application server): Includes business processes logic and the data access

Tier 3 (Data server): Provides business data

6. Milestones

Fig. 1

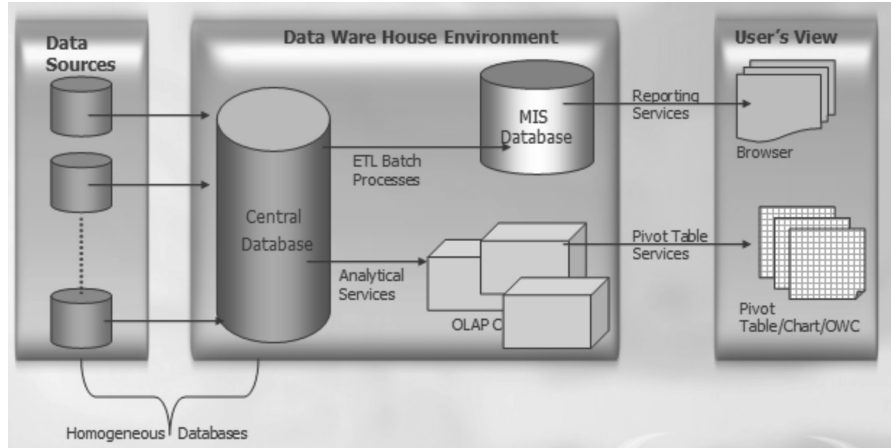
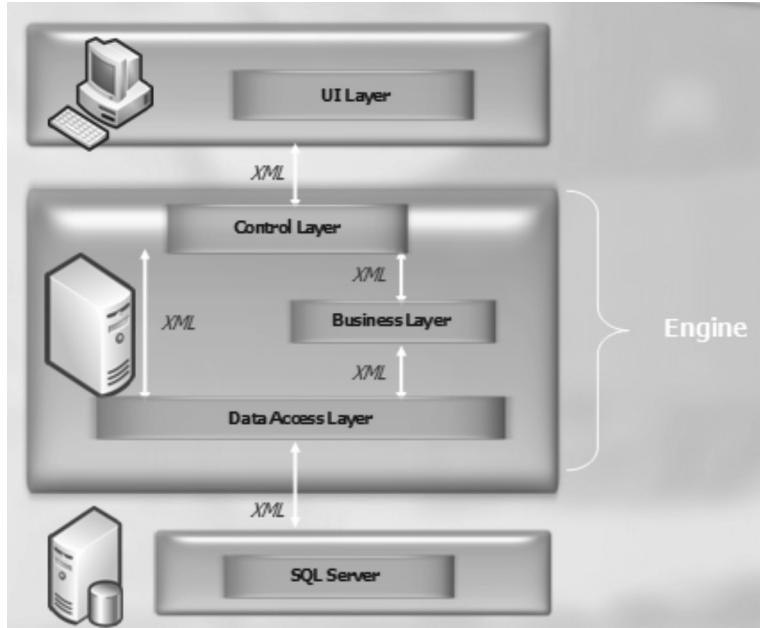


Fig. 2



Project Initiation	January 2005
Pilot Go live	June 2006
Complete Rollout	March 2008
Warranty support of 12 months	

7. Project Management Structure

State level

- Central monitoring committee reviews implementation fortnightly
- Technical committees to suggest and approve individual modules
- Field visits by Joint Secretary and Regional Deputy Director to ensure implementation as per schedule

Hospital level

- Technical team to provide onsite support and coordinate rollout
- Continuous monitoring by Civil Surgeons and Hospital administrators

8. Implementation

Strategy for pilot to roll out

The strategy adopted for implementation of HMIS project has been as follows:

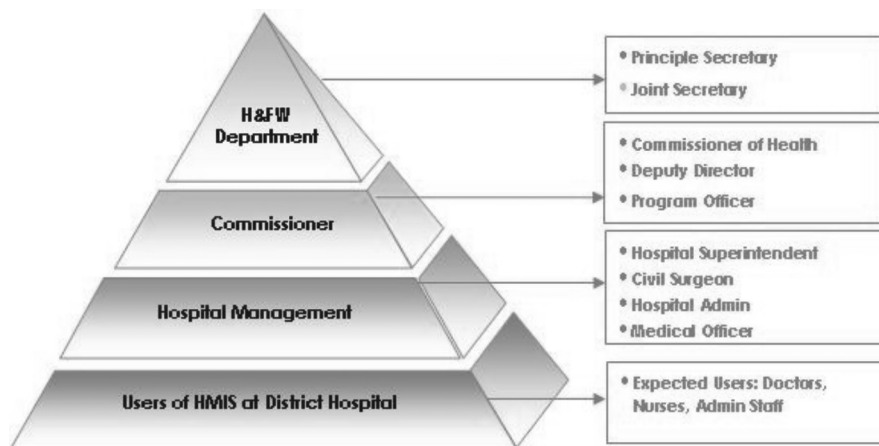
- Selected an IT partner, who had required expertise and total solutions with proven track record. ready-to-deploy HMIS framework application earlier, therefore having proven record and experience about functional as well as technical know-how,
- Identification of SSG, Vadodara as teaching and Gandhinagar Civil hospital as district hospital for pilot sites,
- 250+ users from across the roles and hospitals interviewed, observations documented and proof-of-concept replayed to these users prior to their approving for roll-out to other hospitals,
- On site hand holding team, regular reviews at Civil Surgeon level as well as Commissioner level for ensuring progress and change management.

9. Capacity Building

Government of Gujarat has put lot of emphasis on capacity building for successful implementation of HMIS project.

- Detailed manual for every module have been prepared and issued to all the hospitals
- All the users have been provided with the basic computer training along with the HMIS specific training and hands on training
- Hand holding to all the users have been provided through a technical team of total solution provider and concerned hospital
- Periodical orientation and refresher training imparted to all the users.

Fig. 2 Governance structure



Project management teams

- Project Management: Additional Director, Civil Surgeon at respective hospitals and representatives from solution provider
- Project Policy level: Commissioner, Joint Secy, Additional Director
- Change Management: Commissioner, Civil Surgeon and Medical Superintendent, IT Committee that includes HoDs of different medical specialties

10. Evaluation and Measurement

The Stakeholder Need Assessment is being done twice a year by taking structured user feedback survey based on following parameters:

- Quality of deliverables
- Project management
- Post-implementation support
- Documentations
- Responsiveness
- Communication

- Infrastructure
- Security and confidentiality

The satisfaction of users of HMIS can be confirmed by the rating of more than 90% received during the last 2 Need Assessment surveys carried out.

The Service Levels Agreement [SLA] have been defined for the implementing partner.

Table 1

Sl.	SLA Measure	Description
1.	Issue response time/ Acknowledgement	All cases from case open time to support team acknowledgement time
2.	Issue resolution time	All cases from case open time to case close time. SLA provided for system support cases
3.	Age of issue	Current open cases from case open time. SLA provided for system support cases
4.	Backlog of issue	Current open cases by rolling four weeks total volume

11. Issues and their Solutions

Critical success factors

- Customization
- User convenience
- Uniform and integrated system
- Adequate security and authentication provisions
- Change management
- Ongoing training and support

Replication in other states

The HMIS project can be easily replicated in other states with little customization.

Road ahead

- Touch screen kiosk for health promotion and prevention.
- SMS alerts to staff
- RFID/Smart card for capturing patient and doctor s' data.
- HL7 (Health Level 7)
- Bar Code for patient identification and even for other items.
- Biometrics for employees attendance system as well as for retrieving the patients' data.

- Online appointments
- Tele medicine
- CME—Continued Medical Education
- Research patterns for medical colleges.

12. Status and Results

Present status

- HMIS has gone live in 12 Government Hospitals
- More than 3,400 users of 30 hospitals have been provided training

13. Specific Achievements during the Year 2006–07

All the 12 hospitals have gone live during 2006–07.

14. Future Plans for Readers Seeking more Information on Project

The future plans for HMIS are as follows:

- Integration of HMIS with PHCs, CHCs and Municipal corporation's governed hospitals
- Citizen portal for health services.

Part IV

**Government to Government and Government to
Employees (G2G/G2E)**

e-Public Distribution Monitoring System—e-PDMS

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ABSTRACT

Targeted Public Distribution system is prevalent in the state since 1-6-1997. Under this system, the State formulates and implements foolproof arrangements for identification of poor, for delivery of food grains to fair price shops and for its distribution in a transparent and accountable manner at the FPS level. The Madhya Pradesh State Civil supplies Corporation lifts wheat from its decentralized procurement and the FCI, rice from FCI, sugar from sugar factories as per the allocation issued by GOI and transports them through its supply centers to the lead cooperative societies which send them to link cooperative societies that run fair price shops.

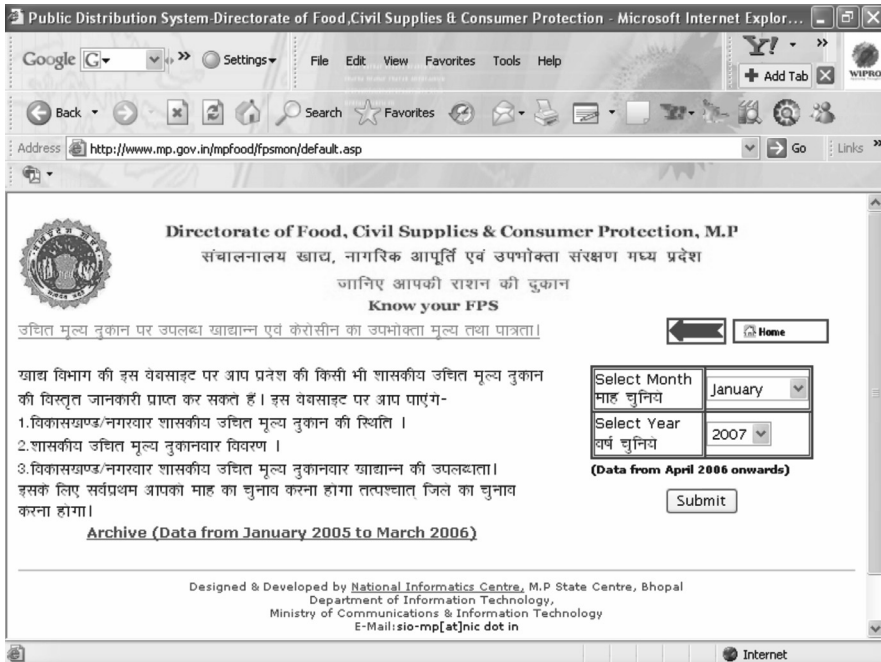
The Government of India has launched a comprehensive program to accelerate e-Governance. The broad objectives of the e-Governance program include enhancing efficiency, and improving transparency and accountability of the Public Distribution System.

NIC has been entrusted with the responsibility to computerize the project e- PDMS so as achieve the objectives of the department of Food. A user-friendly application has been developed by the NIC and is in active use at all the districts of Madhya Pradesh. The staff (100 approx.) of the department has been trained for using the application. The Ministry of Food, Government of India has designed an input format (Form-A) for collecting the necessary information about the allotment, lifting and distribution of essential commodities like Wheat, Rice, Sugar and Kerosene under different schemes of the Government like AAY and SGRY for the benefit of the weaker section of the society. The inspectors of the District Food Office collect the data in the prescribed format and brings them to the district for the data entry and report generation. The data entry module of the designed software facilitate the data entry scheme-wise.

A weekly monitoring of the project is done by the senior officers of Food department with officials of the districts, face-to-face through the powerful Video conferencing studios located in each of the NIC district Centre. In addition to it, a web-based on-line monitoring system <http://www.mp.gov.in/mpfood/fpsmon> has also been developed to display many important reports

like FPS-wise, Block-wise stock, allotment, lifting and distribution of food grains based on data received from district Food Offices to the web-server located at the state level. This facilitates the online monitoring of PDS scheme through internet.

Fig. 1



1. Introduction/Background

Project conceptualization

Pre project-state

The existing system was completely manual. The Department of Food, Civil Supplies and Consumer Protection has over 20,000 Fair Price shops (FPS) spread across Madhya Pradesh. Ration Card Holders take their ration supply from these FPS. The manual system was unable to cope up with information requirement of the department and shorts supply of essential commodities was common causing severe problem for the people especially living below the poverty line.

Post project state

- The officers of the department having access to the first hand information on their desktop which help quick and accurate information retrieval about availability of essential commodities

- Effective monitoring in equitable distribution of essential commodities to FPS
- Tightening the noose on the defaulters
- Quick and accurate information for better strategic planning for administration
- Control/elimination of malpractices in the distribution of essential commodities
- It has replication potential throughout the country as well as other developing countries
- Faster communication between headquarters and district level offices.

2. Project Vision, Stakeholders, Objectives and Services

Vision

- To uplift the below poverty line and destitute population
- To cover the whole food supply chain under PDS like FCI, State Civil Supplies Corporation and State Warehousing Corporation and lead societies
- To publish detail of more than 1.5 Crore ration card holders along with photograph and thumb impression on web server

Stake holders

Internal

Various departments of State Government

External

NGOs, Media and Citizens

Objective

- To help the government in effective monitoring of PDS scheme
- To bring transparency in the PDS scheme
- To provide fast and accurate information to the Govt. for strategic decisions

Services

Government-to-Citizen (G2C)

G2C aims at connecting the Government to Citizens by informing the public about the supporting accountability of the Government as well as its rationale to increase the pressure on the Government officials to perform

well and to improve the public understanding. The monthly progress reports received from the district level offices through NIC Network (NICNET) are consolidated at the state level which helps them in decision making and monitoring of the essential commodities to the citizens through various Fair price shops in the entire state of Madhya Pradesh. Hence, the project helps in providing better services to the citizens as well as in the planning and effective management for the PDS scheme. Thus it meets the expectations of citizens with respect to proper distribution of essential commodities.

Consumer-to-Government (C2G)

C2G constitute the area where the citizens directly interact with the Government. Citizens feedback is a must for improving the Government services and unless the Government responds to the citizens, it remains a distant dreams for the Government to know what exactly needs to be planned. The Video conferencing facility made available by the NIC is a mile stone in achieving this objectives as the citizens can participate in the conference through their elected representatives who are said to be the voice of the citizens.

3. Public Private Partnership (PPP)

Roles and responsibilities

The project has been designed and developed by NIC M.P state centre. Maintenance and technical support regarding e-PDMS is provided by NIC at state level as well at district level by District Informatics Officers at all 48 locations of M.P.

Data entry/Updation is the responsibility of the staff of Department of Food, Civil Supplies and Consumer Protection. All the necessary technical support including NIC district centre resources are provided to user department.

Business model

The project has been started using two-tier client server architecture. Then offline application has been developed and data from all 48 locations consolidated and transmitted to web-server. This model has the problem of delay in transmission and manual intervention later model has been replaced by web-enabled system using dot net technology.

Funding process

The project has been done free of charge from development to implementation by NIC. Existing resources of department of food have been used. NIC resources at state centre like IDC, NICNET and district centers

have been used. VC of NIC has been used for monitoring. Hence no funding is required.

4. Necessity/Needs

Implementation of PDS scheme was not proper by using manual system due to lack of Man power in the department of Food, Civil Supplies and Consumer protection

5. Project Plan

Requirements of process re-engineering and legal framework technology architecture

To implement the PDS system effectively the process re-engineering was done. The existing system was completely manual. The information collection was time taking. Redundancy and inaccuracy was a common problem. To overcome these problems the entire process was re-engineered by designing a Performa Called Form-A with the help of the department of Food, Civil supplies and consumer protection.

Form-A contains the information opening stock, allocation, lifting, distribution and closing stock of all commodities as well the numbers of ration cards of all categories were collected by food inspectors from fair price shops. With these minimum inputs maximum reports, queries and analysis is done to satisfy the needs of the user.

Initially Client Server two-tier architecture was followed .However the system needed a lot of manual intervention for data transmission, consolidation and website replication. Later these problems were removed by re-engineering the process using multi tier architecture (web-enabled) with help Microsoft. NET Framework.

6. Milestones

- a. Project Proposal
- b. SRS
- c. Coding
- d. Implementation

7. Project Management Structure

- a. Technical Director

- b. Principal Systems Analyst
- c. Systems Analyst

8. Strategy for Pilot to Roll Out

- d. Following is the strategy for implementation in M.P
- e. Used Existing infrastructure of District Supply offices
- f. Training of Staff of Directorate and District Supply offices
- g. Offline Pilot Implementation in 4 Districts
- h. Offline Implementation in all Districts of Madhya Pradesh
- i. Online Pilot Implementation in 4 Districts
- j. Online Implementation in all Districts of Madhya Pradesh
- k. Service and support at all 48 district locations by NIC professionals.

10. Capacity Building

Governance structure

- Principal Secretary
- Commissioner (Food)
- District Food Officers
- Food Inspectors

Project management teams

- State Informatics Officer (SIO), NIC
- Technical Director, NIC
- Principal Systems Analyst, NIC
- Systems Analyst
- District Informatics Officers

Change management and training

- Technical Director, NIC
- Principal Systems Analyst, NIC
- Systems Analyst

Training

Imparted training to nominated staff of all 48 district Food offices and Directorate on Computer Awareness and e-PDMS.

11. Evaluation and Measurement

Review through weekly video conferencing with District Food Officers regarding project implementation

12. Issues and their Solutions

Lessons learnt – critical success factors, failure factors

- Proper human resource development
- Proper infrastructure and connectivity
- Linkage with the e-Ration card management system has the following advantages:
 - Citizen data base preparation
 - Social security and old age pensioners database
 - LPG connection holders database
 - Land holdings details
 - Identification of BPL and AAY families
 - elimination of Bogus Ration Cards

- Replication in other states

It can be replicated not only to all the states of our country but also to the developing and under developed countries where the Government runs such schemes for the financially and socially backward community.

We are in the process of replicating it throughout the country.

- Road ahead
- Enrichment of FPS database
- Addition of Transaction of Lead Societies and FCI
- Linkage with the e-Ration Card Management System

13. Status and Results

Present status

- Web-enabled system
- Availability of data of 20,000 Fair Price Shops since 2005

14. Specific Achievements during the Year 2006–07

- Conversion from offline system to online system
- Expenditure in monitoring i.e. on telephone, fax and travelling has been reduced

- Information dissemination- data of fair price shop is available on the net and is accessible to all

15. Future Plans for Readers Seeking more Information on Project

- To cover the whole food supply chain under PDS like FCI, State Civil Supplies Corporation and State Warehousing Corporation and lead societies
- To publish detail of more than 1.5 Crore ration card holders along with photograph and thumb impression on web server
- To generate Electronic Ration Cards for all ration card holders
- SMS-based information regarding Fair Price Shop (FPS) details

Cooperative Banking in Place—COIN

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ABSTRACT

COIN (Co-operative Banking In-Place)—The first ICT based solution by the government for Total Branch Automation (TBA) making effective economic reforms in Co-operative Bank and its branches thereby enhancing the reach of the bank to the Rural Masses for the prosperity of the State. COIN has set a new standard of citizen-centric services by supporting Commercial banking along with Agricultural loans, automated credit and disbursement of pension to freedom fighters. The business re-engineering model of Group accounting for the state government with MICR interface of cheque clearing with RBI paved the way for COIN to achieve Microsoft Award in 2006. A mark jump of 10,000 customers in single year has shown the trust on the new system and the stake holder bank created a history by touching the height of 117 crores Net Profit against the previous net profit of only one crore. This solution was replicated in all branches of Bihar State Cooperative bank Ltd. (BSCB) across the state.

1. Introduction

Project conceptualization

Core infrastructure like the buildings of the bank along with the working environment was in extremely poor condition prior to implementation of COIN. There was no mechanism to provide quick service to valued customers purely because of delays in tracking of ledgers, locating specimen signatures for authentication and posting of transactions. Updating of pass-book and preparation of monthly statement of any account was so cumbersome that it was taking days instead of few minutes. In-expeditious service had started to coerce the customers to shift their banking activities elsewhere. By 2002–03, the overall situation had degraded to a point where cash-book, which is supposed to be prepared on daily basis, was pending

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by a fortnight and trial balance, which is a weekly report, was completed almost one and half months later. All these resulted in delayed submission of Statutory Reports to NABARD and RBI.

BSCB was facing difficulty in monitoring and consolidation of Agricultural loan accounts in its 38 District Central Co-operative Banks (DCCBs). The limited manpower available to it had already sagged under the burden of day to day looking after of more than 2,000 Primary Agricultural Co-operative Societies (PACS).

Interest calculation and posting of interest in all the accounts was not accurate and these processes were taking more than three months. Same problem was prevailing with freedom fighters pension account. Pensioners were not able to withdraw their pension in time due to delay in posting of amount in their account.

NPA (Non Performing Asset), which is the health index of any financial institution, was also alarming and due to which RBI had put 'Bihar State Co-operative Bank' in section-11, which was the threat of closure of bank in near future. Recovery in case of Loan Account was very poor while the gap in Personal Ledger and General Ledger was broadening day by day and getting out of control of the management.

A project management group comprising of Managing Director, DGM (Admin), State Informatics Officer (SIO of NIC) was formed for devising the strategy for implementation of project. A development team comprising of professionals of NIC was formed for system study and development. Progress of work was reviewed in monthly meetings. Series of operational trainings were imparted for smooth implementation of software.

Software tools for project monitoring, requirement gathering, Designing and testing were used for smooth and fast development of software. Risk during the lifecycle of software was minimized by proactive risk management. Change request was also managed with software tools.

2. Vision

To evolve BSCB into a sound and nationally competitive financial service provider and strong market player with integrated services to customers from all segments, leveraging on ICT technology, adopting the best accounting and ethical practices and fulfilling corporate and social responsibilities towards all the stakeholders. Extensive deployment of ICT tools combining innovation, quality, personal touch and flexibility in delivery at par with any corporate.

3. Stakeholders

- Chairman, MD and Board of Members of Bihar State Cooperative bank
- Cooperative Department, Government of Bihar
- Reserve Bank of India

- NABARD
- District Central Cooperative Banks (DCCB)
- Primary Agriculture Cooperative Society (PACS)
- Employee of the bank
- National Informatics Centre (NIC), Bihar State Centre
- NIC Services Incorporated (NICS)
- Customers

4. Objectives

A consensus has been achieved in all stake holders of the system i.e. (i) BSCB (ii) Customer of BSCB, (iii) DCCB and (iv) PACS and Govt. of Bihar to implement ICT based Solution COIN with the following objectives.

- Efficient and effective Citizen-centric service delivery to Rural Masses
- Single window based banking activities
- Control on Non Performing Assets(NPA)
- Re-engineering and simplification of process
- Provide complete banking solution
- Faster error-free transactions and reconciliation
- Reduction in transaction cost
- Better reporting tools and book keeping
- To enhance profitability using better management tools
- Better manpower management
- System should be capable enough to track the errors made, delay tracking mechanism, trend in opening of A/c, work performance analysis of individual staff
- To strengthen the knowledge base by identifying valuable customers.

5. Services

Front end: All sort of banking services required by customer with respect to cash deposit, withdrawal, passbook updation, Demand Draft, loan, Cheque clearance, opening/closing/transferring accounts, various deposit schemes etc.

Backend: MICS clearing system, Preparation of Profit and Loss Account, Balance sheet, Interest calculations, Loan Advances and NPA monitoring, CC account monitoring, preparations of various statutory reports etc.

COIN has been implemented as an in-house model with funding from the Bank for creation of required ICT infrastructure i.e. procurement of hardware and networking components and data porting to the new system. The required software, i.e., COIN has been developed by National Informatics Centre, Bihar freely of cost for the bank. The implementation,

rollout and maintenance of COIN have been carried out under the technical guidance/supervision of NIC COIN Project team.

Prior to taking up the project a formal MOU was signed between NIC and the Bank. The COIN software has gone through the quality documentation and audit requirements of NIC's ISO requirement.

6. Necessity/Needs

The need of COIN development and its deployment can be attributed to the following factors inherent to the manual systems of operations.

Delay in service delivery: There was no mechanism to provide quick services to valued customers, purely because of delays in tracking the ledgers, locating specimen signatures for authentication and posting of transactions. Updating pass-books and preparation of monthly account statement was cumbersome and used to take days instead of few minutes. There were observations that due to in-expeditious and below quality services customers had started shifting their activities elsewhere.

Delay in report return and compliance to RBI, NABARD, Government: The situation was so critical that the cash-book which is supposed to be prepared on daily basis, was pending by a fortnight. Trial balance which is a weekly report was delayed by one and half months. All these resulted in delayed submission of Statutory Reports to NABARD and RBI.

Monitoring DCCBs: BSCB was finding it difficult in monitoring and consolidating Agricultural loan accounts of all 38 District Central Co-operative Banks (DCCBs). The limited manpower available to it had already sagged under the burden of day-to-day monitoring of more than 2000 Primary Agricultural Co-operative Societies (PACS). Manual method of monitoring DCCB was quite difficult due to limited availability of manpower.

Accuracy in Accounting: Human errors in the financial transactions like interest calculations and posting, ledger entry was a difficult process to validate in the manual process. In addition to errors there was also delay of more than 3 months in reflecting the entries with respect to individual accounts. These all resulted in delay in PandL account preparation and preparation of balance sheet. The most affected accounts were pensioners and freedom fighters. Pensioners were not able to withdraw their pension in time due to delay in posting of amount.

NPA (Non Performing Asset) Management: NPA of BSCB, the health index of any financial institution, was above the threshold limit prompting RBI putting 'Bihar State Co-operative Bank' in section-11, which is the threat of closure of bank in near future. Recovery in case of Loan Accounts was very poor while the gap in Personal Ledger and General Ledger was broadening day by day and getting out of control of the management.

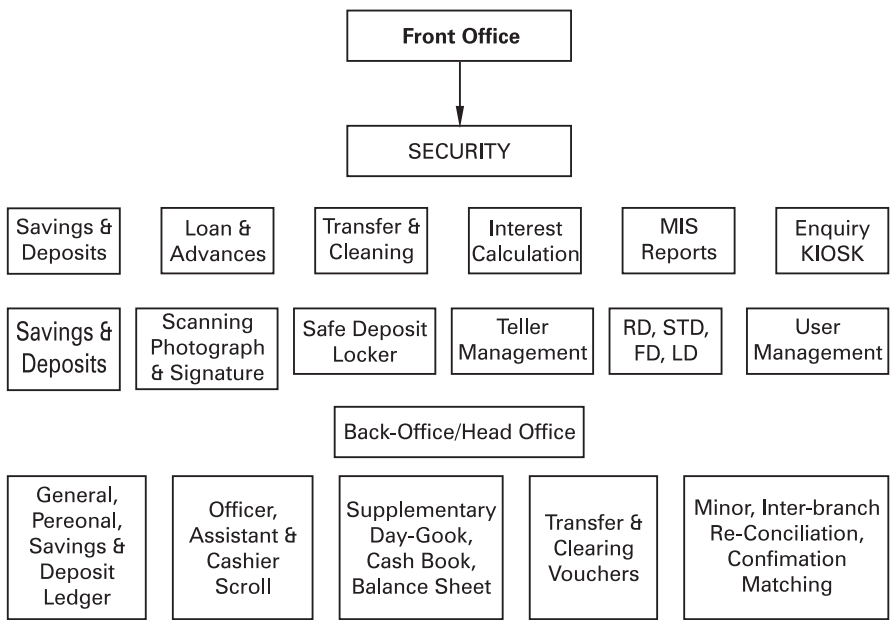
7. Project Plan

Requirements of process re-engineering and legal framework Technology Architecture

8. COIN Architecture

COIN is developed using *COM (Component Object Model)*, which is general architecture that lays the foundation of the project. It uses technology of building inter operable component through an object orientation. An arbitrary number of *OLE Custom Controls (OCXs)* are developed and used as fabricated components to aid in building the project. A *Dynamic Link Library (DLL)* file is developed which groups many functions and class modules that are compiled, linked and stored separately from project facilitating faster response and easier maintenance.

Fig. 1



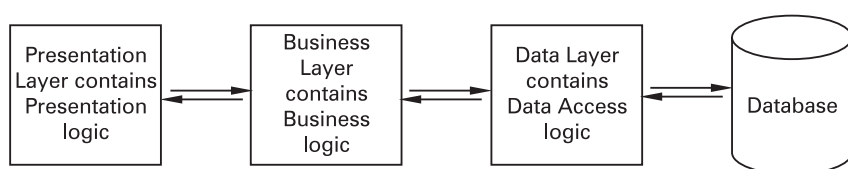
COIN supports 3-tier architecture

Presentation Layer: Is responsible for the presentation of data, receiving user events and controlling the user interface. COIN Software's executable file resides in presentation layer which contains Presentation logic having User Interface, displaying data to the user, accepting input from the user facility.

Business Layer: Business-objects that implement the business rules “live” here, and are available to the client-tier. This tier protects the data from direct access by the clients. Custom Dynamic Link Library (DLL) contains business logic of Bank, is middle-tier component. It contains Business logic, which means Data Validation, ensuring the data is correct before being added to the database.

Data Layer: It contains Data Access Logic which means Database Communication, accessing tables and indices, packing and unpacking data.

Fig. 2 Logical view of COIN Software



Security Aspects of COIN

Coin software is very secure software system, which provides five levels of Application Security Management is available

- Operating system level
- Rdbms level
- Application level
- Transaction level
- Audit log level

Milestones

Table 1

Phase Number	Date of Release	Brief Description
1.1	22-10-2003	Pilot release
1.2	20-07-2004	Reporting module are added and improvement of user interface
1.3	16-10-2004	Addition reporting module is incorporated for NPA and Loan monitoring, daily deposit schemes.
1.4	28-02-2006	Addition module daily and vendor management incorporated.
1.5	01-01-2007	New NPA reporting logic in incorporated as per the guideline of RBI

9. Project Management Structure

Administrative and logistic supports were provided by Bank to NIC Project team of COIN for trouble shooting and maintenance of COIN at implemented

branches. Policy decisions with respect to changes in the application were jointly decided by the NIC-BSCB coordination committee, which also meets regularly to take stock of project progress.

10. Implementation

Strategy for pilot to roll out

COIN was developed and implemented in the main branch of BSCB at Ashok Rajpath during the pilot period. Branch where the operational complexity was high, was selected by management group for replication in the first phase. After six months of rigorous testing in pilot branch with the manual system running in parallel, COIN was declared stable and then replicated at other branches.

11. Capacity Building

Operational trainings were provided to all the Officials and staff of a branches prior to implementation of COIN. Data porting from the manual system to the new systems takes place under the technical supervision of NIC project team. Once the data porting is completed, these get verified and certified by the concerned branch prior to the live run of the show.

Changes at the branch level are not permitted and all the changes are carried out centrally as per the direction of NIC-BSCB coordination committee.

12. Evaluation and Measurement

BSCB booked a profit of Rs.114 Crore in very first year of implementation of COIN in comparison to previous year of Rs.1 Crore. MIS reports helped to identify major debtors, Demand Collection Trend, Non-Performing Asset movement on weekly basis which contributed to the remarkable profit. Then after, the trend of profit is stable to around 80 crores. NPA has reduced to comfortable level and RBI freed BSCB from Section-11.

After computerization management of BSCB has withdrawn more than 50% manpower from branches. In Main branch of BSCB working strength reduce to 23 from 46 in first year of computerization and currently only 16 staff are managing the bank.

Complete automation of banking business and integration of MIC interface saved the duplicity of work and reduction of day-to-day running cost.

Daily deposit schemes is started which deals with on average 2000 – 3000 transactions every days. This not only enhances business of the bank but also social cause for down trodden people of Bihar.

All the stakeholders of computerization of BSCB have experienced its benefits. Customers started getting the prompt and timely delivery of services like faster processing of loan applications and sanction of loans etc. Prompt response of query and observance of grievance, timely updation of pass-book and customary dispatch of Bank Statement of Daily Deposit Scheme has enhanced the faith of customers in BSCB. It is COIN software that has allowed BSCB to be recognized as 'True Bank of Citizens of Bihar'. Satisfaction level can be very well judged by the figures shown below which indicate positive growth both in terms of Bank-Accounts as well as the Bank Deposits.

The bank booked a profit of Rs.117 crore in very first year of implementation of COIN in comparison to previous year profit of Rs.1 Crore. MIS reports prepared by COIN helped to identify major debtors for recovery, Demand Collection Trend, Non-Performing Asset movement on weekly basis which

Fig. 3

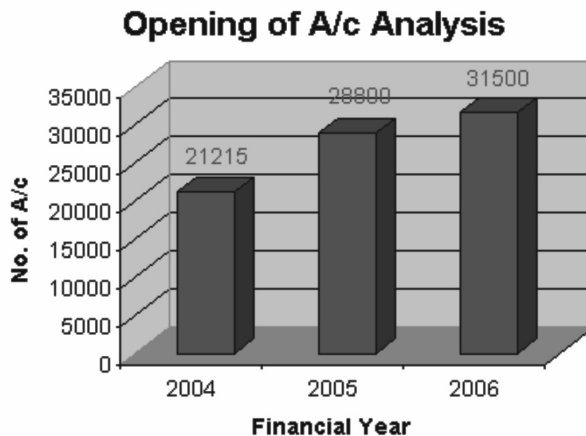


Fig. 4

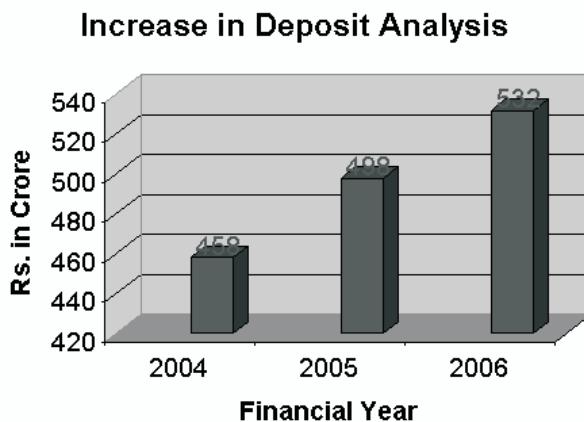
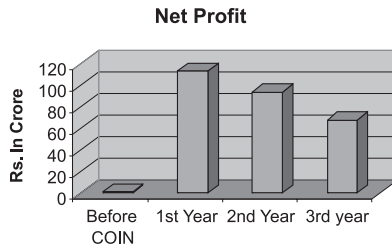


Fig. 5

contributed to the remarkable profit. Then after, the trend of profit is stable to around 80 crores. NPA has reduced to comfortable level and RBI freed BSCB from Section-11.

13. Issues and their Solutions

To be truly successful, any software solution must accommodate all of the user requirements. If necessary, work-flow may be redefined to meet this objective. The approach should be modular and the technology being put on the desk of the end-user must be simple and easy to interact. In-built validation at each level is absolutely necessary for quick identification of problems, if any. Also, version control is helpful in keeping track of the overall evolution

Critical success factors

- Majority of the success of this project owes to the efforts of Sri K.K.Pathak, the dynamic bureaucrat and Managing Director BSCB.
- Better Co-ordination and team work between NIC project team and accounts and personal section of BSCB in understanding, developing and testing the application.
- Round the clock implementation support by NIC officials to branches during first year closing accounting, and continuous supports to all the branches BSCB
- Use of tested framework for project planning
- Effective monitoring and good communication
- Component wise development of software
- Effective user training and documentation
- Regular visit to branches at the initial stage for the trouble shooting.

Replication in other states

COIN is easy to replicate and deploy. Currently is being implemented in all the branches of BSEB covering Bihar and Jharkhand.

Requests from several State Co-operative Banks of other States have been received by NIC, Bihar for demonstration of COIN software. Subsequently, the software has been demonstrated and much appreciated by the following States:

- Orissa
- Tripura
- Assam
- Chhattisgarh

Road ahead

COIN is in the process of customization to accommodate

- Postal banking for Department of Post
- Common Accounting System (CAS) for PACS as per NABARD requirement
- Core Banking for BSCB
- Linking of DCCBs through Network

14. Status and Results

COIN is being implemented in all the 14 branches of Bihar State Cooperative banks spread in two states. It is being implemented in 9 different branches in Bihar and 5 different branches in Jharkhand. Followings are details of COIN enabled branches.

Bihar 1) Bakipur Main Branch 2) MauryaLok Branch 3) New Market Branch 4) Nala Road Branch 5) Kankarbagh Branch 6) MusallayPur Branch 7) Secretariat Branch all with in Patna urban area 8) Motihari District Branch, Motihari 9) Bihat Branch Barauni District.

Jharkhand 1) Jamshedpur Main, Golmuri 2) Telco in Jamshedpur 3) Bokaro Branch Bokaro 4) Ranchi Branch Ranchi

- Specific achievements during the year 2006–07 All 5 branches of BSCB in Jharkhand were COIN enabled
- Future plans for readers seeking more information on project—Not specific

DC*Suite–Suite of Applications for e-Collectorate⁺

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ABSTRACT

Titled 'DC* Suite' envisages an integrated suite of applications for the Collectorate. The programme is aimed at making all services more accessible to the citizens. DC*Suite is based on an integrated solution architecture covering all functional areas and activities in the Collectorate.

Fig. 1 *DC*Suite components*



⁺ CSI Nihilent e-Governance Awards 2006–07, G2G/G2E – Joint Winner.

Twenty-one functional areas identified including Workflow based File Management System, Public Grievances Monitoring System, and Revenue Recovery Management etc. In addition, there are add-on optional modules for Knowledge Management, District Portals etc. Public Access, Transparent Administration and Service Delivery are the key features of the project. The applications which are of public interest are given access through INTERNET, IVRS and Touch Screens based Kiosks using standard software and web interfaces. Information are also made available through multi-channel service delivery access points like inter-active voice response system, SMS, service counters, e-mail and Internet kiosks. Agencies such as FRIENDS, Akshaya Centres and Kudumbasree units will also become service delivery points.

1. Introduction

Project conceptualization

The work for the total computerization of the Collectorate, under the Modernising Government Programme, began in May 2003 after the Government accorded sanction for the project. The Status paper on Service Delivery Project in Revenue Sector by MGP has identified the scope for improvements in Service delivery by computerization, infrastructure improvement including buildings and furniture, communication facilities, etc.

DC*Suite is an integrated suite of applications for the Collectorate. DC*Suite is based on an integrated solution architecture covering all functional areas and activities in the Collectorate. Twenty-one functional areas identified including work flow-based file management system, public grievances monitoring system, and revenue recovery management, etc. In addition, there are add-on optional modules for knowledge management, district portals, etc. Generally priority is given for areas where common people interact with the Collectorate or Government.

Major areas covered in DC*Suite is given below:

- File management
- License information
- Natural calamity management
- Public grievances
- Revenue recovery management
- Pay roll and personnel management
- Land management
- Inventory management
- Financial management
- Certificates
- Pension schemes
- Court case management
- Housing

- Assets management
- Natural resource management
- Elections and electoral analysis
- Law and order
- National security
- Development works
- Public information portals and district portals

The work structure has been modified scientifically and systematically for the benefit of citizens. Information are made available through multi-channel service delivery access points like touch screen kiosks, inter-active voice response system, SMS, service counters, email and Internet. Agencies such as SWAN, FRIENDS, Akshaya Centres and Kudumbasree units will also become service delivery points.

2. Project Vision, Stakeholders, Objectives and Services

Project Vision and Objectives

- Better working ambiance
- Quick access to information
- Common discussion facility
- Common VC facility
- Continuous training facility
- Better records maintenance
- Traceability
- Less paper
- Better collaboration
- Correspondence in local language.
- 24 × 7 Citizen Services
- State of the art infrastructure as foundation for service delivery
- Service extension to taluks, blocks, villages and panchayats

Stakeholders

- District Collectorates
- Taluk Offices
- Village Offices
- Citizens

Services

- 24 × 7 × 365 Availability with disaster recovery at Collector's camp office
- Acknowledgment of letters, emails, fax
- Services through Internet, kiosks and counters

- Help Desk
- Intranet for the employees
- News, Notice Board
- E-Mail, Messaging
- Chat, Forum, Gallery
- References, Health Corner
- Government Order Search

3. Public Private Partnership (PPP)

DC*Suite is fully owned by Government of Kerala.

4. Necessity/Needs

- By digitalizing the basic data available in the district administration, information can be made available through multi-channel service delivery access points like Touch Screen Kiosks, Inter-active Voice Response System, SMS, Service Counters, email and Internet
- By improving the infrastructure including Buildings and Furniture, Communication facilities, etc., in the in Revenue Sector, the scope of service delivery to the public can be improved
- With the total computerization of the district administration, people would be able to track the status of a file or an application in the Collectorate from anywhere in the world.
- By modifying the work structure scientifically and systematically the services to the citizens can be improved

5. Project Plan

Re-engineering process and legal framework

- Re-structuring of Collectorate activities were done for achieving better working ambience
- Re-organization of the seats and subjects were carried out
- Office Order was issued to enforce same in tune with computerisation
- Uniform subject code introduced across the state
- Suggestions on changes required in DOM (District Office Manual) to incorporate fileflow-based process and to maintain file in electronic form were submitted to Government. Government of Kerala has passed the Order to effect the changes for the smooth running of the DC*Suite

6. DC*Suite Architecture

- E-Services layer is the front-end layer of DC*Suite which interacts with citizens and offer services to the citizens. There are several methods proposed in DC*Suite. The services is offered over touch screen kiosks, Interactive voice response system, Internet and front-end counters.
- Middle layer is the Intranet Services layer which offers lot of collaboration services and tools. email, messaging, chat, video conferencing, bulletin boards are few worth mentioning.
- Back Office layer is the key functional area comprising of all 21 functional modules with which the government staff work and carry out the backend operations.

Fig. 2

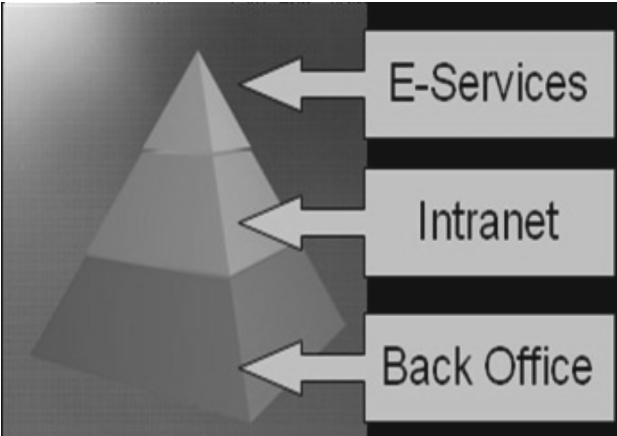
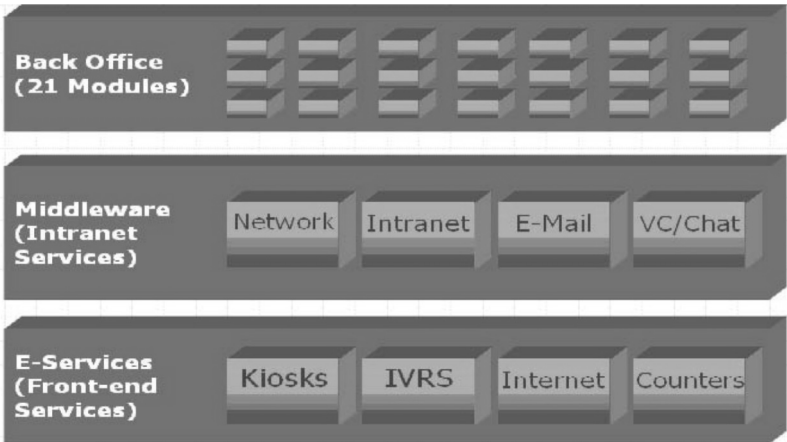


Fig. 3



7. Platform/Technology used in the Project

The software is developed using Web and Portals technologies along with approval of RDBMS. Open Software Technologies is utilized wherever appropriate. The applications, which are of public interest, will be given access through INTERNET, IVRS and Touch Screens based Kiosks using standard software and web interfaces. DC*Suite is developed in Linux-Apache-MySQLPHP(LAMP).

8. Milestones

Achieved milestones

- DC*Suite Open Source software for paperless office management
- Video conference facility at the Collectorate
- Discussion room
- DC*Suite academic centre
- LAN for the entire Collectorate with computers to all employees
- DC*Suite District Data Centre
- DC*Suite touch screen services
- DC*Suite portal services
- DC*Suite SMS Service
- DC*Suite Disaster Recovery Centre
- Project management structure

DC*Suite is a joint venture of IT Department, Revenue Department, National Informatics Centre and NICSI. Ownership is entrusted jointly with IT and Revenue Departments. Respective District Collectorate is the implementing agency. State level and District level Core Committees are formed for guiding, reviewing and assisting the project implementation. DC*Suite is implemented in 6 districts of Kerala and others are in the process of implementing.

9. Implementation

Strategy for pilot to rollout

As pilot phase, the project has been successfully implemented at District Collectorate, Palakkad having about 150 client computers. After the success of the pilot phase, the project is now in the roll out stage. As of now 6 out of 14 districts of Kerala has been covered under DC*Suite and the remaining districts are in the process of implementing.

The work structure has been modified scientifically and systematically for the benefit of citizens. Information are made available through multi-

channel service delivery access points like touch screen kiosks, inter-active voice response system, SMS, service counters, email and Internet kiosks. Agencies such as SWAN, FRIENDS, Akshaya Centres and Kudumbasree units will also become service delivery points.

10. Capacity Building

Governance structure, Project management teams, Exit management team, Change management and training

Six Management Divisions were formed depending on the major activities in Collectorate—grouping together the related Major Subject Heads

- Personal management
- Civil management
- Land management
- Revenue recovery management
- Election management
- Finance management
- Re-organization of the seats and subjects were carried out and an Office Order has issued to enforce same in tune with computerization.
- Every employee of Collectorate is provided with a PC/Thin client to access the Intranet.
- Every Section/is provided with a printer and Scanner as a part of the network
- Thin clients are provided with OS images to suite Unicode Malayalam (local language) support and Mapped to Rack Server through Samba
- Systematic training programmes were arranged as follows
- Identifying few Master Trainers and given training to the Master Trainers in DC*Suite
- All staff of Collectorate given training in batches (18 persons in one batch)
- All Officers were given training separately
- Continuous training is given on DC*Suite as Refresh programme and for New users
- Every Staff is well trained in Open Office 2.0 with Malayalam
- Self tutors are prepared for the major modules and applications
- Disaster Recovery Centre is established with replication in geographically different locations

11. Evaluation and Measurement

Evaluation

- By taking the opinion and suggestions from the Collectorate staff

- Reviewing the customer feed back
- Transparent Administration
- Employee Empowerment
- Centralized Services for offices at District Level

Measurement

- Providing G2G, G2E and G2C services like
- G2C
- Acknowledgement of letters, emails, fax
- Current Status of files
- Beneficiary Search
- GO Search
- Employee and Office finder
- Detailed Collectorate Services
- Help Desk
- Services through Internet, Kiosks, SMS and Counters
- G2E
- Intranet for the employees
- News, Notice Board
- Email, Messaging
- Chat, Forum, Gallery
- References, Health Corner
- Searches on Status of Files, letters received
- GO Search
- Employee Search
- Other information on Land Records, RTI, Election
- G2G
- 24 × 7 × 365 availability
- User based login for others offices role-based system extended to Taluks
- Revenue recovery details for all requisitioning departments

12. Issues and their Solutions

Success factors

- Employees acceptance to DC*Suite
- Building the automation in file flow
- Implement with flexibility at the first instant
- Make it transparent for citizen
- Build various delivery models to reach out
- Allow citizen to drive the system
- Allow socio-economic group to evaluate/validate and suggest mechanisms based on the needs

- Re-engineer as per the needs of citizen
 - o Build with standards, quality, security and certifications
- Implement policies with iron hand
- Failure factors
- No previous model to follow
- Lack of infrastructure
- Fear of computerization among staff of Collectorate
- Lack of computer knowledge
- Networking entire Collectorate so as to implement e-file movement
- Constraints to give facility to write file notes/drafts in regional language
- Modifications in the District office manual and office structure and the authenticity of the digital files.

Replication in other states

The concept of DC*Suite has been taken up by many states. The DC*Suite application has been demonstrated to IT Secretaries and Collectors in the states of Orissa, Rajasthan and Uttaranchal. Respective Governments are planning to replicate DC*Suite in these states.

Road ahead

- Taluk integration
- Village integration
- AKSHAYA/FRIEND integration
- CSC/SDC integration
- SWAN integration
- NICNET integration

13. Status and Results

Present status

DC*Suite has been successfully implemented at District Collectorate, Palakkad having about 150 client computers. After the success of the pilot phase, the project is now in the roll out stage. As of now 6 out of 14 districts of Kerala has been covered under DC*Suite.

14. Specific Achievements during the Year 2006-07

- Covered 5 more districts of Kerala
- 100% open source implementation in Kasargod and Kannur districts with more than 300 desktop systems

- 100% open office implementation in all the 6 DC*Suite implemented Collectorates
- SMS services through DC*Suite
- DC*Suite services through Internet

15. Future Plans for Readers Seeking more Information on Project

- Visit the site <http://www.kannurservices.gov.in> for information about DC*Suite services in Kannur Collectorate.
- Visit <http://www.dcsuiteservices.nic.in>

Election Confidential (ELECON)

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ABSTRACT

Information Technology (IT) was introduced in the election process for the first time in General Election 1989, when the ELECON (Election Confidential) software was developed and implemented for deployment of polling Officials on pilot basis in the Nalanda District of Bihar. The objective of using ELECON was to bring transparency and fairness in the poll practices, maintaining data secrecy and introducing preventive mechanism to weed out any kind of bias. The experiment was a success and the software was circulated by NIC to all the Districts of the country for use during 1991 Elections with the blessings of the then Chief Election Commissioner, Sri T. N. Seshan.

Since 1991, NIC is playing a leading role in proving ICT support to the Election process of the Commission. NIC support to Chief Electoral Officer at the state level has been in the form of different software products to meet its varied requirements at different levels of electioneering. For implementation of ICT tools, NIC District Units are playing a crucial role in realizing the vision of the Commission. In fact during election NIC District Units are the MIS hubs of all ICT activities relating to the Election activities. The expertise of DIO (District Informatics Officer) in ICT application in election has been a source of achievement and success for each District in timely completion of the election.

On account of greater acceptability of ICT tools in managing election processes and phenomenal progress in hardware and software technology, ELECON has gone through a series of metamorphosis, with value addition in each and every release to accommodate the changing guidelines of the Commission. Latest version ELECON 7.0 is a vastly improved version of initial ELECON of 1989 and fulfils all the requirement of ECI for wider deployment.

1. Introduction

Project conceptualization

Way back in 1989 during Election time, Sri N. K. Sinha, IAS, the District Magistrate of Nalanda was not satisfied with the manual process of polling party composition and booth tagging for elections as it did not conform to the canons of transparency regarding fairness of poll practices, maintaining data secrecy and preventive mechanism in weeding out any kind of bias,

was in search of an appropriate ICT tool to overcome all maladies. It was NIC Nalanda District Unit, which came out with ELECON application under the guidance of Sri Sinha as a pilot project.

We still remember how ELECON was performing those days on a PC-AT 386 Unix system installed in NIC Centre of Nalanda. The processing speed was very slow and completion of polling party formation for the constituencies took many hours. Administration had issued a special instruction to Electricity Board for supply of un-interrupted power to the center. The experiment was a success and got recognized by the then Chief Election Commissioner, Sri T. N. Seshan. Since then, ELECON has gone through a series of metamorphosis, with value addition in each and every release to accommodate the changing guidelines of the Commission.

It was a coincidence that during October-November 2005 Bihar Assembly Elections, Sri Sinha was designated as Chief Electoral Officer (CEO), Bihar which resulted in further refining the application leading to release of ELECON Version 6.0 for use through out the State of Bihar during Assembly Elections held in October-November 2005. It is a matter of satisfaction that polling party formation using ELECON is now possible within a very short time.

Current version, i.e., ELECON 7.0 is a vastly improved version of initial ELECON of 1989 on account of greater acceptability of ICT tools and phenomenal progress in hardware and software technologies. New features of ELECON 7.0 can be summarized as:

- Change in OS platform from UNIX to Windows, making the installation simple and user-friendly.
- Deployment of two tiers of random number techniques for polling party formation and booth tagging with zero bias
- Locking and unlocking of the data processed at different levels for security reasons
- Generation of Appointment Letters with the photographs of the polling staff, identifying each employee and his photo by a unique serial no, i.e., PIN (Personal Identification Number) for the entire state.
- On-line validation of Commission's guidelines for polling party formation and booth tagging as required by Election Observers
- Standardized for Parliament/Assembly/Nagarpalika/Panchayat Elections
- Support simultaneous Election to Parliament and Assembly
- Automatic fixing processing priority for Segments to minimize the manpower shortage
- Multilevel data security at the level of Database, User and Observer
- Preparation of Polling Officer Identity Card used during poll
- Facility to migrate data from legacy database systems, automatic Application/Data integrity checking before start of work, photo uploading from external media and also downloading to System Folder from table

2. Vision

ELECON 1.0 was the outcome of the vision of the then District Magistrate-cum-Returning Officer, Nalanda (Sri N.K.Sinha, IAS), in 1989 General Elections, to deploy ICT as a tool in the election process to eliminate the drawbacks of the manual process. Complete automation and transparency in polling party formation and its deployment (i.e., booth tagging) within the Commission's framework and with optimal utilization of available resources was core to the development of ELECON. On account of emerging ICT tools and greater acceptability the vision was further enlarged by Sri Sinha, as CEO Bihar during October–November 2005 Bihar Assembly election to enrich ELECON with unique and innovative features that has not been achieved by CEO of any State.

3. Stakeholders

- Chief Electoral Officer, Bihar
- District Election Officers (DEOs) of all districts of Bihar
- District Magistrate-cum- Returning Officers of all Districts for Lok Sabha Election
- Sub Divisional Officers-cum- Returning Officers of all Districts for Assembly Election
- Entire District Administration from DM to Block Development Officers (BDOs)
- Home Department, Govt. of Bihar (for availability of force)
- District Transport Authority, Govt. of Bihar (for availability of vehicles)
- Election Commission of India (ECI)
- Election Observers sent by ECI
- All Political Parties
- National Informatics Centre (NIC), Bihar State Centre, Patna
- District Informatics Officer (DIO) all NIC District Centres of Bihar
- Various Offices (State/Centre) of Government/PSU etc.
- All voters

4. Objectives

As a champion of ELECON project, Sri Sinha had following objectives in his mind.

- Making ELECON easy to install, user-friendly and rich in GUI features
- Identification of each designated polling staff by an unique serial no i.e. Personal Identification Number (PIN) valid for entire state

- Deployment of random number techniques for polling party formation and its deployment (booth tagging) without any bias
- Making ELECON standardized for Parliament or Assembly or simultaneous Elections with scalability to support local elections to Nagarpalika, Panchayat etc.
- Building intelligent features in fixing processing priority for Segments to minimize the manpower shortage
- Multi-layer data security at the level of Database, User and Observer
- Facility for locking and unlocking the processed data by the Observer
- Facility for on-line verification of Commission's criteria for staff deployment in polling party and its deployment
- Automatic Application/Data integrity checking before commencement of processing
- Flexible photo uploading and downloading facility for preparation of Appointment letters, Polling Officer Identity card, etc.
- Facility to migrate data from legacy database systems

5. Services Offered through ELECON

ELECON helps the District Election Officers, Returning Officers, Election Observers and Election Personnel Cell to carryout their duty transparently and effectively maintaining the data secrecy and integrity. All combinations of MIS report generation is possible on push button as per the requirement at different levels.

6. Roles and Responsibilities

ELECON was developed by NIC and given to CEO for implementation during elections. It can be treated as total in-house development without spending anything by CEO for development and its implementation

7. Necessity/Needs

There was not only necessity, but need to bring transparency in the election process, eliminating the manual constraints. Needs can be categorized under the following heading:

Lack of transparency in the system: In the manual process of duty allotment, there were biasness and favoritism in deputing/deploying the manpower. Transparency was totally absent in selection process for poll duty. A person not interested to go for poll duty used to mange it very nicely. This resulted in resentments among the employees, litigations and large number of complaints. Election observers too could not verify the

correctness of the ECI guidelines/criteria followed in polling party formation and its deployment. There was a need to weed out the limitations of the manual process and introduction of transparency in the entire process.

Difficulty in maintaining data secrecy: There is directive from ECI that polling parties should not know the location of the booth, where they will be deployed for poll duty prior to 72 hours of voting. There is also a directive that no member of the polling party should not know his/her other party members till the last moment i.e. till 72 hours prior to voting. In view of the above directive, the party number and the booth details are generally disclosed to them when they report finally for poll duty. In the manual process, everything was open when the appointment letter preparations begin. These designated polling staff used to collect detailed information on their polling party colleagues and the duty place from one source or other during this typing process. Knowing the other party members and the location of the booth for duty in advance, the party member not only colludes with each other, but with the local supporters of the political parties to get personnel benefits at the cost of unfair voting. There was a need to check these types of unethical practices in the election process. And maintaining data secrecy as per the guidelines down by ECI was essential for fair poll outcome.

Absence of effective data management: In the manual process, data management for effective decision-making was very difficult. In the absence of electronic mode of data management editing, filtering, sorting personnel data based on certain criteria was not possible for immediate requirement. Filtering of the personnel whose tamila could not be made, replacement of personnel not turned up for duty, preparing the booth list where number of voters are more than 1200, list of sensitive booths where polling party without central Govt. employee have been allocated, list of leftover polling staff category-wise with details of their home constituency, posting constituency, residing constituencies and department, office code, number of staff shortage, if any, category-wise so that demand can be put with CEO for availability from other districts etc. are few MIS requirements which can not be made available immediately on demand but needs time to prepare in manual system. Report requirements by ECI, CEO, Observers and other constitutional authorities, which are immediate in nature, need time to comply in manual system. Some times report preparations get delayed and other times there is problem in the report due typological errors etc. In the situations where continuation of poll process requires immediate decision based on certain reports, manual method of report preparations does not conforms to the cannons of speedy decisions.

Optimal resource utilization: Election activities are time bound processes. Resource requirement for these activities in terms of man, money and material are very large. Prior to introduction of EVMs (Electronics Voting Machines) requirements of ballot papers and other statutory forms were made available to the District Election Officers on demand without checking

the genuineness of the requirements. One set of appointment letter for each polling party was prepared with the help of typewriter. Multiple copies of the same were subsequently prepared using the photocopier. To accomplish this task; typewriters from different offices of the district were requisitioned along with the typists thus putting that office work in to stand still. Some times new typewriters were purchased in large number. A number of Photostat machines were also procured. Being essential; all these last moment procurements take place without following any laid down norms resulting into sub-optimal price discovery. In the absence of any automated process, preparation of Polling Officers' Identity card is being made with the help of private agencies. To minimize various expenses related to this particular Election Head, there is always need of any automated process that was lacking in the manual system.

Impersonation of polling staff on duty: Sometimes in the past it has been reported by many political parties that the polling officers in collusion with each other make undue favour to other political parties by allowing political party functionaries/agents to takeover the role of Presiding Officer for that booth during the election period. In the absence of photograph of the staff in the appointment letter as well as in the Polling Officer Identity card, it was very difficult to ascertain the genuineness of the deputed polling staff. In the above situation it was not easy to prevent the impersonation of the polling Officer leading to malpractices. Manual process of preparations of Appointment letters as well as Identity card had its own limitations to incorporate photo of the polling staff.

8. Project Plan

Guidelines laid own by Election Commission is the core to the formation of polling parties. Considering local conditions CEO, Bihar had some additional requirements incorporated to minimize the resource utilization. After formal approval of CEO, ELECON was circulated to all Districts for implementation.

ELECON has been developed using the following platforms:

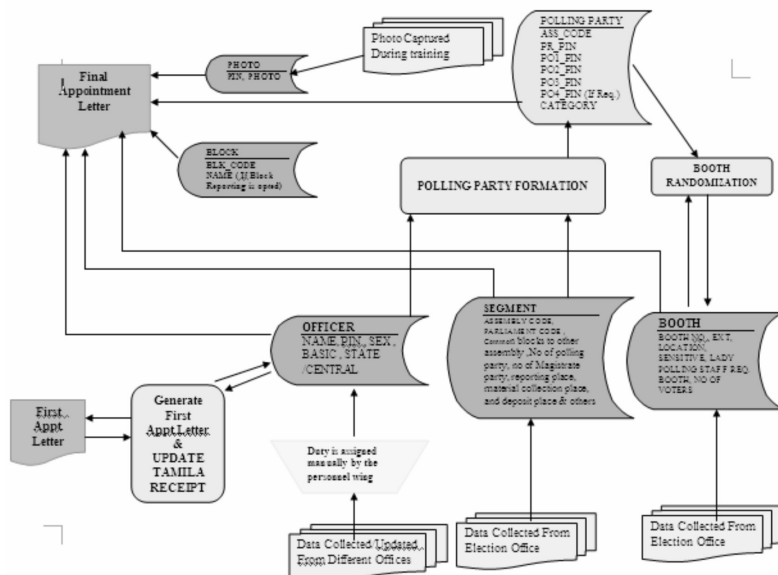
- a) **Back-end:** SQL Server 2000/MS Access

ELECON 6.0 has MS Access at backend, while ELECON 7.0 has SQL Server 2000.

- b) **Front-end:** Visual Basic 6.0
- c) **Reporting Tool:** Crystal Report 8.0

Details of the process diagram

Fig. 1



9. Milestones

Table 2

Phase number	Date of release	Brief Description
1.0	28-10-1989	Initial release
2.0	28-12-1996	Structuring the application
3.0	26-10-1998	Deployment of multi-level random techniques during party formation and booth tagging
4.0	28-02-2004	Inclusion of 50% outsider i.e. from other districts in polling party formation
4.5	20-01-2005	Shifting of tagged party based on the random number provided by the Election Observer
5.0	12-09-2005	i. Migrating to Windows platform ii. Introducing photo features in the appointment letters iii. Facility to migrate data from legacy database systems iv. Photo uploading from external media to database and also downloading from data table v. Automatic Application/Data integrity checking before start of work
5.5	20-10-2005	i. Keeping records of Tamila Delivery ii. Addition of new report formats
6.0	10-11-2005	i. Re-designing the PIN to include District Code

Table 2 (Continues...)

Phase number	Date of release	Brief Description
7.0	20-06-2007	ii. Automatic setting the processing priority of Assembly Segments
		iii. Feature for simultaneous poll to Assembly and Lok Sabha Election
		iv. Online verifications of Commission's criteria for party formation and deployment
		i. Multi-level data security at the level of Database, User and Observer
		ii. Facility for locking and unlocking of process data by the Observer
		iii. Provision for deploying lady officer in the booth
		iv. Preparation of Polling Officer identity cards

10. Project Management Structure

Change requirement and trouble shooting in ELECON is carried out by NIC Project team in consultation with CEO Bihar at the state level. Its implementation at the district is carried out with support and involvement of District Informatics Officer (DIO) of NIC.

11. Implementation

Strategy for Pilot to roll out

After the ELECON 5.0 was developed, it was tested with the live data of local Patna district. During testing on screen validations were carried out to see that ECI guidelines are not violated. There after the media containing the ELECON application (without the source code) along with the operational manual was circulated to all District Election Officers for implementation.

12. Capacity Building: Governance structure, project management teams, exit management team, change management and training

No formal training required, as ELECON is user-friendly and it is to be operated under the direct supervision of DIO at the district level. No change is encouraged from the district level and the decision of CEO with respect to ELECON is binding on all DEOs.

13. Evaluation and Measurement

Since 1991 the manual process of polling party formation and their deployment (i.e. booth tagging) has been discontinued. Personnel data with respect to Polling Officers pulled from different Offices of the district for Election purposes has been maintained by National Informatics Office of the respective districts. These data is being updated regularly during each Election for various MIS reports. With the help of this database, now the process of polling party formation and booth tagging is being automated using two-tier random number generation technique. The above processes can be randomized any number of times as per the satisfaction of Election Observers before freezing the data. Once the processed data is freezed, only the Observer can unlock the said data for re-processing. This has eliminated the scope of manipulating the processed data thus maintaining the data security and its integrity. ELECON has inbuilt facility for on-line verification of deployed staff/party for Election Observers to verify the Commission's criteria for polling party formation and booth tagging. Addition of photo features in the Appointment letters and in the Polling Officer Identity card had eliminated the scope of impersonation of the staff on duty.

Since 1991, ELECON has received accolades for successful deployment in more than 6 different Assembly as well as General Elections in the state. A dozen of bye-Elections have also deployed ELECON for polling party formation and booth tagging. It has also been deployed successfully for Municipality and Panchayat elections in Bihar.

In an effort to improve the ELECON, feedbacks were collected by DIOs directly from the District Magistrates (who happens to be Returning Officer) and Election Observers after the election process was completed for last three consecutive elections. Feedbacks were collected on NIC service support and the application product i.e. ELECON software. As per QMS policy of NIC, the standard format (i.e. NIC-REC-CS.01 record) was used to collect the required feedback covering following 5 key parameters on a 10 point scale as incorporated in the record.

1. Product/Service Quality,
2. Responsiveness
3. Implementation Support
4. Documentation Support and
5. Comparative Rating

Sample size

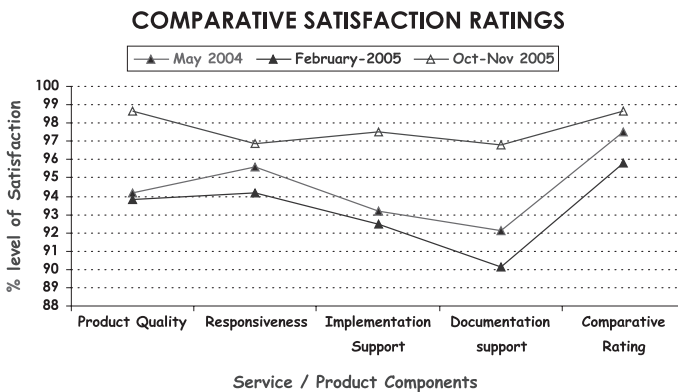
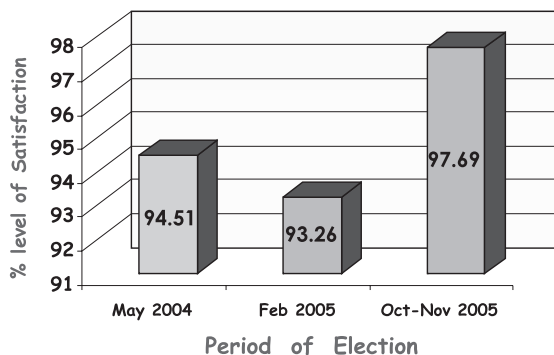
- May 2004, Lok Sabha Election—A total of 36 respondents that includes 15 District Magistrates and 20 Election Observers
- Feb 2005 Bidhan Sabha Election—A total of 58 respondents that includes 23 District Magistrates and 35 Election Observers
- October–November 2005 Bidhan Sabha Election—A total of 203 respondents that included 29 District Magistrates and 174 Election Observers

- In addition to feedbacks many DMs/Observers had acknowledged NIC support separately in the form of appreciation letters also
Data Analysis for Election October–November 2005.

Table 2

Service Component	Index	Conclusion
Product/Service quality	98.64%	Product meets all requirements of ECI guidelines and RO. ELECON software design is well structured
Responsiveness	96.85%	NIC Officials are committed, prompt, sincere and devoted to their work
Implementation Support	97.5%	NIC Officials are dedicated and focused to the requirements of the user at any time
Documentation support	96.8%	Documentation is very systematic and a naïve user can operate ELECON using the manual.
Comparative Rating	99.65%	Best Product to support RO/Observer

Comparative Satisfaction Index

Fig. 2**Fig. 3**

14. Issues and their Solutions

- Lessons learnt—critical success factors, failure factors
Unity of command CEO Bihar enjoys during the election is the most critical success factor for deployment of ELECON successfully.
- Replication in other states
Photo features of ELECON 6.0 have generated a lot of interest in CEOs of other states. After 2005 Bihar Assembly Elections, states like TN, West Bengal has had a detailed discussion with CEO, Bihar on the implementation of ELECON. In just concluded UP Assembly Election, ELECON was made available to CEO UP by CEO Bihar. During August 2007 coordination meeting of all NIC State Election Coordinators at NIC HQ, it was revealed that Bihar is the only State in the country which has deployed the photo feature in the appointment letters during election.
- Road ahead
Integrating the voter list data base (having thumb impression and photo of voters) of the constituency with the EVM through appropriate bio-metric interface for on-line validation of the genuineness of the voter during election.

15. Status and Results

Present status

Since 1991 ELECON was being used extensively in each and every election in the State (united Bihar) for Lok Sabha and Assembly including bye-elections. Since 2004 it is being implemented successfully in all 38 districts of Bihar supporting all Returning Officers during Lok Sabha as well as Assembly elections. Districts like Supaul and Arwal, where no NIC Officer was posted had also implemented ELECON successfully. In the year 2005, it was used for two successive Assembly elections supporting 243 Returning Officers. In the year 2006, it supported two by-elections to Lok Sabha i.e., Bhagalpur and Nalanda in addition to a number of by-election to state Assembly.

Specific achievements during the year 200–07

- In the year 2006, ELECON 6.0 supported two by-elections to Lok Sabha, i.e., Bhagalpur and Nalanda in addition to a number of bye-elections to State Assembly.
- Release of ELECON version 7.0 and migrating to SQL Server with addition of new features as mentioned in the milestone heading was the achievement for year 2007.

Computerisation of Personnel Information Systems (CPIS)

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ABSTRACT

Actual concept of the project was brought to focus by one MCA student who was given a project work in finance department to develop a system to monitor State Govt expenditure. During his interaction with the officials of the finance department, the need for the computerization of employees Profiles were brought forward to NIC. Thanks to those MCA students, without whose report to NIC, it would never have happened or would have been very late to start the project. It took much longer than the stipulated time. This was because the project started with the interest of one senior officer from Govt, who was also transferred from that department to other department, from where he could not render his service for the project. By that time data entry was completed and correction was going on. Even though the database was not fully correct, it was used for various planning purposes by the finance department. In the year 2004, the database was shown to the World Bank team who came down to Imphal for study of Pension Reform scheme. The team was very impressed with the kind of database and recommended to the state government to complete verification and correction of the database. Around December, 2005, Govt started seriously to complete the work at the apex level. By that time, another module added to the present database for easy cross check, i.e., linking the Employees Profiles with the Sanctioned Post in every department for every office. This was a new phase to achieve the goal quicker; otherwise, it would have taken longer time again. Many departments could not give correct information about sanctioned post in their own department months together. Sometimes they certified wrong information as correct information. Some departments did not take it seriously and their negligence delayed the project. It was a totally different experience.

1. Introduction

Project conceptualization

Eleventh Finance Commission desired details of Budgets and employees for assessment of Revenue Expenditure of Government of Manipur. Collecting information of staff strength office wise, department wise, designation wise etc. was a Himalayan task for the Finance Department. But correct data is required every year for the purpose of budgeting, calculating retiring staff,

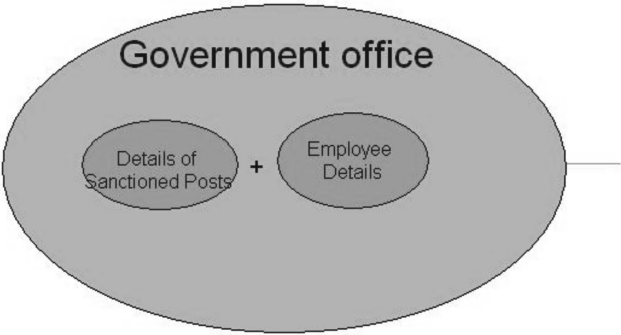
planning for new recruitments etc. Without correct information, State Govt could not plan properly. In the year 2002, Finance Department, Government of Manipur entrusted the same work to NIC Manipur. The exercise was to cover 65000 employees in 38 Departments and 80 Head of Departments, spread over in 9 districts with 3500 approved offices linked to 945 DDOs. Internet connectivity was a constraint in the year 2002, Therefore, web based S/W could not be deployed for the work. Therefore, it was decided to do data entry at Directorate office for the small and medium departments and distributed data entry for big departments. Selecting a platform for collection of data from different location was also an issue at that time. Considering all these factors and also cheap availability of MS Access as well as familiarity to the common people, MS Access was selected to develop the required S/W. Thus MGEL S/W was developed using MS Access and given to all the Departments for data entry using their own PCs. Necessary training were also imparted to the Nodal officers of every department for data entry. NIC collected data in the digital forms only which was later on verified by the staff from the concerned department. Thus, the data entry of MGEL started in the year 2002. Response was not impressive in the beginning. It took almost 4 years to complete the Project with the real initiative of State Government.

At present, CPIS is the real driver of all the Government Departments to streamline the staffing pattern as well as to weed out irregular staff. It has almost become Virtual Policy for transfer and promotion, and enforced in every department effectively.

Fig. 1

WHAT IS CPIS ?

CPIS is a computerised database containing details of the sanctioned posts and service particulars of all employees in each office of the Government.



Computerised Personnel Information Systems (CPIS)

2. Vision

Enabling every department to maintain a correct database of employee profiles vis-à-vis sanctioned post in the State Data Centre. Every department will be able to update the database to the State Data Centre directly from their office. In turn, finance department will be able to generate any kind of report without waiting the reports from the department. Treasury should be able to use it for controlling expenditure.

3. Stakeholders

1. NIC - Technical Support and Database maintenance
2. Finance Department - Data Certification
3. Line Department and Data origin and Input Office of DDO
4. Treasury - Data usage and Control

4. Objective and Services

CPIS aims to create

- a) a complete database of sanctioned post for all categories of personnel in each department,
- b) a complete database of all regular employees posted in each office against sanctioned post and
- c) assigning unique Employee Identification Number (EIN) for each employee, irrespective of his posting.

The system enables the administrators to understand the actual position of staff (excess or shortage) in every office. CPIS has already become Virtual Law Enforcing Agency (VLEA) to all the departments.

5. Public Private Partnership

The project is purely based on G2G and G2E and hence, PPP is not envisaged. But initially, some departments utilized the services of the local agencies for doing data entry. But continuous support of the private party is not required due to the nature of the work flow; the ultimate user is the Government department only. Funding is also minimal because existing PCs could be deployed for the job. At present, Finance department is bearing all the funds necessary for hiring manpower etc. Line departments need not provide fund for this project.

6. Project Plan

Project plan could be described as follows

NIC to develop S/W for database maintenance and provide datasheet to line department in the form of CDs and train Nodal Officers of every department

Initial data entry must be done by departmental staff at their own offices (sanctioned post and employee details) in approved formats and furnish to NIC). If they do not have required infrastructure, they could outsource the work to any local agency.

Collection of the digitized data and consolidation and verification and printing of reports in hard copies by NIC.

Data correction must be done by the departmental officials and submit back to NIC with certification

Final verification of data must be done by NIC. Generation of reports is submitted to Finance department for issuance of certificates of correctness to be given to the concerned Treasuries for control of payments.

NIC generates EIN for each authenticated employee.

7. System Re-engineering and Legal Framework

The system does not propose any change to the existing systems, except introducing some checks and balances using computerization. All these new checks and balances were regulated by the finance department by issuing Govt. orders. Hence, the introduction of the new systems did not cause any breach of legal framework.

8. Project Management Structure

Initially, there was no concrete management structure up to the last part of the year 2005. Around December, 2005, Govt started setting goals of the project to complete by March, 2006. After that only, project management structure came into picture. Separate cell in the Finance department were set up to dealt with CPIS issues. Dedicated cell was opened in NIC with due strengthening of manpower. Regular interaction with the line departments were arranged to resolve pending issues. Timely Govt. orders were issued to the line departments to meet the target of the projects. Every department opened CPIS cell to work for CPIS. Review of the project is also held to improve the quality of the systems.

Strategy for pilot to roll out

There was no pilot scheme while starting the project. It was started covering all Government Departments. Hence, there is no plan for roll out of the

Fig. 2. Work Flow

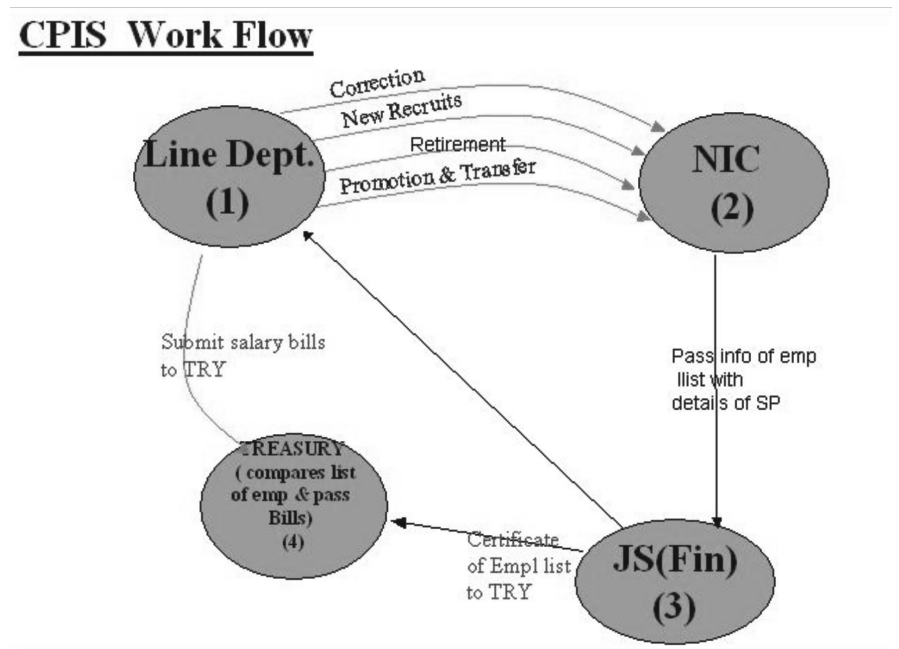
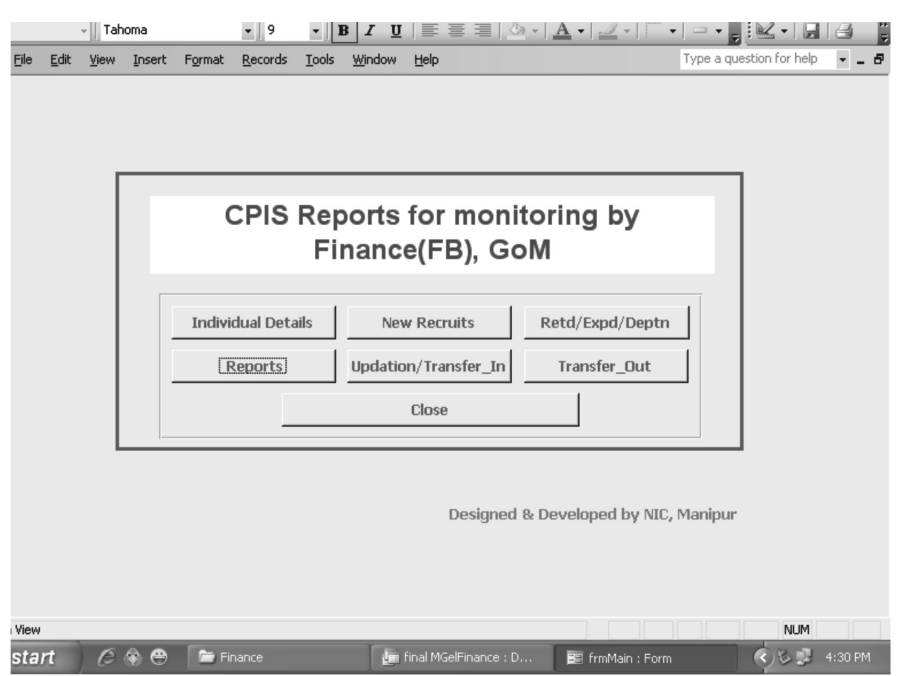


Fig. 3. (Screen shot for report generation)



scheme. But Govt. is trying to cover the left out group of employees such as Muster Rolls, Casual employees, Work Charge as well as PSUs and Agencies. Government has already issued Notification for starting the work. NIC has already geared up to take up the additional work.

9. Capacity Building

Each stakeholder has opened a separate CPIS cell equipped with computer and persons to operate it. They are trained to understand what information is to be submitted to NIC whenever there is transfer, promotion or retirement of staff. A set of forms are also made available in the website, so that line department can download and fill up before they are submitted to NIC for updation in the database.

Regular meetings of the line departments are called for discussion of pending issues.

10. Issues and their Solutions

There are not many issues with the systems except from the line departments for non submission of information correctly. These issues are addressed

Fig. 4. (data entry screen shot)

The screenshot shows a Microsoft Access window titled 'Microsoft Access - [frmEmpl : Form]'. The form is titled 'MGel Data Updation/Entry'. It contains various fields for employee data entry, including ID, Name, Father Name, Sex, Department, Directorate, Designation, Present Posting, Pay Scale, Present Basic, DDO Code, Working Status, Post Type, District, Location type, Date of Birth, Date of Joining, Date of Joining to the present post, Special Pay, and Head of Account. Below the form is a 'Navigate Employees' section with buttons for 'First', 'Previous', 'Next', 'Last', 'Search', 'Close', and 'Get Total No of employees'. At the bottom, there is a table with columns: 'emp_id', 'emp_name', 'Deg_Name', 'Pay_Scale_Desc', and 'post_narr'. The table lists several employees, including Y. THAMKISHORE SINGH, H. IMOCHA SINGH, MD. SAJJAD HASSAN, and DILIP JAWALKAR.

emp_id	emp_name	Deg_Name	Pay_Scale_Desc	post_narr
000014	Y. THAMKISHORE SINGH	Deputy Commissioner	12750-375-16500	Permaner
000015	H. IMOCHA SINGH	Commissioner	18400-500-22400	Permaner
000016	MD. SAJJAD HASSAN	IAS, Leave Reserve/Jr. Pc	12750-375-16500	Permaner
000017	DILIP JAWALKAR	IAS, Leave Reserve/Jr. Pc	8000-275-13500	Permaner

with Govt orders to the department or by calling officials to NIC centers, etc. When there are some delays in issuing certificates by Finance Departments, these matters are put up as agenda notes in the coming meeting. Otherwise the system is working fine.

11. Status and Results

Present status

At present CPIS has covered all the 38 Departments with 80 Heads of Departments, spread over in 9 districts with more than 3000 offices. So, far it has recorded 64,832 employees. Finance department has issued notification for not releasing salaries to those offices that are not following CPIS systems. Now, it is to state that 100% target has been achieved during 2006-07.

Fig. 5. (Sample report)



S. No.	EIN	Name of Employee	Designation	Grade	Basic Pay	Date of Birth	Date of Joining	Pay Scale	H
1	0-8570	Shri A. Naba chandra Singh	Director	A	15000	11/03/1960	28/11/1974	12000-423-13300	22
2	0-8589	Shri S. Sarat Kumar Sharma	Jr. Dir. Director	A	11625	11/03/1961	09/05/1982	10000-325-15200	22
3	0-8597	Shri K. Sarajada Singh	Deputy Director	A	9650	11/03/1963	24/05/1983	8000-275-13500	22
4	0-8598	Shri B. Angou Singh	Asst. Commissioner (Disabilities)	A	9625	11/07/1961	24/05/1983	8000-275-13500	22
5	0-8500	Miss Ranjana Marotamrayum	Programme Officer	B	7380	12/03/1968	04/02/1991	6500-280-10500	22
6	0-8406	Shri Suresh A. Sishak	Programme Officer	B	3680	11/03/1968	16/11/1973	6500-280-10500	22
7	0-8588	Shri P. Loancro Singh	Probation Officer	B	3100	11/11/1960	10/12/1981	6500-280-10500	22
8	0-8587	Miss Binwala Yogreikapur	Child Welfare Officer	B	3380	05/03/1973	23/05/1993	6500-280-10500	22
9	0-8586	Shri Th. Tool Singh	Research Officer	B	3100	11/03/1961	23/04/1975	6500-280-10500	22
10	0-8188	Shri Y. Mingthinga	Specia Officer	B	3680	11/03/1968	01/11/1982	6500-280-10500	22
11	0-8509	Shri B. Binod Devi	Asst. Director (V/F)	B	3380	11/06/1949	16/08/1971	6500-280-10500	22
12	0-8586	Shri K. Sarajadei	Asst. Probation Officer	B	7075	04/05/1970	14/06/1993	6500-175-8000	22
13	0-8203	Shri K. Tonba Singh	D. & W.D. Tamenglong	B	3380	11/03/1960	01/04/1973	6500-280-10500	22
14	0-8588	Shri Th. Anokumar Singh	Research Assistant	C	7250	11/06/1963	11/06/1983	6000-160-8000	22
15	0-8551	Shri W. Bihari Singh	Research Assistant	C	5600	11/02/1963	28/01/1991	6000-160-8000	22

12. Future Plans

Future plan for CPIS are given below:

- Giving access to Accountant General, Manipur for GPF, Pension and Service Details purposes
- Give limited access to the Line Departments with User ID and Password for updation in case of promotion, transfer, etc.
- CPIS will be made an alternative system of Electronic Service Book
- Preparation of budget details for salary and pension entitlements
- Online payroll preparation by line departments.

13. Conclusion

CPIS started in the year 2002 in the name of MGEL and completed in the year 2006. The project was delayed by more than 2 years. The reason was apathy of departments, low priority, and repeated failure during verification of employee details with sanctioned post. It has been renamed CPIS in the year 2006 with the inclusion of sanctioned post. It was started in 2002 and ended in 2006. It is a good achievement of the Government of Manipur.

CM Monitoring Programme

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ABSTRACT

Outlays in the Government budget reflect a commitment of the government towards realizing goals in the financial year. It is important to convert financial outlays in the Budget to tangible assets with monitorable targets to carryout mid course corrections, if necessary, for timely completion of programmes/development works. Hence, the Chief Minister Monitoring Programme is introduced in the State. This has enabled the State to effectively monitor various Departmental activities and thus helping in the implementation of various Welfare Schemes and completion of various Projects in time.

1. Introduction

Project conceptualization

Budgetary Provisions of any Government are usually made for implementing the various schemes of development and to incur the expenditure to maintain the level of development reached in the previous plan.

Departments supply the budget proposals to the department of Finance. On this basis, the Finance department prepares the annual budget. The Planning department lays down the financial outlays and approves the schemes on the basis of which the plan budget is incorporated in the budget estimates by the Finance department. It is important to convert outlays to tangible assets with monitorable targets to carryout mid course corrections, if necessary, for timely completion of programmes/development works.

Chief Minister Monitoring Programme is conceptualized in terms of a comprehensive monitoring system for realizing the targeted goals in a time bound manner using the Information and Communications Technology in the Governance. The project envisages capturing the information on the Departmental activities of each of the Department.

2. Project Vision, Stakeholders, Objectives and Services

Thus with the purpose of realizing the targeted goals in a time bound manner using the Information and Communications Technology in the Governance, a Regular

review and Monitoring mechanism ‘Chief Minister Monitoring Programme (CMMP)’ is introduced. The system is extensively used by Chief Minister, Chief Secretary, Departmental Secretaries and others for various purposes.

3. Objectives

- 1. To implement various Schemes/Programmes meant for the welfare of the Public effectively
- 2. To complete various Projects well in time

Fig. 1



- 3. To create an exhaustive database pertaining to all the activities of the Department to enable monitor and take effective decisions. For example, recruitment of teachers by school education department, status of roads and its maintenance by public works department, generation of power by energy department, lifting of stock in all the districts pertaining to food and civil supplies department, creation of irrigation potential by water resources department, clearance of project for setting up of industries by industries department, etc.
- 4. To bring in transparency and accountability in the functioning of the government

The Schemes/Projects/Activities which are being monitored are as follows:

Table 1

Department	Activities Monitored
Farmer Welfare and Agriculture Development	Construction of tanks/percolation tank/Khet Talab/stop Dams

Table 1 (Continues...)

Department	Activities Monitored
Backward Classes and Minorities Welfare	Distribution of various Agricultural Inputs
	Farmers training
	Kharif cropping
	Promotion of jaivik kheti
	Rabi cropping
	Construction of hostels
Commerce and Industries	Removal of encroachment from WAKF property
	Samuhik Kanya Vivah
	Scholarship/Stipend
	Compliance of decisions of PCIB
	Mega project details
	Status of projects coming under apex level investment promotion empowered committee
	Status of projects coming under project clearance and implementation board
Commercial Taxes	Status of the schemes
	Excise
	Stamp duty
Cooperation	Value Added Tax (VAT)
	Agriculture loan (MP State Cooperative Bank Maryadit, Bhopal)
	Agriculture loan (MPSCA and RDVB Maryadit, Bhopal)
	Akikrat sahkari vikas pariyojana
	Kisan credit card
Energy	Distribution losses
	Generation from existing plants
	Revenue realization through distribution
	Rural electrification (RGRES)
	Status of new projects for generation
	System strengthening for distribution
	Transformer failure
	Transmission lines
Fisheries	Transmission - sub-stations
	Fish production
	Fish production - federation
	Fish seeds stocking
	Fish seeds stocking - federation
	Increase in fisheries area
	Increase in fisheries area - federation
	Increase in production of fish seeds
	Increase in production of fish seeds - federation
Food and Civil Supplies	Action taken under Essential Commodities Act. 1995
	Applications registered in Food and Civil Supplies Department
	Inspections

Table 1 *(Continues...)*

Department	Activities Monitored
Forest	Lifting against allotment at fair price shops
Higher Education	Purchase of kerosene drums
	Scheme wise status
	Construction works
	Distribution of scholarship
	Distribution of stationary and books
	Gaon ki Beti Scheme
	Recruitment Of Assistant Professors
	Recruitment Of Professors
	Research work
	University Grant Commission
	Valuation of college from NAAC
Medical Education	Vivekananda Carrier Guidance Scheme
	Construction works
	Establishment of private institutions
	Establishment of Sagar Medical College
	Filling up posts of Assistant Ayurvedic/
	Homeopathic Medical Officer
	Filling up posts of Ayurvedic/Homeopathic
	Medical Hospitals
	Plan-Budget allocation and expenditure
	Purchase of equipments/medicines
	Recruitment Of Assistant Professors
	Recruitment Of Associate Professors
	Recruitment of Demonstrators
Mining	Recruitment of Professors
	Chemical analysis
	Drilling
	Pitting and trashing
	Revenue realization
	Survey and mapping
NVD	Creation of irrigation potential
	Status of New Projects for Generation
Panchayat and Rural Development	DPAP - Rajiv Gandhi Watershed Mission
	DPIP - District Poverty Elevation Programme
	Indira Awas Yojna (IAY)
	IWDP - Rajiv Gandhi Watershed Mission
	Madhya Pradesh Gramin Rojgar Guarantee Yojna (MPGRGY)
	MDM - Mid Day Meal
	MPRLP - Madhya Pradesh Rural Livelihood Project
	Prime Minister Gramin Sadak Yojna (PMGSY)
	Rastriya Sam Vikas Yojna (RSVY)
	Sampoorna Gramin Rojgar Yojna (SGRY)
	Swajal Dhara
	Swarna Gayanti Gramin Swarojgar Yojna (SGSY)

Table 1 *(Continues...)*

Department	Activities Monitored
Planning, Economics and Statistics	Jan Bhagidai Scheme
Public Health and Family Welfare	M.L.A. Local Area Development Scheme M.P. Local Area Development Scheme Building construction CemONC/BemONC Accreditation Eye operations Family Planning operations Filling up of Doctors/Nurses/ANM posts Institutional delivery Leprosy Malaria TB Cases Vaccination
Public Health Engineering	Change in Habitation Status to FC Category Construction of latrines and sanitary complex Drinking water arrangements in rural schools National River Conservation Programme (NRCP) Pipe Water Supply Schemes (PWSS) Urban water supply schemes
Public Works	Construction of buildings Construction of roads by Directorate Construction of roads by RDC Maintenance of buildings Maintenance of roads Status of roads (maintained by Directorate)
Revenue	Revenue cases under different categories Status of land records Status of revenue collection
SC Welfare	Construction works Distribution of cycles Electrification of SC Basti/Majara/Tola Energization of Electric Pumps Kanya Saksharata Prothasan Rahat Distribution under POA1989 Saubhagyavati Kanyah Vivah SC Bastion ka Vikas Scholarship/Stipend Vimukt Ghummakad avam Ardh Ghummakad Jati Vikas Abhikaran
School Education	Book bank Books distribution Construction works Distribution of cycles Distribution of cycles (RSK) ICT@School Kasturba school

Table 1 (Continues...)

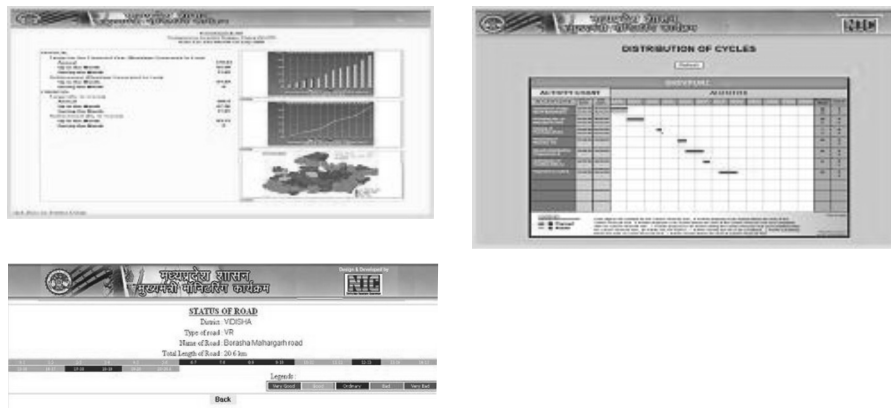
Department	Activities Monitored
Social Justice and Empowerment	Scholarship/Stipend
	Teachers recruitment - Category SSS-1, SSS-2, SSS-3
	Teachers training
	Uniform distribution
	Audit of Gram Panchayat
Sports and Youth Welfare	Distribution of Scholarship
	Distribution of artificial body parts
	Kanya Vivah
	Old Age Pension
	Operations performed
Transport	Rastriya Parivar Sahayata Yojna
	Tricycle distribution
	Competitions
	Construction of stadiums and grounds
	Encouragement to players
Tribal Welfare	Training to players
	Denationalisation of routes
	Fees
	Motor Vehicle Tax
	Other activities
Urban Administration and Development	Penalties (Enforcement)
	VRS to employees of MPRTC
	Anusuchit Janjati Bastion Ka Vikas
	Construction works
	Distribution of Cycles
	Samuhik Kanya Vivah
	Scholarship/Stipend
	Student's training
	Teachers recruitment - Category SSS-1, SSS-2, SSS-3
	Uniform distribution (15 Districts PTG Dominated)
	Uniform distribution (33 Blocks out of SSA)
	Ekikrat Vikas and Malin Basti Vikas Programme (GOI)
	Ekikrat Vikas and Malin Basti Vikas Programme (STATE)
	Environmental reforms ADB - Jan Bhagidari and Community Development
	Environmental reforms ADB - Sewage Works under Basic Infrastructure
	Environmental reforms ADB - Solid Waste Management under Basic Infrastructure
	Environmental reforms - ADB - Water supply works under basic infrastructure
	Golden Jubilee Urban Employment Scheme

Table 1 (Continues...)

Department	Activities Monitored
Veterinary	JLNNUR Programme - Construction of house for poor families
	JLNNUR Programme - Other Schemes
	JLNNUR Programme - Rehabilitation of poor slum colonies
	JLNNUR Programme - Road construction
	JLNNUR Programme - Water supply schemes
	Breed improvement
	Dairy Federation : Financial indicators
	Dairy Federation : Physical indicators
	Immunization of animals under animal health care programme
	Induction of milk producing animals
	Production of milk, eggs and meat (by survey)
	Treatment of animals under animal health care programme
Water Resources	Creation of irrigation potential
	Kharif - irrigation potential utilized
	M.P Water Sector Restructuring Programme
	Rabi - irrigation potential utilized
Women and Child Development	Distribution of nutritious food
	Female awareness camp
	Ladli Lakshmi Scheme
	Opening of Anganwadies
	Pre delivery help to poorest of the poor pregnant women
	Weighing of children

The computerized system provides

1. Creation of master directories specific to department
2. Entry of targets by the administrative departments
3. Entry of achievement details from the district level
4. Provides for in-depth analysis through
 - Statistical reports at different levels
 - Detailed reports
 - PERT chart
 - Graphical analysis
 - Thematic maps

Fig. 2

4. Public Private Partnership (PPP) – roles and responsibilities, audit, SLA, business model; If not PPP, funding process

The project is implemented by the State Government with the technical support of National Informatics Centre, M.P, which is a premier Information Technology organization under the Ministry of Information and Communications Technology. The Software support is provided by the NIC whereas it is implemented by the State Government using its own resources.

No direct capital investment is made for the implementation of the project. The web based system developed by the NIC, M.P. is hosted on the NIC web server at Integrated Data Centre (IDC), NIC State Centre. The computer system along with internet connectivity which was already available at all the user locations is used in implementation of the system.

5. Necessity/Needs

Bringing in the transparency and accountability in the functioning for improving the overall performance of the Department has always been the top priority of the State Government. The advent of Information and Communications Technology has made it feasible to collect and analyze the data even from the remotest corner in a shortest possible time. It has made possible effective monitoring at all levels. It has made possible better planning and improves the overall performance of the Department.

Some of the inherent benefits of this project are:

- Creation of information system
- Better monitoring and planning
- Timely Completion of Projects and effective implementation of Schemes/Programmes
- Improvement in the performance of the Department

8. Milestones

- Study of the functioning of the Departmental Activities for identifying the areas for monitoring
- Design of appropriate forms
- Development of System for entering/updating the data and for its analysis

9. Project Management Structure

Project Management → Project Policy Level → Change Management

10. Implementation

Strategy for pilot to roll out

After the development of the appropriate module pertaining to the Department, the same is to be hosted on the web server for entry/updation and for Data Analysis for about 10 days. The module is to be fine tuned to the satisfaction of the Department. This will enable the concerned Department to adopt the new system.

11. Capacity Building

Governance structure, Project management teams, Exit management team, Change management and training

The Officials at the District and the State level are very well aware on how to handle the Computers. They are also very well aware of their functioning. Hence, no formal training is required. Only the system is demonstrated to all the concerned directly at the State level whereas for the District Officials through the Video-Conferencing.

Evaluation and measurement

The state implemented this Monitoring System to improve the overall performance of the Department. This ensures in creating more accountability to the Officials concerned. It also creates a pressure on them to perform.

Evaluation and measurement strategy

The System has enabled Regular Monthly monitoring at the level of Departmental Secretaries and Chief Secretary which has resulted in better implementation of Schemes and also timely completion of Projects.

12. Issues and their Solutions

Lessons learnt – critical success factors, failure factors critical success factors

(a) Commitment

The Political Leadership is committed to bring in transparency and efficiency through administrative reforms. For this purpose, Departments are asked to fix-up the monthly targets and provides the achievements from the field.

(b) Visibility

Regular monitoring at the level of Hon'ble Chief Minister, Chief Secretary and the Departmental Secretaries during the last one year through this software has enabled to complete various projects well in time.

Challenges

- This programme puts the pressure on the various functionaries of the Departments to perform as against the fixed targets. Hence, the challenge is to overcome the general reluctance.
- Data collection
- Getting the involvement of senior bureaucracy
- Understanding of the various schemes of the Department
- Meeting the ever changing demand of the users

Replication in other states

The Project may be replicated in other States. The system will help in effective monitoring and planning, thereby helping in effective implementation of Schemes/Programmes of the Government besides completion of various projects in time.

13. Road Ahead

It has integrated with the regular administrative structure, thus making the system sustainable in the state. All the data captured in the programme has been owned by the respective departments of the state. It is a direct indicator of the performance or the efficient functioning of the respective departments. It is also proposed to disseminate the relevant information about the Schemes/Programmes of each Department to the Public besides developing the software for application processing pertaining to each of the scheme in the next phase. Since no recurring operating expenditure is involved, the budget constraints are not there. Integration with the regular administrative structure and linking it with the outcome budget will make the system sustainable in the state.

14. Status and Results

Present status

The Project is implemented for 29 Departments of the State Government. These are Backward Class and Minorities Welfare, Commerce and Industries, Commercial Taxes, Cooperation, Energy, Farmer Welfare and Agriculture Development, Fisheries, Food and Civil Supplies, Forest, Higher Education, Medical Education, Mining, Narmada Valley Development Authority, Panchayat and Rural Development, Planning, Economics and Statistics, Public Health and Family Welfare, Public Health Engineering, Public Works, Revenue, Schedule Caste Welfare, School Education, Social Justice and Empowerment, Sports and Youth Welfare, Transport, Tribal Welfare, Urban Administration and Development, Veterinary, Water Resources and Women and Child Development.

15. Specific Achievements during the Year 2006-07

The System has helped monitoring at all levels and thus helped in implementation of various Programmes/Schemes in an effective manner besides completion of various Projects. The effect of the system may be gauged from the following comments:

“The Software developed for the Public Works Department under CM Monitoring Programme by the National Informatics Centre; M.P. State Centre is a very useful tool for the purpose of monitoring and planning. It is facilitating the Department to capture the information pertaining to the Roads, Bridges and Buildings from the field. It is helping us in analyzing the data and take appropriate and timely decision, resulting in better utilization of funds and completion of projects.”

S.K. Mitna, Secretary, PWD, Govt. of M.P.

“Setting targets and goals are important but achieving them is more crucial, Chief Minister Monitoring Programme has helped streamline the process leading to timely completion of important projects. Software support of NIC provides at a glance analysis and graphical representation making monitoring effective and easy.”

Shivraj Singh Chouhan, Chief Minister, M.P.

Integrated Information System for Foodgrains Management—IISFM*

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ABSTRACT

Integrated Information System for Food Grains Management (IISFM) is an MIS solution developed and implemented by National Informatics Centre (NIC) for Food Corporation of India (FCI). This system aims to improve the Information and Communications Technology and better online stock inventory management system. This system can be used to bring in more transparency and curb mismanagement of food stocks.

This system is basically designed from the Food Storage depot point of view, since data originates from depots. This is a web-based application. The application has been designed to operate both in networked environment through a WAN or stand-alone-mode, depending on the connectivity. The application provides the facility to create role-based users with specific permissions.

The data capture takes place at the depots, which forms the base of the project. The data is captured at the individual Stack levels. All movements into and out of the depot by trucks, rail or any other mode of transport are captured as receipts, issues or dispatches. The data is captured truck-wise and wagon-wise. The issues related to different schemes are also recorded by the module. Apart from the stock data, the module also captures quality related data of the commodities, both received and stored.

The captured data flows from the depots to the Head Quarter while being collated at various levels of hierarchy with Food Corporation of India, and thus the stock data related to every depot is made available at a central location. The data transmitted to the Central Server is processed for generating reports relating to the stocks at District, Regional, Zonal and National Level. The stock position at any given depot even from the remotest part of the country could be known through the Internet. Apart from these reports on stock position of the depots, a portal designed for the exclusive use of Food Corporation of India is used to disseminate information related to Movement Plan, off-take of food grains against different schemes, support to the users of the District Module and depot module applications and the like.

NIC with the mandate of a project consultant has provided an end-to-end solution. It has planned the project management strategy, has designed, developed, implemented and maintaining the requisite applications, has provided extensive training to the officials of FCI for effective induction of Information Technology in FCI thus leading to capacity building of the human resources of FCI. NIC has coordinated with NCSI for the supply and

* CSI Nihilent e-Governance Awards 2006-07, G2G/G2E – Joint Winner.

installation of the hardware and with Bharat Sanchar Nigam Limited (BSNL) for implementation of VPN across the district, regional and zonal offices.

1. Introduction

Project conceptualization

Food Corporation of India operates through a country-wide network with its corporate office in New Delhi, five zonal offices, 23 regional offices in almost all the state capitals, 166 district offices, and over 1500 depots. The manual process previously followed in conjunction with a traditional file processing solution had many lacunae such as incomplete or inaccurate information on current stock availability. This originated an idea to have a full-fledged computerized MIS that gives the right information at right time about food grains stock position. The inaccuracy of the information on the stock availability at any given point of time was highlighted by Comptroller and Auditor General of India, which asked Food Corporation of India to address the issue and provide an effective solution.

The Project Proposal evoked a keen interest in the Prime Minister's Office, which considered it as one of national importance, and led to the IISFM Project as a Plan Scheme under the 10th Five Year Plan with a budgetary provision of 97.60 crores.

2. Project Vision, Stakeholders, Objectives and Services

Vision

Upgrade the MIS of the Food Corporation of India based on a computer network-based Stock Accounting Procedure, and to establish a uniform and integrated system for food grains management across the country.

Stakeholders

Internal

- Food Corporation of India (FCI)
- Ministry of Consumer Affairs and Food, Public Distribution
- National Informatics Centre (NIC)
- National Informatics Centre Services Inc. (NICSI)

External

- Civil Supplies Departments of State Governments
- Central Warehousing Corporation
- State Warehousing Corporation(s)
- Bharat Sanchar Nigam Limited (BSNL)
- Procurement Agencies

Objectives

- Anytime and Any-where availability and share-ability of accurate food grains related data to aid the Decision Makers and Planners of Food Security.
- Creation of IT infrastructure including computer hardware and networking in the Food Corporation of India, which involves procurement and installation of suitable hardware at all the identified depots.
- Identification of functional areas in the FCI/Departments and automating the process of food grains management.
- Develop a computer-based solution to manage the stocks in the food storage depots.
- Transparency in the horizontal and vertical movement of the data using a secure network.
- Capacity building of the human resources in Food Corporation of India, as well as providing on-site technical support.

Services

NIC is the overall project consultant and is providing end-to-end solution in collaboration with a dedicated team of FCI entrusted with the task of providing the domain knowledge, and is striving to fulfill the objectives of the project.

3. Public Private Partnership (PPP)—roles and responsibilities, audit, SLA, business model; If not PPP, funding process

This project is a Plan Scheme (under 10th Five Year Plan) of Planning Commission, Govt. of India, which is to be internalized by Food Corporation of India in terms of maintenance and operations.

4. Necessity/Needs

The inaccuracy of the information on the stock availability at any given point of time was highlighted by Comptroller and Auditor General of India, which asked Food Corporation of India to address the issue and provide an effective solution.

Also the localization of the operational procedures at the depots had created a heterogeneous operational methods thus leading to lack of uniformity of data in the manual system.

5. Project Plan

Legal framework

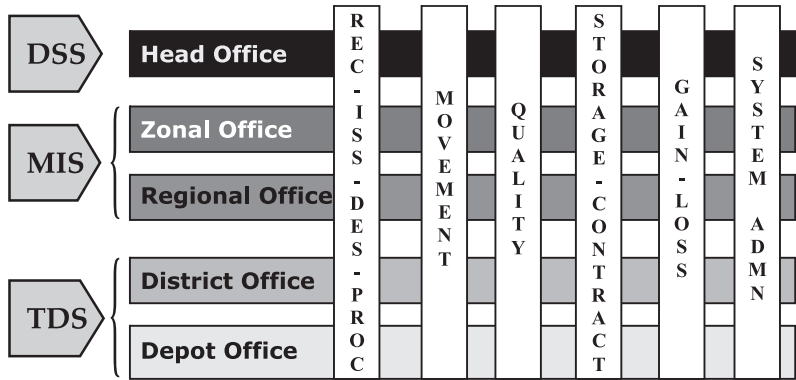
A tripartite agreement on the project exists between FCI, NIC and NICS. The project, without modifying the procedures laid down by FCI for food stock management, has eliminated the redundancy of data by establishing links between different operational levels of data sets.

Technology architecture

FCI operations and work procedures were different from region to region with in FCI. Development of suitable software for FCI was a real challenge. It involved a complete systems study across the country, visiting various FCI offices and depots to understand the functioning of the organization. After studying the existing system a solution was proposed that both horizontally and vertically integrates all activities of FCI and mainly concentrates on the following stock management areas of FCI: receipt/issues, stock, storage/contract, quality control, sales and movement of food grains.

The system is basically designed from the depot point of view as depot is the main source of data. The depots are equipped with computers and connectivity, so that gross-root level data can be captured. The system has different modules as follows:

Fig. 1



6. Milestones

- Approximately 890 field locations have been provided with the necessary hardware as part of the ICT infrastructure improvement.
- The Food Corporation of India personnel have been imparted training on Computers, and nearly 400 Technical Supervisors and 1700 Data Entry Operators have been imparted training of different aspects of the Project.

- All the Zonal, Regional and District Offices of Food Corporation of India have been connected through a VPN.
- The depot module, which captures every transaction and stack-wise details of various food grains kept in the food storage depots, is in a phased Roll-Out stage.
- Data is being transmitted from depots upwards, thus one can get the latest stock position over the web.

7. Project Management Structure

The Project management structure consists of the following components:

- Project Monitoring Committee (PMC)
- CORE group
- NIC-FCI Joint-Operation Team
- NIC Network and Hardware Team
- NIC Application Development, Testing and Product Implementation Team
- Project Portal

Project Monitoring Committee (PMC)

The PMC consists of senior officials from the Ministry of Consumer Affairs and Food, Public Distribution, Food Corporation of India, National Informatics Centre and National Informatics Center Services Inc. This Committee meets once in 3 months under the Chairmanship of Chairman (FCI) to review and monitor the progress of the project with regard to the targets and achievements, and performs as a guiding and advisory body.

CORE Group

The CORE Group consists of senior officials from Food Corporation of India, National Informatics Centre and National Informatics Center Services Inc. This CORE Group monitors the progress of the various components of the project viz., networking, hardware supplies, application development, training, etc., such that the targets set by the PMC are achieved. The CORE Group meets once in a month under the chairmanship of Executive Director of FCI.

NIC-FCI joint-operation team

This small team is entrusted with the job of deciding the features of the application, testing of the application, test locations, feedbacks analysis, etc., this team meets on a day-to-day interaction basis (over email or phone) or on-demand basis (meetings).

NIC network and hardware team

NIC has a dedicated team which looks after the hardware procurement, supply and installation. This team interacts with the supplier of the hardware and ensures that the requisite hardware is supplied to the selected depots and installation done. Also, this team works with BSNL to ensure the smooth functioning of the VPN built across the Zonal, Regional and District offices of FCI.

NIC application development, testing, product implementation and support team

This team develops the application; the application, after local testing is tested at the depots along with FCI team. The application is later implemented at the depots by FCI with the support of NIC.

Project portal

This portal functions as the pivot of the project. The portal disseminates to all the stakeholders and the officials responsible for the implementation for the project, information on the various components of the project such as product downloads, circulars, hardware installation status, VPN support and the like.

8. Implementation

Strategy for pilot to roll out

- Improvement of ICT Infrastructure in FCI— Phases I, II and III completed.
- Training of FCI personnel—Phases I and II completed. However, training is an ongoing process.
- Depot Module—is on phased Roll Out stage. The Pilot implementation was across approximately 66 install locations chosen by FCI, which is now being extended to all the depots.

9. Capacity building

Governance structure

Please refer to Project Management Structure under Project Plan.

Capacity building

The Food Corporation of India personnel have been imparted training on Computers, and nearly 400 Technical Supervisors and 1700 Data

Entry Operators have been imparted training on different aspects of the Project.

10. Evaluation and Measurement

The Project Monitoring Committee Meeting, which takes place once in three months, utilizes the feedbacks provided by the Regional Officers to evaluate the project and its effectiveness. Corrective measures and decisions are after deliberations during the regular meetings at Central and Regional Levels.

The Impact Assessment of the Project has been carried out by Management Development Institute, Gurgaon. The report titled 'Impact Assessment and Evaluation of IISFM Project of Food Corporation of India' has been handed over to Govt. of India.

11. Issues and their Solutions

Lessons learnt

Critical success factors, failure factors

- Commitment; coupled with regular review and monitoring by the Internal Stakeholders.
- End-user's participation and enthusiasm
- Project Architecture
- Timely availability of funds

Replication in other states

This project is a nation-wide implementation.

Road ahead

The scope of the project has been enlarged to cover the de-centralized procuring States, which means to capture information relating to food grains management operations done by agencies other than FCI also; therefore the project duration has been extended till March 2009.

12. Status and Results

Present status

- National Level Reports at Zonal Office, Regional Office and District Office level are in operation for more than a year. These reports are

generated from the food stock data available at District Offices.

- Approximately 890 field locations have been provided with the necessary hardware as part of the ICT infrastructure improvement.
- The Food Corporation of India personnel have been imparted training on computers, and nearly 400 Technical Supervisors and 1700 Data Entry Operators have been formed.
- All the Zonal, Regional and District Offices of Food Corporation of India have been connected through a VPN.
- The depot module, which captures every transaction and stack-wise details of various food grains, kept in the food storage depots have been made operational in more than 180 depots. Data is being transmitted from these depots, thus one can get the latest stock position over the web. FCI has the target to implement this module in all the depots by the end of year 2007.

13. Specific Achievements during the Year 2006–07

- All the Zonal, Regional and District Offices of Food Corporation of India have been connected through a VPN.
- The district-wise stock accounting data is captured at district level, and after consolidation, stock related reports are generated at Region, Zone and National level and is available through internet.
- 180 depots have transmitted their respective stock data and this could be viewed over the web.

14. Future Plans for Readers Seeking More Information on Project

- Additional reports, queries and trend analysis on various combinations of parameters shall be made available over the web.
- Food stock storage information shall be made available through graphical and GIS interface.

Online Computerization of Treasuries (e-Kosh)

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ABSTRACT

‘e-Kosh’ is a major e-Governance initiative of Government of Chhattisgarh as a solution to the problems and discrepancies existing in the manual system of system of treasuries. Basically it is a G2G project except the service pensions. However, to improve transparency in the procedures, G2C module has been provided to facilitate general public with update information on budgetary allotments, expenditure and receipts under different classifications accounted through treasuries and LoC system. The state budget is allotted electronically to 107 Budget Controlling Officers, who re-allot it in the central server directly to around 3500 Drawing and Disbursing Officers in the entire state. The budget thus made available is drawn through 19 Treasuries and 44 Sub Treasuries. The entire process of allotment, re-allotment, withdrawal, disbursement and accounting has been made online.

This paper examines the benefits accrued from the system. Other than reducing the lag period between allotments, withdrawal and accounting, it has made the treasury functioning transparent and provided the state government departments with real time information on receipts and expenditure for necessary monitoring and realization. Further, the paper describes the efficient management of accounting for the employees covered under new Contributory Pension Scheme introduced recently by Government of India. Further the paper describes the linkage of payroll currently implemented at disjoint locations with the system for integrating the information with treasury database. The facility provided to online tax payers to pay the taxes to the government using online bank account is also examined.

1. Introduction

Finance Department communicate budgets to Budget Controlling Officers (BCOs) after the state budget is passed by the legislative assembly and enacted by head of government i.e. governor. The budget bill is signed in general by the governor on the penultimate day to the current financial year. The Budget Allotment is done be in the classification of major head, sub major head, minor head, segment code, scheme code, object head, detail head and voted/charged known as head of account under various grant numbers. BCOs communicate the proportional budgets to district

level Drawing and Disbursing Officers (DDOs) including their sub DDOs at tehsil level. Sub DDOs get the allotment from their DDOs in due course of time. Thus DDOs are enabled to draw the funds from treasuries limited to the sanctioned budgets under each head. By nature, the communication of budgets to DDOs takes place in a phased manner along the financial year as the expenditure incurred by DDOs required to be monitored before issuing the subsequent allotment.

Directorate of Treasury Accounts and Pensions is the controlling authority for all treasuries and divisional joint director officers and thus monitors the treasury activities and ensures that the procedures related to accounting at treasuries and pension disbursements and other activities at divisional joint director offices are observed. Thus Directorate is answerable to finance department and government in respect of activities of institutions under its control.

In the manual system, the budget communication had never been an easy task. DDOs usually got the communication very late causing delay in development related expenditure and hence in implementation of schemes that benefit the people at a larger extent. Further, treasury officers did not have proper mechanism to check the sanctioned budgets under each head leading to numerous mistakes in classification of heads and overdraft of funds by DDOs. An MIS system was in implementation since late nineties where the system just serves the reporting purpose. Following were the major challenges in the manual system.

- Software not fully automated; serves reporting purpose only.
- Any cheque drawn at any place could be fed into the system causing the dependency on few persons for data integrity/consistency.
- No control on the over draws of bills by DDOs
- No possibility for checking misclassification of heads that might result in booking of expenditure in a wrong head
- Head of Account of each bill was limited to Major head, sub major head and minor head only. And in certain cases only major head.
- Classified reporting system was not possible due to the above.
- Data from Sub Treasuries was taken at District Treasury only twice/thrice in a month resulting in information gap at higher levels on day-to-day payments/receipts position at various locations.
- Accounting was done only at major head level and submitted to office of Accountant General.
- Lack of sufficient accounting knowledge on part of most of the treasury officers led to inaccurate account submission.
- All these discrepancies finally affected the financial picture of the state.
- Settling of pension cases used to take longer time (no software existed for this earlier) affecting the financial status of pensioners

2. Organization and Scope

There are 19 district level treasuries, 44 sub treasuries and 3 divisional joint director offices in the state under the control of Directorate of Treasury Accounts and Pensions. Most of the activities of Treasury are carried out in strict accordance with the codes and rules lay down by the Government from time to time and are uniform across the state. Thus the department is ideally suited for large-scale computerization covering all the levels.

3. The Need

The options of both offline and online bill passing from treasuries were considered. In the case of former, the budget database needs to be maintained in local treasury server thus replicates the task to multiple locations. In certain cases, single head of account assigned to a DDO is operable from multiple locations and even at other districts resulting difficulty in maintaining accurate balances under the head. Further it is very difficult to incorporate new heads of accounts that could be allotted in supplementary budgets and to communicate interim budgets to treasury or sub treasury level in a timely manner which may result delay in payments to DDOs in these cases. The expenditure information will not be instantly registered at central server in this case.

To overcome the anomalies discussed above, particularly to meet the objectives of online bill passing, i.e., *bills are passed in consonance with the sanctioned budgets*, and *to assess the financial position of the state at a given point of time* the department desired to use advanced technologies to design, develop and implement a suitable model for the state of Chhattisgarh to automate the functioning of the treasury system with respect to it's major sub systems of Payments, Works Accounting, Deposit Accounts, Receipts, Pensions and Stamp Accounting.

4. Project Conceptualizations

There are 18 District Treasuries, 1 City Treasury, 3 Divisional Joint Director Offices, 44 Sub Treasuries in the state which were to be included in the network setup along with Directorate of Treasuries and O/o Director (FMIS).

For the purpose of effective budget control, central accounting system and electronic data transfer to AG Office to the required extent, it was recommended to have a larger VSAT based intranet environment. The VSATs were to be installed at Directorate, 3 Divisional Jt. Director Offices, 18 District Treasuries, City Treasury, Raipur and 44 Sub Treasuries of various district treasuries. The setup at District Treasury/City Treasury consists

1 server, 12–20 clients depending on the class of treasury, Sub Treasury consists 1 server and 2 clients and 1 server and 10 clients at JD offices duly connected to the central server at Raipur and DRC server at Bilaspur. Central Server Setup consists of two high-end 2U - servers clustered with each other with common SAN area of 500 GB located at Data Management Centre (DMC), Directorate of Treasuries, Raipur. These 2U-servers work in clustering such that if one server crashes by any means, the second server takes the charge automatically. SAN area was to be used as common storage area for the required data of all the treasuries. Besides, SAN ensures high-speed data transmission over the network reducing the delay in processing of information needs. All the locations access this server for checking the budget for passing the bills and concurrent information on issue of a cheque is passed to the server to provide latest classified information to the department.

A Disaster Recovery Centre (DRC) is to be located at Bilaspur, which is at a distance of 115 km from Raipur with similar setup as that of DMC. SCPC VSATs are proposed for these two locations to ensure maximum outbound data transmission where as DVB VSATs are set up in other locations. In case of any natural calamity viz. floods, fire, and in the worst case of even earthquake, the DRC server will be in a position to take over the database needs with minimum delay. The data on the DRC server is automatically refreshed periodically.

5. Project Vision

It is envisioned that all treasuries connect to central server for passing any type of bill leaving treasury officers and staff to simply feed the bill information at their end. Required validations are performed at central server to check the nature of the bill—whether budgeted or non-budgeted. If budgeted, the balance available in the head is checked and if available, the expenditure will be booked against the head and local treasury will be allowed to pass the bill. Due to certain reasons a bill can be un-passed by the treasury officer, in which case, the budget will be restored against the head in the central server. Further, on preparation of cheque, voucher information is stored in the central server. Update information on receipts accounted in treasuries is obtained in central server on regular basis. The information on both expenditure and receipts is provided in desired classified manner to government departments through web interface for necessary monitoring and realization. Software checks the classification of head of account while it is fed with the heads of account in which budget was allotted by department of finance.

6. Objectives Achieved

- To facilitate instant communication of budget allotment to all field level DDOs by the BCOs to enable DDOs utilize the allotted funds without any delay.
- To ensure faster bill processing and early disposal duly observing the procedures
- To ensure complete budget control, i.e., funds are drawn in consonance with the sanctioned budgets available at central server
- To ensure proper validations are performed in case of non-budgeted bills at central server, before allowing the bill passing at treasury.
- To monitor pendency of bills of any treasury at Directorate level, so that pendency is under control.
- To ensure flawless, classified accounting is made till the detailed head for providing accurate information to Accountant General and government from time to time.
- To ensure receipts are collected in electronic manner from banks to reduce the data entry time at treasuries and accounted for without any delay.
- To ensure that deposit accounts of various departments are updated and maintained by respective treasuries.
- To ensure merging of sub treasury accounts into respective District Treasury system on daily basis while it was done only twice/thrice a month in the earlier system.
- To facilitate controlling mechanism with respect to issue of Letter of Credit (LoC) from divisional joint director offices so that issue of subsequent of LoC is based on proper utilization of previous LoC. This is to ensure that no misappropriation of expenditure takes place on the part of works departments.
- To automate the process of capturing CPS subscriptions of employees at treasuries from pay-roll data submitted by DDOs and integrating into treasury system and maintaining accurate accounting as required by department.
- To automate the process of capturing earnings and deductions of permanent establishment from the pay-roll data submitted by DDOs and integrating into treasury system while ensuring transfers, promotions, retirements, deputations, death cases, dismissals pertaining to employees are updated at central server through treasury software.
- To automate the processing of pension cases at divisional joint director offices and ensuring that the disposal time is brought to minimum.
- To provide real time expenditure/receipt information at state level to enable departments realize the receipts in time and monitor the development related expenditure.
- To provide updated information to employees with respect to the salaries containing earnings, deductions, CPS/DPF/GPF schedules for achieving transparency.

- To maintain data for analysis requirements

7. Stakeholders

Internal

Directorate of Treasury Accounts and Pensions (DTAP), Chhattisgarh

Prime user department that is responsible for implementing the software in all locations. Provides required domain knowledge and other related support to NIC state centre for developing the software. Also responsible for providing required reports on expenditure and receipts position in the state from time to time to department of finance.

Dept. of Finance, Government of Chhattisgarh

Finance department is responsible for collection of estimates from all departments, preparation of consolidated budget estimate duly incorporating the new schemes that might be introduced by the government for every financial year. It ensures that all the budget estimates are prepared in a pre-defined structure of head of account, which shall not be changed once the budget is finalized. This budget information comprise budgets allotted to all the departments at the level of HoD and shall be provided to DTAP/NIC-CGSC well in advance for incorporation in the software. This department is also responsible to accord administrative sanctions, provide required budgets to DTAP for meeting the expenditure related to project implementation.

As the ultimate user department, the department provides information requirements to DTAP so as to help the government monitoring the expenditure related to implementation of schemes for over all sustainable development.

National Informatics Centre, Chhattisgarh State Centre (NIC-CGSC)

As the state level representative of National Informatics Centre, NIC-CGSC is responsible to analyse the requirements from time to time, design suitable model, develop and provide the software to user department (DTAP) for implementation in the locations i.e. Treasuries, Sub Treasuries, Divisional Joint Director offices, DTAP and others if any as required by the user department. NIC-CGSC shall also provide necessary implementation support from time to time through its field level district offices. Shall indicate the requirements pertaining to hardware, software etc. to DTAP from time to time that is essential for development and implementation of the software. Shall coordinate between NIC (HQ), NICSI and DTAP for required network related support from NIC (HQ), procurement and implementation support from NICSI. In other words, NIC-CGSC plays major role for preparation of proposals, study of requirements, implementation support on 24/7 basis, provision of basic training to staff at various levels of DTAP, provision of

support for maintenance of data warehouse, maintenance of servers and other hardware at Directorate of Treasuries and Disaster Recovery Centre, Bilaspur and other treasuries and sub treasuries.

SATCOM group, National Informatics Centre (HQ), New Delhi

Responsible to provide the required bandwidth to VSAT equipment, monitor and ensure VSAT connectivity on 24/7 basis which is very vital and critical for the implementation of the software in the state. Shall guide NIC CGSC from time to time with respect to technology updates and other issues that may improve the performance of the project.

National Informatics Centre Services Inc. (NICSi)

As a strategic partner, NICSi facilitates the procurement of VSATs, hardware and software to the user department through its empanelled vendors like HCL, Wipro, Bharti, Numeric, ACER etc. NICSi ensures that all the benchmarking standards are met by the vendors and ensures that high quality products are supplied and installed at user locations. Also responsible to ensure proper service provision by respective vendors during warranty and AMC periods. NICSi is also responsible for facilitating required manpower support on hire basis to assist NIC-CGSC in implementing the project. The manpower support in general is obtained through vendors empanelled with NICSi. Further once the warranty or initial AMC is completed, NICSi facilitates AMC for the equipment of hardware through identified vendors.

District Informatics Officers

District Informatics Officers (DIOs) of NIC at districts play the most important role at field level implementation of the software. Responsibilities of DIO include

- Checking for software updates made available from state centre and implementing in treasuries and sub treasuries from time to time
- Looking after training needs of the treasury staff as required
- Providing solutions to the implementation problems and reporting to the state centre
- Problem analysis in a technical manner reported by treasury officer and reporting to state project team for necessary solution if could not be solved at his/her level

In other words, DIO is the first contact person to the treasury officer for providing any support with respect to implementation of the project at district level.

External

1. All Heads of Departments, Govt. of Chhattisgarh
Also known as Budget Controlling Officers (BCOs), responsible to make electronic budget allotments to district level DDOs through central

server at DTAP and enable them to draw funds in time through treasuries and sub treasuries using the e-Kosh software. HoDs are also free to communicate their information requirements to DTAP/NIC-CGSC for effective monitoring in the interest of over all development of the state.

2. Drawing and Disbursing Officers, Chhattisgarh

Responsible to prepare and submit bills to Treasury or sub treasury for necessary processing. Required to follow the procedural requirements as communicated by Treasury officer's viz. provision of proper classification of heads on bills, implementation of payroll and submission of required data at Treasuries for smooth implementation of the software. Also responsible for updating the employee data in e-karmachari database, submit salary bills provided through payroll software supplied by NIC and submission of soft copy of pay roll data at treasuries for necessary porting purposes.

3. Accountant General (AG) Office, Chhattisgarh

As the competent authority for the state government, AG office performs Voucher Level Computerization and compiles the monthly account received from all treasuries and submits consolidated account to the state government. Hence it is very important for user department to follow the procedures laid down by AG office from time to time to provide the classified information on periodic basis. Thus AG office holds the role of communicating requirements to the department about the data transmission mechanism in the form of hard copies as well as soft copy. AG office accepted the responsibility of assigning the DDO code while granting the concurrence for newly registered DDOs so that DDO codes are uniformly maintained.

4. Divisional Joint Director Offices, Chhattisgarh

Responsible to implement the LoC software and issue system generated Letters of Credit to field level executive engineers of works departments counter signed by respective divisional head of works department. Before issuing subsequent LoC, these offices have to check whether the utilization of previous LoC is as per given classification of head of account or not and take corrective action so that huge amounts of government money are properly utilized for implementation of desired schemes.

5. Agency Banks, Chhattisgarh

Agency banks are the branches of identified banks for making payments and accepting receipts on behalf of government and submit to treasury for accounting purposes. Agency bank can be same or different for payments and receipts. These banks prepare the scroll, consolidate en-cashed cheques, challans of receipts and submit to treasury or sub treasury on daily basis. Apart from the regular payments and receipts, receipts are also accepted by banks through e-challan which provides interface to online internet bank account holders to make online government payments.

State Bank of India, Dena Bank, UCO Bank, UTI Bank and ICICI Bank

are the agency banks for the treasury activities in the state of Chhattisgarh. At present, State Bank of India and UTI Bank has facilitated their online internet bank account holders to make online government payments using e-challan software through their respective payment gateways.

8. Project Plan

Table 1 *Requirements of process re-engineering*

Sl. Activity	Manual/semi computerization system	Present System
1. Codification of Treasuries	Does not exist	All the treasuries are given 4 digit codes wherein first two digits represent district and last two represent treasury/sub treasury. District treasury is assigned with '01' code and codes 02 onwards assigned to sub treasuries. Eg.: 1101 – District Treasury, Raipur 1102 – Sub treasury, Arang etc.
2. Nature of Treasury	Banking and non banking	All the non banking treasuries made as banking treasuries for smooth implementation of the software.
3. Codification of DDOs	Treasury DDO code is unique only for that treasury or concerned sub treasuries. AG office follows its own code for state level consolidation. The ultimate scenario led to incorrect compilation of data at AG level which led to discrepancies in financial figures.	DDO code is made unique across the state by pre-pending the district code to the existing code. AG office was requested to follow the coding pattern adopted and to issue the DDO code for new cases. The DDO codes are now issued through software from AG office and ported to central server at Directorate. Treasuries concerned just need to down load and use the DDO codes. This procedure ensured uniform usage of DDO codes in treasuries and AG office helping eliminate the discrepancies at AG office.
4. Budget communication	Budgets are communicated to DDOs through paper which is time consuming.	BCOs electronically allot budgets to district level DDOs on central server. District level DDOs allotment is inclusive of their sub DDOs. District level DDOs allot to sub DDOs on the centralized system. Thus District level and sub block level DDOs can view their budgetary allotments immediately

Table 1 (Continuous...

Sl. Activity	Manual/semi computerization system	Present System
		after the allotments are made to them.
5. Budget control	Does not exist. Bill passing depends on treasury officers' discretion.	Exists. In fact, treasuries' role is limited to bill detail entry. Budget availability is checked for every budgeted bill.
6. Bill identification	Identified with a serial number assigned manually and gets initialized every month. Token number also exists at certain non-banking sub treasuries.	The data pertaining to each bill of any treasury is to be maintained and processed at central server. Hence every bill is assigned a unique code of 10 digits generated by software where first 4 digits represent treasury code and last 6 digits represent running serial number for the financial year. The serial number gets initialized automatically on change of financial year.
7. Bill presentation and passing	Bills presented are entered into the system only after bills are passed. Treasury officer could not check the budget for passing the bills.	Bill submission is compulsory through counter for assigning of system generated serial number. Counter assistant note the number on each bill and passes to next level of bill detail entry and bill passing. Bill passing is subjected to validations put in central server and allows the treasury officer to pass the bill only if budget is available for budgeted bills.
8. Classification of head of account	Bills presented are classified only up to minor head level and in certain cases only major head. No check is possible on the classification of head.	Bill classification up to last item of expenditure is compulsory. I.e. each bill shall have detailed classification comprising demand number, major head, sub major head, minor head, segment code, scheme code, object head, detail head and voted/charged. System verifies the properness of the classification and rejects in case of discrepancies.
9. Cheque preparation	Manual preparation of cheque. Number written on cheque some times become erroneous.	Cheques are printed on pre-printed stationery helping achievement of accuracy besides reducing manual time involved.

Table 1 (Continuous...

Sl. Activity	Manual/semi computerization system	Present System
10. Voucher preparation	Voucher information is fed at a latter date delaying consolidation of reports.	Voucher information is recorded along with cheque information at central server during the process of cheque preparation. Thus immediate availability of classified information is enabled.
11. Merging of sub treasury data	Sub treasury data taken into district treasury data twice/thrice a month leading to information gap on financial matters.	Sub treasury data gets merged into district treasury data on daily basis easing account compilation at district treasuries.
12. Receipts	Manual data entry without proper checks leading to erroneous reports. Compilation of by-transfer deductions from payments had been tedious.	Proper validations are in place. Soft copy of data from banks is accepted and ported into the system saving lot of man-hours involved. Subscribers were also facilitated to make online payments saving their valuable time which otherwise had to be spent in paying challans manually. By-transfer deductions in payments automatically get recorded in receipts side on cheque preparation minimizing the consolidating efforts.
13. Account compilation	At least 10 to 12 rigorous man-days had to be spent for preparation of accounts.	Made easy through software. Very few checks need to be performed by treasury officers for preparation of accounts.
14. Deposit accounts	Manual system	Translated into computerized system with proper linkages to payments, receipts sub systems
15. LoC system	Letter of Credit issued at major head level to works departments.	LoCs are issued till last item of expenditure. Subsequent LoC is issued only on ensuring proper utilization of previous LoC in the financial year.
16. CPS accounting	Does not exist	Computerization started from initialization stage itself. Data captured from payroll software is well integrated with payments and receipts modules.

9. Technology Plan

Table 2

	Server end	Client end
Hardware	Two 2U Servers with 4GB RAM clustered with each other, 500 GB SAN Area at central server, Raipur and DRC, Bilaspur and One Windows 2003 Server, 20 clients with Office XP pre-loaded at Central Server.	Two Intel 2 Model Server with 1 GB RAM, 3 × 36 GB SCSI Hard Disks at each of 19 Treasuries, 20 clients for Five Class – 1 Treasuries, 15 clients for Four Class-2 Treasuries and 12 Clients for Ten Class-3 Treasuries and three clients at each of 44 Sub Treasuries
Software	Linux AS 3.0 as OS, Oracle 10g DB EE, EM 10g Grid Control, Application software developed in Java with Web server, PHP, .Net, JSP for various modules.	Windows 2003 Std. Edition as server s/w and Office XP in clients, Oracle 10g SE at Treasuries and Oracle 10g Express Edition at Sub Treasuries. One client at each Sub treasury is used as Windows 2003 server.
Network	Structured LAN internally connected to WAN through SCPC DAMA VSAT	Structured LAN internally and connected to other treasuries, central server through DVB VSAT Network

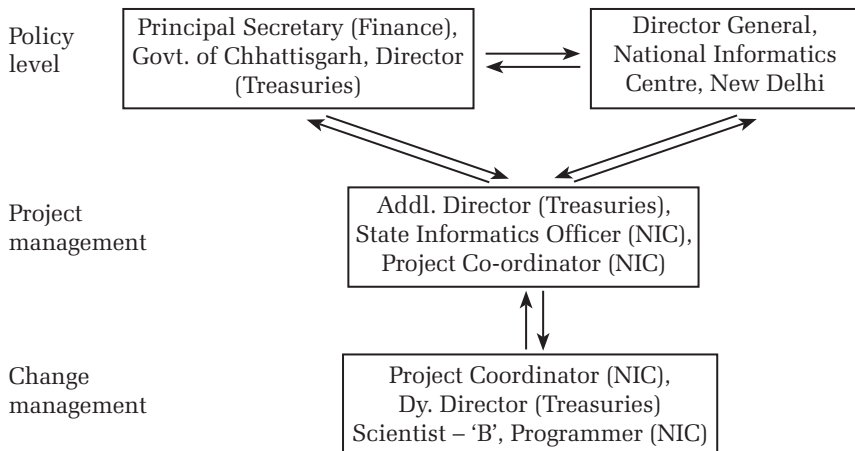
10. Milestones

1. Implementation of Payments sub system ensuring that all the manual procedures are translated into systematic and classified manner
2. Implementation of Receipts system with establishment of proper linkage between payments and receipts modules.
3. Integration of Pension payments at treasuries and works accounts to cover complete accounting information needs of treasuries.
4. Implementation of Deposit Accounts
5. Merging of data from sub treasuries into district treasury data on daily basis
6. Budget allotment information to DDO level from Budget Controlling Officers
7. Project management portal for making software updates available to field level locations, accept problems and provision of solutions etc.
8. Pension management system at divisional joint director offices to ensure faster disposal of pension cases, tracking of cases, generation of required reports etc.
9. Treasury interface with banks where banks provide receipts data in desired format for necessary porting into treasury system on daily basis.
10. Integration of deposit accounts into Payments and receipts sub systems catering to required information needs on deposit accounts.
11. Provision of online information for departments, DDOs on daily basis in respect of expenditure and receipts for necessary monitoring of development related expenditure and realization of receipts

12. Employee database: All the employees' information pertaining to initial posting, present position, transfers, and promotions from time to time is captured and maintained.
13. LoC System: Letter of Credit system implemented to facilitate divisional joint director offices to issue LoCs and track the expenditure for necessary control.
14. CPS Administration at Directorate: Automation of issue of PPAN (Permanent Pension Account Number) to employees following the procedures, their instant communication to the concerned for necessary use.
15. CPS Accounting: Capturing of CPS data at treasuries from payroll data submitted by DDOs in CD media, validating with master data from central server and preparation of required accounting schedules, and necessary uploading to central server from all treasuries for necessary consolidation and maintenance at directorate.
16. Pension backlog database through treasuries: Web module is provided to treasuries for capturing old pension cases so as to build pensioners database along with present cases.
17. e-Challan: Capturing of receipts by facilitating online payments to subscribers for all government departments. This helps subscribers to considerable time in physically presenting challans at banks and carrying cash braving security threats.
18. Employee Salary – eKosh interface: To ensure particulars of earnings and deductions of employees captured properly through soft copy of payroll data into treasury data. Salary bill generation is done by the system itself limiting the role of treasury staff to check the populated bill data against each head.

11. Project Management Structure

Fig. 1



12. Implementation

a. Pilot to Roll Out

Testing Phase: The software was run on test basis for 3 months in local city treasury from August 2004 to October 2004 to identify practical problems in software, operator convenience etc., with respect to payments sub system and incorporated the required solutions while development of other modules and reports is under way.

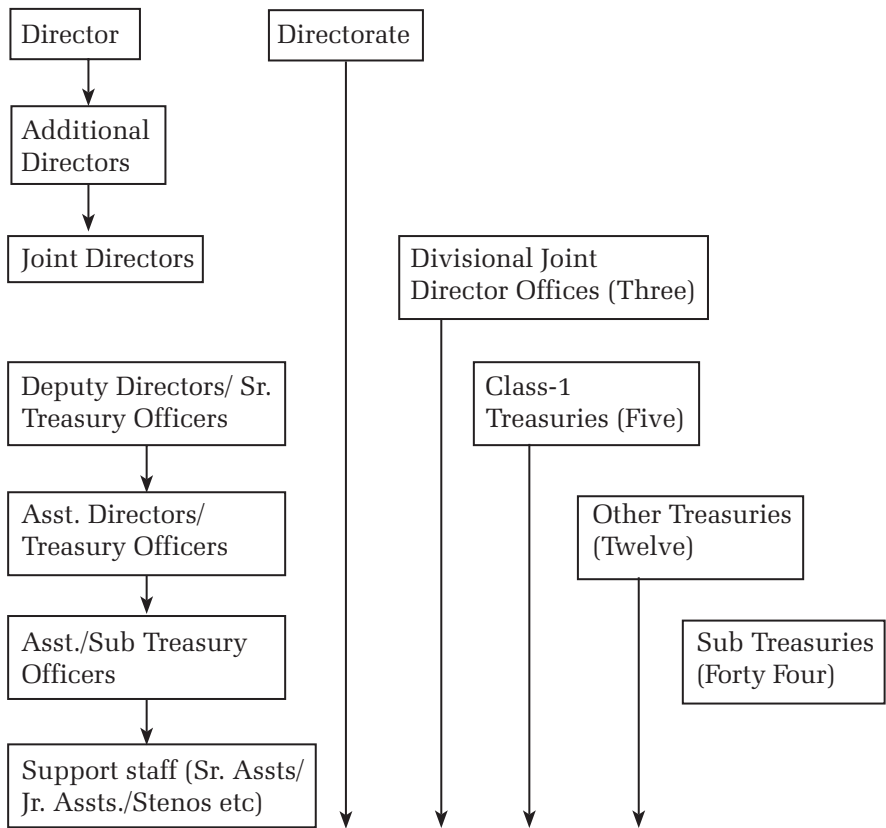
Pilot Phase: The project was launched on pilot basis on 4th November, 2004 in Raipur, Korba districts covering three treasuries namely 1. District Treasury, Raipur, 2. City Treasury, Raipur, 3. District Treasury, Korba and 8 sub treasuries in these districts. During this phase, more practical problems came up and solutions were provided in case of payments sub system. Other treasury activities of receipts, works accounts, deposit accounts, accounting related reports were taken care of during this phase with an objective to replace manual registers with electronic registers and provide accounting information up to detail head to AG office.

Rollout: The project has been rolled out to all the other 14 district treasuries and 38 sub treasuries w.e.f. April 1, 2005. All the treasuries were connected over VSAT network to central server and process of bill passing was made online and subjected to check with the sanctioned budgets against the bill heads. All sub systems required for treasury accounting have been fine tuned to provide efficient data transmission and reporting structure. Manual registers at all locations have been replaced with system-generated reports. The first financial year was monitored successfully and carefully in all aspects until last minute budget requirements, volume testing etc.,

Enhancement: New requirements of user department with respect to employee data base, Accounting of employee contributions covered under Contributory Pension Scheme, Treasury-bank interface for porting soft data of receipts, implementation of pay roll, building up of pensioners database, e-challan etc. have been taken up during the year 2006–07.

b. Capacity Building

Governance structure



Staff pattern

As the director is the administrative head of Directorate of Treasury Accounts and Pensions, the other staff strength is about 600 across the state from the level of additional director to support staff. This includes the officers of rank of deputy director to additional director who are on deputation to other departments.

Training

Prior to the initiation of the project, very few officers knew basic operations on computers where most of the staff did not see the computer at all. Numbers of training sessions were conducted by NIC state centre at state level and by NIC district centres at district level to different levels of user department to create awareness about information technology, benefits of

use in office environment and training was provided in the basic operation of the computers.

Project management teams

Project management teams have been formed at state level by user department to identify officers and staff for training, formation of batches, scheduling of batches in consultation with NIC, preparation of course material and maintaining required copies in store for necessary distribution.

During the testing phase of implementation, resource persons from user department have been identified to train the staff from treasuries of pilot phase on the software. During the pilot phase of implementation, staffs from all other district treasuries and sub treasuries were given training on the software. Besides, regular support from software development team was ensured to support the training during testing and pilot phases. While pilot phase was in progress, other district treasuries were also asked to start the implementation on available computers with the help of local district informatics officer. This helped the staff to get acquainted with the software and get ready for the implementation during roll out phase.

c. Evaluation and Measurement

Testing and pilot phase

Development team used to sit and watch the implementation of software regularly keeping in a view that certain requirements might be coming up by observation which might not be presented properly by users. Certain requirements have come up from user side and some are felt by the team members. The combined requirements were discussed with user department and after getting the approval, the goals have been divided into function points. Effort in designing the task, lines of code, testing, complexity of the feature have been worked out for each function point and assigned to actual developers. Timely achievement of these tasks was ensured so as to improve the over all performance of the system.

Rollout and enhancement

Weekly/fortnightly assessment is made with respect to requirements and accordingly goals are worked out and time line was set to development team for achieving the goals. Once a goal was achieved and put for implementation, users suggested further improvements which mostly led to creation of subsequent goals.

14. Issues and their Solutions

Apart from the training, the following were the issues which were sorted out effectively

a. Critical Success Factors

Site preparation

Project management team consisting of members from directorate and NIC has visited the treasuries and sub treasuries in and around the capital to make first hand assessment of the environment. It was observed that the offices were found with full of files, manual reports, dusty benches, unfriendly seating arrangements to general public etc. Improper electrical and civil structures were also found which might have to be corrected or prepared for proper installation and running of electronic equipment. Accordingly site preparation guide lines have been worked out and put up to government for necessary approval. The approved guide lines have been communicated to all treasuries and sub treasuries for follow-up action. While the pilot phase implementation is in progress, site preparation was also taken up parallel in the treasuries a completed in time.

Equipment procurement and installation

The time available for procurement of hardware, software and network equipment was very short that both user department and NIC were on toes in monitoring the issue. The entire procurement was given to the single Total Solution Provider, i.e. NICSi instead of multiple vendors where lack of coordination among vendors could create problems to department. NICSi which is a Government of India company registered under section 25, took up the responsibility and ensured timely installation of equipment so that project implementation moved as per plan.

VSAT connectivity

Continuous VSAT connectivity is the most critical issue in the project. As the bill passing is made online, the VSAT connectivity has to be ensured on 24/7 basis. SATCOM group of National Informatics centre, Delhi deputed special team for effective maintenance of hub and monitoring the VSATs. It is ensured that any field level problem is rectified immediately if it is rectifiable from Delhi itself. Other wise concerned vendor would be asked to attend and rectify the problem within 24 hours. Penalty procedures are in place, so that if vendor did not close the call in time, the penalties are levied against the vendor ranging from stopping of payments to black listing. Because of the effective monitoring, VSAT connectivity is ensured for all the treasuries so that their regular business is not affected.

Motivational factors

Most of the treasury staff were very reluctant and fearsome during the initial phase and even hesitate to touch the mouse. Such staff had been motivated a lot, assured of no disciplinary action for their technical and unknown mistakes and encouraged to use the computers as they wished. The functional and technical mistakes performed by treasury staff had been attended to and rectified wherever necessary, regularly and patiently by DIOs and NIC state centre. This yielded very good result in building up self confidence of treasury staff and made the implementation of the software very smooth.

b. Replication in other States

The treasury procedures are standard up to the minor head level across the country and may be subjected to minor changes from state to state. To the larger extent, there could be hardly 10% variations in procedures followed among the states. Thus the system can be replicated in any state with minimum customization efforts.

c. Road Ahead

The following are being planned.

1. To float cyber treasury over a period of time where DDOs can submit online bills authenticated by digital signatures. Treasuries can view the bill information and pass as per norms once the physical bill is received
2. To establish linkage among government offices, treasuries, banks for achieving online exchange of data minimizing multiple data entry works.
3. To produce dynamic information for access to general public to achieve the transparency.
4. Implementation of e-Payroll where all the DDOs can use web enabled payroll package replacing the present offline version of payroll in place. This helps in centralized maintenance of payroll data avoiding present data transfer modes which is very tedious and non uniform among the DDOs.

15. Status and Results

a. Present Status

The software is being successfully implemented in all the treasuries, sub treasuries and divisional joint director offices. The getting on with the software is an un-separable part for the treasuries as the entire work flow is translated into electronic system completely replacing the manual procedures. Software has been developed for double lock which is also known as stamp accounting

system and is in roll-out phase. Monthly payment of pensions from banks is linked to treasury system enabling pensioner to know the status of monthly credit of pension in his/her account.

b. Specific Achievements during the Year 2006–07

Implementation of payroll

To bring in uniformity across the government offices in pay roll system, it had been decided to implement payroll software developed by NIC in all government offices across the state. Accordingly, the available payroll software has been customized and circulated to all DDOs in the state for implementation. DIOs were busily engaged in providing training to DDOs and their staff for implementing the software. As the requirements are separate for judicial system, CPS system and for other civil employees and police department, the software was customized as per individual systemic requirements and provided to respective Heads of Departments for implementation. It was ensured to identify the heads for various heads under earnings and deductions and incorporated in the software for integrating the payroll data with treasury data.

e-Karmachari (Employee database)

The off line system in place with respect to employee database had been replaced with an online module so as to provide opportunity to field level locations to continuously update the data maintained at a central place. Additional feature of transfers, promotions, disciplinary cases was incorporated in the system so that all service books related matters of an employee could be maintained. Employees were encouraged to view their data and indicate corrections if any through their DDOs.

CPS accounting system

The employees who joined after 1/11/2004 have to opt for Contributory Pension Scheme where the account is to be maintained by Directorate of Treasuries. The employee information is entered at central server initially and a unique PPAN (Permanent Provident fund A/c Number) is assigned to him/her based on the department and year of joining. After the issue of the number, DDO concerned will be communicated accordingly to enable the salary and other allowances drawn from treasuries concerned. The salary data is entered using NIC's payroll software by DDOs and submitted to treasuries along with bills. At treasuries, e-Kosh software takes care of the required validations and captures the employees' bill wise data and processes as required. The CPS accounting is done at treasuries and concerned treasury officer uploads the data to central server for state wise consolidation besides the generation of hard copies of the schedules. The

department verifies the schedules and the data. Department also directly captures the CPS data of the employees whose salaries are drawn by DDOs out side the treasuries through LoC system. Employee wise annexure is provided duly incorporating the interest calculated. Employee can view his account status on the web site provided. Besides, hard copy is also provided to employee through his office for necessary verification and indication of corrections. The consolidated data is maintained and required annexure and reports are provided.

The difficulty involved in the system is that, employee may be subjected to transfer may be inter district or intra district. If the office is changed, DDO is also changed naturally. There were initial troubles in implementing the system as the PPAN numbers provided by the DDOs were erroneous or causing data discrepancies. Subsequently, it was worked out to affect the employee transfer in central server before his salary bill is raised, cross check employee data with DDO so as to maintain accuracy. On transfer or new issue of PPAN, treasuries have to update the CPS data that ensures that obsolete data in local server is deleted and fresh data is downloaded from central server. The system has ensured 100% accuracy in the accounting procedure at all levels

Pensioners database

With the present software, only fresh cases of pensioners can be entered and processed effectively in divisional joint director offices. It was desired to capture the old cases also so as to assess long term pension liabilities on part of government and to help effective financial planning. Accordingly, a uniform module was supplied to all the treasuries to capture the old cases data. The data thus collected was consolidated at state level with ongoing data and maintained in central server.

Monthly pension payments of pensioners

It was desired to maintain monthly pension payments from banks to track possible over-payments through banks and for facilitating ICT literate pensioners to know the status of their respective monthly payments. The process involved negotiating with banks for providing the data in desired format, development of interface, sorting out initial problems with banks during provision of data etc. The software has been developed and implemented successfully. The modules contained are interface with banks which enables porting of data file (basically xml file) into pensioners database, verification of pensioner details available in treasuries with the data provided by banks, provision of monthly payments report at treasuries and provision of status verification on public portal.

e-Challan

e-Challan is the web enabled software to facilitate capturing of online payments made by the users who have an internet enabled online bank account. The users can make any government payment of any department by simply filling the e-form provided and through the selected bank's gateway in which he/she has an online account. The data at the end of each day will be communicated by the bank concerned to treasuries for compiling required receipts account. At present the government payments are enabled through UTI bank for all departments and SBI for Commercial Tax department. The process of payments for all departments through SBI gateway is on and expected to be made available shortly to online payers.

Payroll –treasury interface

To maintain accurate payroll information in e-karmachari database, it was desired to capture salary data at treasuries through an appropriate interface so that salary bill submitted by DDO is automatically generated from the payroll data furnished. A typical bill may consist of 2 to 200 employees' salary particulars where last item of expenditure viz. detail head could be different from one another. The interface captures individual data, consolidates and generates bill information duly assigning a unique serial number for the bill to be noted by treasury staff for further processing. Once the bill is passed after thorough verification, the employee data containing earnings and deductions will be seized from any further updation. All such employees' data will be uploaded by the treasury at the end of the day to central server for required maintenance. Employees are enabled to view their salaries and other related schedules and are free to bring into the notice of their DDOs in case of any discrepancy.

c. For Readers Seeking more Information on Project

The project has two interfaces – one is for treasuries and sub treasuries which are in intranet of treasury network and other is to provide update information for general public and government departments. The URL of this site is <http://cg.nic.in/ekoshonline> also accessible through <http://ekosh.cg.ni.cin>. Users can send their feedback through the link available in the site.

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GIS Based Emergency Planning and Response Systems

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ABSTRACT

The rapid industrialization, increased usage, production, transportation and handling of chemicals have resulted in number of serious chemical accidents such as Bhopal gas tragedy– the worst chemical disaster in history. Ministry of Environment and Forests (MoEF), Govt. of India, has done tremendous efforts to minimize such accidents and to improve emergency preparedness at district, state and center levels. To further improve the preparedness level a GIS based system has been developed to aid emergency planning for MAH Industries in India. The work envisages in developing comprehensive user-friendly software with database of Major Accident Hazard (MAH) units, hazardous chemicals stored, resources available to combat emergency. Exact location of the unit, vulnerable zonation (through CAMEO suit and ARCHIE), resources available with the authorities for emergency management- fire, medical, police, shelters etc along with their locations and data on surrounding of MAH units has been studied for major clusters of industries in forty districts (fourteen states) of India.

1. Overview

Geographical Information System (GIS) based emergency planning and response system has been developed for major cluster of industries in selected industrialized states in the country. The system integrates critical information in a spatial form under a single banner through GIS (Geographical Information Systems) and incorporates computer modeling for major chemical accident scenarios. The project, funded by the Ministry of Environment and Forests, Government of India, addresses industrialized clusters in the 14 industrialized states of Gujarat, Maharashtra, Andhra Pradesh and Tamil Nadu, Karnataka, Kerala, Delhi NCT, Rajasthan, West Bengal, Assam, Haryana and Madhya Pradesh.

GEPR front-end software is supported by data on Major Accident Hazard or MAH units, first responders (fire, police, hospitals, etc.), sensitive areas, chemical accident scenarios, spatial data (detailed digitized maps with data in 'layers'), Response Information Data Sheets or RIDS packed in a database all under a single banner. Locations of industries, responders and sensitive

areas as recorded by GPS are shown on these maps. For any chemical accident scenario, one can view the template (generated through Aloha and Cameo s/w) on the base map and logical queries can be handled.

GEPR can greatly assist response agencies at the local level during both pre-emergency state for planning and rehearsing and also during actual emergency situation.

2. Vision and Objectives

To develop a national level chemical emergency planning and response tool that is kept fully up-to-date, web-based and able to assist stakeholders at the local level to ensure the most effective mechanism in a user friendly and dynamic fashion at a single point, fully self contained. The s/w will assist planners, first responders, district crisis group as well as chemical industry in off site planning, preparedness and response.

Major Project Components

The major components are as

- Identification of chemical industries in the study area covering major states of India.
- Collection of data pertaining to chemical storage and handling from identified industries.
- Collection of resource data in terms of fire fighting equipment and stocks, Personal Protective Equipment (PPE), transportation facilities, etc., from industries
- Collection of data on resources available with government authorities such as police, fire and medical departments
- Collection of spatial data with the help of GPS handsets for chemical industries, first responders– police, fire and medical and sensitive areas such schools, cinemas, etc.
- Identification and procurement of SOI toposheets for the study area
- Geo-referencing and digitization of toposheets
- Chemical accident simulation using computer models for all the identified chemical accident scenarios
- Database design
- Development of front-end menu-driven software linking spatial data, scenario templates, industry data, resource data and response information data sheets (RIDS) for each chemical.

3. Goals and Milestones

The application on off-site emergency planning for MAH Industries in India is a unique approach, first of its kind integrating Spatial and non-spatial data

on to a single GIS-based system. The application has successfully delivered a highly interactive menu driven, user-friendly customized package for non-specialist end users at local level. Also it has delivered a Powerful versatile digital geo-referenced database of maps, images, MAH data (locations, contact personnel, chemicals etc), vulnerability zones, district resource data (fire, hospitals, police, etc.) as national asset. The project needs to cover remaining additional clusters with high concentration of MAH units for national perspective. Training was imparted to Crisis Group and other users at State and district level. The goals and milestones against each activity and sub activity, their progress were continuously tracked by project management administration system. Any area of concern was brought to management attention and remedial actions taken up in a time bound manner. Constraints report has also been prepared.

Methodology

Identification of Chemical Industries

As per the Manufacture Storage and Import of Hazardous Chemicals (MSIHC) Rules, 1989 and as amended in 2000, Major Accident Hazards (MAH) installations, means: isolated storage and industrial activity at a site handling (including transport through carrier or pipeline) hazardous chemicals equal to or, in excess of the threshold quantities specified in the rules. Chief Inspector of Factories at state level maintain a list of such factories in their states and such industries in short listed districts were identified based on the latest data maintained by them.

4. Database Design

Database design was undertaken to facilitate data storage and easy retrieval. Data of all the chemical industries, their chemicals and resources; data of first responders, data of sensitive areas; data on output of computer models in terms of .pas files, RIDS data, spatial data on locations; raster data as images of toposheets, etc. have been stored in databases, and linked through front end menu driven software.

Database design has been done taking into consideration the following:

- Information on MAH units
- Resources available with MAH units for emergency management
- Data on response agencies
- Resources available in District/clusters
- Vulnerable areas

Chemical and Resource Data from MAH industries

With the help of chemical experts questionnaires were developed to collect chemical and resource data from MAH industries. All the information

required for developing the package was collected through visit to identified industries so that first hand, factual and correct data is collected. Information related to handling of hazardous chemicals, their storage and processing conditions, quantities, safety measures, etc. formed the content of this questionnaire. A separate section of the questionnaire dealt with the information on resources available with the industries to manage chemical accidents. Such resources mainly include fire fighting equipment and stocks, spill control equipment, PPEs, etc.

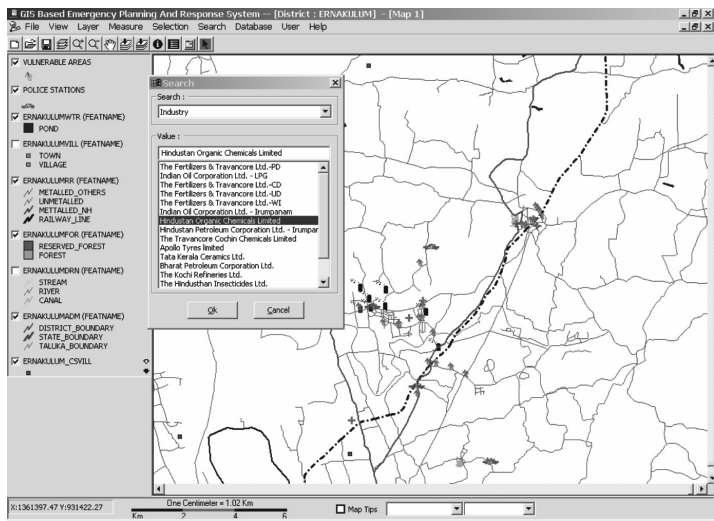
Resource Data from Government Authorities

For any chemical accident, police, fire and medical services at local level are considered to be first responders. Therefore it is important to collect data in terms of their location and resources available with them for emergency planning. Separate questionnaires were developed to collect resource data and their contact information for local authorities. Based on the location of MAH industries, police stations, fire stations, government and private hospitals in the vicinity were identified and data was collected from them through the questionnaire. Such data include the number and type of fire tenders, PPEs, etc. with fire services and facilities available at hospitals for treatment of burn patients and chemical poisoning patients, etc.

Collection of Spatial Data

Spatial data in terms of latitude and longitude was collected for all the MAH industries, police stations, fire stations, hospitals, sensitive areas such as schools, colleges, cinemas, etc. Such data was collected through physical survey of the area using hand-held GPS instrument.

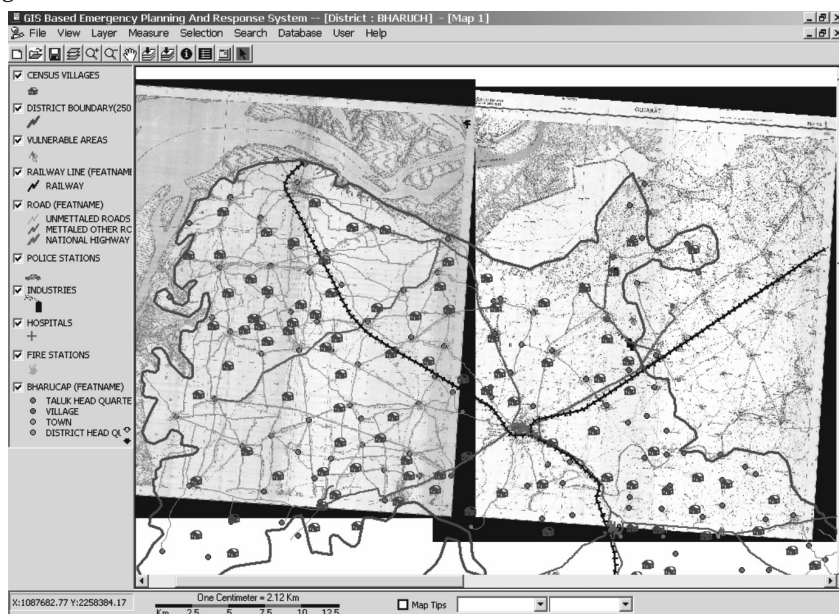
Fig. 1



Procurement, Geo-referencing and Digitization of Toposheets

All the required toposheets were procured, scanned, digitized and mosaiced to create district-wise profile as shown. Geo-referencing was done for synchronization of vector and raster data for authentication.

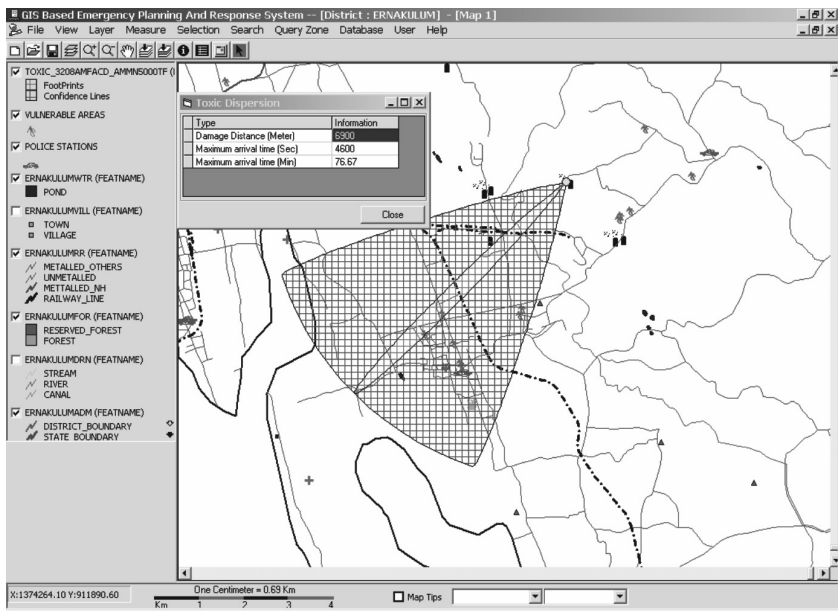
Fig. 2



5. Computer Simulation Modeling

Chemical data collected from MAH units formed the basis of this activity. Data sets were compiled chemical wise along with their quantities and storage conditions. Based on the characteristics of the chemicals various possible Maximum Credible Loss (MCL) scenarios were listed and computer simulation was carried for such scenarios. The following criteria as laid down by the MoEF is considered, viz: catastrophic rupture (release of Inventory within a minute or so from a single container for toxic chemicals and for the grouped inventory in case of flammable material), IDLH value cutoff for toxic chemicals (NIOSH values, based on half hour exposure), 4 kw/m² heat radiation cut-off for fires, 0.1 bars peak over-pressure for explosions. Whenever multiple offsite scenarios are present, the model would provide predetermined hazard zones chemical-wise. The MCLs are mainly worked out for the storage scenarios and also for process scenarios, if necessary. Various identified computer models such as ARCHIE, ALOHA, CAMEO, etc., are used for delineation of vulnerable zones chemical wise. The consequence calculations were performed as per the guidelines of the MoEF, using worst-case meteorological conditions (stability class D with 3

Fig. 3



m/s of wind speed and stability class F with 1.5 m/s of wind speed). This allows highly realistic hazard zone mapping depending upon the wind conditions at the time of incident.

Computer modeling has been done for all the hazardous chemicals stored at the MAH units so that vulnerable zone for each chemical is delineated under different combinations of meteorological conditions. Whenever multiple offsite scenarios are present, the model provides hazard zones chemical wise. The MCLs are mainly worked out for the storage scenarios and process scenarios. Where clusters of MAH Units are present, the Vulnerability template indicates units, which could cause knock on effect onto the MAH Unit in a 2-way mode.

The computer model provides complete interactivity to emergency management authorities to find the actual hazard zone and how it can change with time and meteorological conditions, by minimum data input.

This Vulnerable Zone data is mapped onto the base map, both as text in box and also graphically, to allow visual display.

Development of Front-end Menu-driven Software

To provide the user friendliness to the whole package, a front-end menu driven software has been developed using Map Objects interface. It has been designed and customized keeping in mind the type of information required by the response agencies at district emergency control centers and also the skill level of the expected users at the district and state level. It is a very powerful tool for strategic planning and resource identification

for responding to chemical accidents. Three types of accidents have been envisaged viz. Fire, Explosion (BLEVE/UVCE) and Toxic Vapor Dispersion. The package has been provided with a password to prevent unauthorized use.

Response Information Data Sheets (RIDS)

The software provides separate tool for accessing response information on each of the identified chemicals for every district. RIDS provide complete information about that particular chemicals such as its physical and chemical properties, fire hazards and fire fighting measures, health hazards and PPEs, etc. RIDS is available under the help button, the user can select the desired hazardous chemical from the list available and view its complete information. The user can also access RIDS by double clicking the desired chemical under chemical information of any industry.

6. Implementation

The project was implemented in the four most industrialized states of Gujarat, Maharashtra, Andhra Pradesh and Tamil Nadu in Phase-I. Due to the tremendous response and acceptance at the local level, the project was extended to 20 clusters in another 10 industrialized states (Karnataka, Kerala, Delhi NCT, Rajasthan, West Bengal, Assam, Haryana and Madhya Pradesh) in Phase-II. It is now in the process of up gradation to a web-based structure with more refinement in all aspects (modeling, real time application, dynamic modeling menus, etc.) since June 2007 a prototype for Maharashtra and Gujarat is being developed, featuring the upgrades.

GEPR has been implemented and persons trained at the local level for Phase-I and Phase-II and the package has been officially handed over to the local level authorities.

7. Targeted Beneficiaries

Local level administrators (District Crisis group)—more effective mechanism and emergency response systems and practices in place

Emergency Responders (local fire, police, hospitals, etc.)- more co-ordinated and planned response. Ability to foresee upgradation of resources, better planning, etc.

Industries and their emergency teams—better understanding of offsite hazard potential. Reduction in incidents.

Members of the public residing close to the industrial pockets—more participation in information dissemination, mock drills, etc., and involvement in planning phase.

The Government administration at large (information, etc.)—promotion of industrial safety and hazard mitigation, emergency response, etc.

The public at large (information dissemination over the web, etc.)

8. Geographical Spread

Major Accident Hazard Units are spread across the length and breadth of the country. These MAH units are often found in clusters located within notified Industrial estates though some are outside in isolated locations. To manage chemical emergencies arising out of hazardous material releases from such clusters of MAH units requires great planning and co-ordination between several agencies simultaneously. The response to possible chemical emergencies is a subject of great concern to the nodal ministry for co-ordination of chemical emergencies, namely the Ministry of Environment and Forests (MoEF), Government of India.

Project application is at the 'local' or pocket/district level, where it is intended to act as a tool for emergency planning and response. It has covered so far the four most industrialized states of Gujarat, Maharashtra, Andhra Pradesh and Tamil Nadu in Phase-I. Also the project cover districts with major industrial clusters in ten states, namely Rajasthan, Uttar Pradesh, Haryana, Punjab, Madhya Pradesh, Assam, West Bengal, Kerala, Karnatka and NCT. These ten states comprise those with the bulk of MAH industries in the country.

9. Challenges

- Evolving a unique hazard modeling approach for such a wide variety of industrial operations
- To ensure simplicity without loss of resolution, particularly in consequence modeling phase
- Identifying a suitable system for conversion of modeling data into the GEPR platform. This entailed marrying outputs from commercial simulators with unique front end software.
- Satisfying so many varied stakeholders from all over the country, each with unique approaches to hazard management

Treasury Accounting and Management System of Government of Bihar—e-KHAZANA

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Senior System Analysts

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ABSTRACT

Indiscipline in Finance Department led to misappropriation of accounts, improper fund management and late submission of classified account to the Accountant General up to 24 months, as per the CAG guidelines. The delay in account submission is an extremely serious problem, which has a number of consequences having serious impact on the overall planning of the Government. Delay causes problems in management of resources of the government, which are scarce already. The entire financial planning of the government resources goes futile, as the real resource position at any given point of-time was never transparent. As a result crucial decisions like re-appropriation, head wise fund balance; department wise budgetary allocation and reconciliation of expenditure etc. were very hazy. This situation attracted infamous fodder scam in early Nineties. The e-Khazana system introduced as rescuer and generated online fund management, reconciliation with budget, timely submission of classified accounts. e-Khazana system facilitates the sharing of accounts with excise, registration, commercial taxes and transport department at govt. exchequer. e-Khazana has a powerful 'fire-and-forget' capability where by if certain steps are insured; the accounts are accurate and dependable. e-Khazana will make the-timely submission of classified head wise monthly treasury accounts at a definite reality.

1. Introduction

Project conceptualization

Infamous fodder scam: In the absence of any financial discipline within the treasury, fund management was totally collapsed leading to infamous

fodder scam in early nineties. All types of activities like preparation of budget, treasury accounting and Provident Fund subscriber's account slip generation at finance department was manual. It was very difficult task to monitor the expenditure and receipts at Finance Department level. There was no mechanism for data convergence from treasuries and its collation at the level of Finance Commissioner within defined-time period. The treasuries accounting was delayed by 16–24 months in sending monthly accounts. Government was not in a position to track their financial position at any point of-time. The PF accounts of the subscriber were delayed over years. Thus the control, monitoring and analysis of the data for revenue administration for better expenditure monitoring was very strenuous and risky for the department and it was a challenge for the Government to overcome.

Manipulation of Challans: In the manual process, reconciliation of challans deposited in treasuries with respect to departments of Excise, Sales Tax, Registration, Civil Deposits, etc., as required by respective departments could not be reconciled against the challans deposited in the treasuries and those produced in the department by the dealers leading to fraud at different levels. In this process Government used to loose huge amount of money.

Non-updation of GPF Accounts: Schedules of deductions like GPF etc are not sent to concerned offices resulting in non-maintenances of GPF accounts on a regular basis. This forces the government to prepare the accounts on the basis of what is described as collateral evidence—the statement of deductions individual-wise issued by the same treasury officers. The government is losing large sums of money every year, as it has to pay penal-interest rates in large number of cases due to courts orders. Even otherwise the government has to pay up-to-date interest in case of final withdrawal cases. The more the delay, the more is the interest payment.

2. Project Vision, Stakeholders, Objectives and Services

The vision of the computerization in treasury is to control the expenditure through-timely sending the accounts to AG. Matching the allocated budget to the treasury figure at the-time of passing the bill. This will also help in avoiding duplication in work and checking the fraudulent withdrawals by introducing unique and centralized DDO code. This also led to the creation of employee database along with their personal profile. The following are the stake holders

Internal: Finance Department, Govt. of Bihar, Directorate of GPF, GoB,

External: NIC, NICSI, Principal Accountant General, GoI, Bihar State Electricity Board, State Transport Corporation, Registered Dealers of Commercial Taxes, Stamp Vendors, DDOs of other Departments

The objective of the computerization in treasury is to control the expenditure through-timely sending the accounts to AG .In this process the allocated budget is checked at treasury at the-time of passing the bill. This will eliminate the duplication in work and will check the fraudulent withdrawals by introducing unique and centralized DDO code. This will lead to creation of employee database along with their personal profile

The objective of the automation of entire revenue administration, i.e, from budgeting to Expenditure monitoring through treasuries by capturing each and every transaction of payment and receipt with all necessary validations.

The objective is to make the system so intelligent that it can track the abnormality, fraud drawl and prevent the excess drawl by giving the warning and alert message to avoid the delay of data flow in the workflow based system. This will also help in capturing the data as and when required in the process

After achievement of up-to-date treasury accounting and, generation of GPF slip, finance department will be in a position for the on-line connectivity of all treasuries/Sub-treasuries/General Provident fund offices to the data centre

The system should be such that there should be online validation of DDO code, appropriate payment head, online query of stamp vender transactions, online monitoring of GPF schedule and data transfer to GPF

Online connectivity of all treasuries/Sub-treasuries/General Provident fund offices to the data centre along with State wise compilation and MIS of all treasury figures of revenue receipt and expenditure

3. Public Private Partnership (PPP)

Finance Department earmarked Rs. 6.02 cores for replication of the e-Khazana in all treasuries and Sub-treasuries of the State.

4. Necessity/Needs

In the absence of any financial discipline within the treasury fund management was totally collapsed leading to infamous fodder scam in early Nineties. All type of activities like preparation of budget, treasury accounting and Provident Fund subscriber's account slip generation at finance department was manual. It was very difficult task to monitor the Expenditure and Receipts at Finance Department level. There was no mechanism for data convergence from treasuries and its collation at the level of Finance Commissioner within defined-time period. The treasuries accounting was delayed by 16–24 months in sending monthly accounts. Government was not in a position to track their financial position at any point of-time. The PF accounts of the subscriber

were delayed over years. Thus the control, monitoring and analysis of the data for revenue administration for better expenditure monitoring was very strenuous and risky for the department and it was a challenge for the Government to overcome it.

5. Milestones

Project Management Structure

A project management team was constituted for management of the project.

Table 1

Sl.	Name	Full-time/Part-time
1	Additional Finance Commissioner GOB	Part-time
2	Deputy Secretary Finance	Part-time
3	Shri. A.K. Mohanty, Technical Director	Full-time
4	Dr. Kanhaiya Pandey, Senior System Analyst	Full-time

6. Implementation

Strategy for pilot to roll out

The Treasury Accounts of all the treasuries of Bihar was delayed by more than 7 to 8 months. The target was fixed by Accountant General of Bihar for updating of Accounts which was a difficult task for the staffs of the treasuries due to manpower constraints and the manual process. NIC was requested by the Finance Department to take up Sinchai Bhawan treasury on pilot basis, where accounting is delayed more than a year. Within 4 months of taking over the task, NIC streamlined the account reporting at Sinchai Bhawan based on this success Finance Department earmarked Rs. 6.02 cores for replication of the same in all treasuries of the State. Within a span of a year, all 41 treasuries and 17 sub-treasuries were powered with e-Khazana application of NIC and accounting reporting became streamlined.

7. Capacity Building

To look after the smooth implementation of the project and any change requirements generated in due course of project implementation, a coordination committee consisting of key officials from finance Department and NIC was constituted. In addition to other approaches, committee also reviewed the progress of the project in the form of

- Monthly meeting

- Review of the documents/reports received by the department
- Complaints/suggestions through email/phone

The following team was functional for smooth implementation of the Project.

Project Management

Table 2

Sl. Name	Full-time/Part-time
1 Additional Finance Commissioner GOB	Part-time
2 Deputy Secretary Finance	Part-time
3 A.K. Mohanty, Technical Director	Full-time
4 Kanhaiya Pandey, Senior System Analyst	Full-time

Project Policy Level

Table 3

Sl. Name	Full-time/Part-time
1 Finance Commissioner Government of Bihar	Part-time
2 Additional Finance Commissioner	Part-time
3 Saurabh Gupta, SIO	Part-time
4 A.K. Mohanty, Technical Director	Full-time

Change Management

Table 4

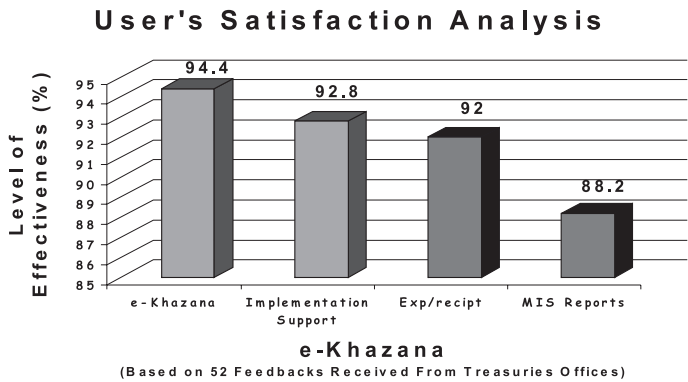
Sl. Name	Full-time/Part-time
1 Additional Finance Commissioner GOB	Part-time
2 Deputy Secretary Finance Department	Part-time
3 A.K. Mohanty, Technical Director	Full-time
4 Kanhaiya Pandey, Senior System Analyst	Full-time

Operational training to all the officers and staff of the treasuries and sub-treasuries was provided in 12 batches for 5 days each was given on e-Khazana Software for smooth implementation of the Software. On a continuation basis with in a period of 3 months all staff and Officers of treasuries were trained and they are independently handling the job.

8. Evaluation and Measurement

Analysis of the feedback collected and presented below indicates the level of effectiveness and satisfaction of the e-Khazana provides to the department in achieving their objectives.

Fig. 1



9. Issues and their Solutions

Following lessons were learned in the process of computerization.

- Need of process re-engineering was felt and initiated to improve the service to the subscribers.
- In the absence of clarity in the requirements from the user prototyping of software application development is the key for translation of the process existing in the department.
- The experience speaks that user must own and nature the application rather supervising the developments and implementations.
- There is a need for timely review of the project progress to stick to the schedule.
- Appropriate level of capacity is essential to sustain the improvement in the product

10. Road Ahead

e-Khazana implemented in Sinchai Bhawan treasury on pilot basis. After successful implementation as pilot Finance Department earmarked Rs.6.02 cores for replication of the same in all treasuries of the State. With in a span of a year, all 41 treasuries and 17 sub-treasuries were powered with e-Khazana application of NIC and accounting reporting became streamlined.

11. Status and Results

Present status

The e-khazana S/W were successfully implemented in 41 treasuries and 17 sub-treasuries of Bihar intime.

12. Specific Achievements during the Year 2006–07

The complete updation of treasury accounts and availability of data at Finance Department in-time has already created positive impact in the Department. Head wise and treasury wise expenditure and receipts with respect to the allocated budget monitoring have been convenient. This is now treated as an automated tool in the hand of the financial planners

13. Future Plans for Readers Seeking more Information on Project

- State-wise compilation and MIS of Treasury figure of revenue receipts and expenditure on web.
- Planning to provide all the allotments on web site so that treasury officers can verified genuineness of the of the allotments
- Provision of online allotment adjustment with the budget figure at the lowest level
- A project on Bihar Revenue Administration Intranet (BRAIN) has been submitted to Govt. for integrated, centralized and web-based solution for all the revenue concerned departments of Govt. of Bihar for better monitoring of revenue and expenditure

Loans Grants Investments (LGI) Monitoring System

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ABSTRACT

The Ministry of Finance issues sanctions for payment of loans, grants-in-aid and investments to State Governments and Union Territories (with legislature). The Department of Economic Affairs controls the non-plan expenditure whereas the Department of Expenditure controls the plan expenditure. In the Department of Economic Affairs, loans are given in the form of securities. The Ministry of Finance receives the repayment of loans along with its interest elements from states. The agencies involved in the whole transaction of payment and repayment are the concerned departments/sections of the Ministry of Finance which issue the sanctions, the office of the Chief Controller of Accounts (CCA), Reserve Bank of India (RBI) and Accountant General's (AG) Office located in various States.

The application '*Loans, Grant-in-aid and investment Monitoring Systems (LGIMS)*' is used by the State Loan Section of Office of CCA, Ministry of Finance to monitor the Ministry's fund transfers to the various State Governments/UTs. These fund transfers can be in nature of loans, grants and other investments. System covers functionalities, viz., payments, repayments, prepayments, negative sanctions and loan consolidations.

System has a client server application for the O/o CCA and web module for facilitating dissemination of information to State/UT Govt. through website of Ministry of Finance.

1. Introduction

The development of a package 'Loans, Grants-in-aid and investments Monitoring Systems (LGIMS)' was carried out to monitor the fund transfer from Central Government (Ministry of Finance) to State governments and Union Territories. Payments of loans, grants and investments to State Governments and repayments of loans/payment of interest by State Governments are effected by the issue of advices to the Central Accounts Section of R.B.I., Nagpur by various Principal Accounts Offices (PAO) in terms of procedure described in Civil Accounts Manual and General Financial Rules.

2. Project Conceptualization

The PAO attached to the Principal Accounts Office is responsible for the disbursement of Loans, Grants-in-aid and Investments to the State Governments/UTs. He has to perform a varied number of accounting functions/tasks. The sanctions for loans, grants-in-aid and investments are issued to him from following Ministry/Departments:

1. Plan Finance-I Division, Department of Expenditure, Ministry of Finance—Block Loans and Block Grants, CRF and NCCF
2. Chief Controller of Accounts, Ministry of Finance
3. Finance Commission Division, Department of Expenditure, and Ministry of Finance—5 Items of Grant under Article 275 of the constitution
4. National Savings Section-II Department of Economic Affairs, Ministry of Finance—Investment in Special State Government Securities
5. Budget Division, Department of Economic Affairs, Ministry of Finance—payment of State share of taxes and duties, ways and means
6. Planning Cell, Ministry Of Home Affairs

The major accounting tasks to be performed thereon are:

1. Checking of sanctions with respect to availability of funds
2. Advice preparation which is sent to RBI for payment to State Governments/UTs
3. Receipt of clearance Memo from RBI
4. Preparation of repayment schedule for State Governments/UTs
5. Receipt of State/UT Accountant General Advice indicating repayments
6. Challan preparation for repayments received from Sikkim, Jammu and Kashmir and Union Territories (with legislature)
7. Accounting adjustment through Transfer Entry (after advice generation, receipt of clearance memo and advice from State Governments/UTs)
8. Maintenance of important registers and broadsheets, viz., Inter-Government advice register, repayment and payment broadsheets, loan register, etc.

Prior to development of the computerized system, all the above functions were performed manually, resulting in delays and non-availability of analytical information to the management. In order to overcome the problems faced in the existing manual system, it was envisaged to develop a computerized system to facilitate the above functions.

3. Project Vision

To monitor the disbursements from Ministry of Finance to States. To facilitate transparency and efficiency in the management and administration of state

finances by disseminating the above information to states through web site.

4. Stakeholders

1. Office of Chief Controller of Accounts, Ministry of Finance.
2. Various States/UTs Govt.
3. Reserve Bank of India
4. States AG Office
5. States Finance Department

5. Goals and Objectives

- To eliminate human errors in accounting processes
- To increase the reporting and querying capabilities
- To facilitate effective monitoring of budget vs expenditure
- To generate compatible inputs for CONTACT (ORA)
- To integrate with PAO-2000 software
- To create a centralized database for storing and monitoring of loans, grants-in-aid and investments to State Governments/UTs
- To maintain historical data

6. Project Plan

Technology Architecture

LGIMS uses state-of-the-art IT tools. It was developed on client server based architecture. Microsoft Visual Basic 6.0 was used for the front end design of the application. Microsoft SQL Server 2000 was used as a back end database. Crystal Report 7.0 was used for the generation of various reports.

A separate module was designed and developed using web-based technology ASP and MS-SQL Server for Institutionalization of an open, online dialogue between Government of India and the State Govts/UTs on various aspects of State finances. The web application is hosted on web server in NIC data centre, behind the firewall to ensure its integrity and security.

7. Milestones

- Instant processing of sanctions issued by Ministry of Finance and generation of Advice for RBI
- Generation of Monthly Repayment Schedule for States to assess the repayment liability
- Adjustment of the repayment and prepayment, under the Debt Swap Scheme, of loans made by states
- System Generated RBI Advice for CAS Nagpur
- Incorporation of corrigendum for rate of interest
- Consolidation of old Block Loans
- Consolidation of Block Loans for Back to Back repayment (same terms and conditions as indicated by donor)

8. Project Management Structure

Project Management team is headed by Chief Controller of Accounts (CCA), Ministry of Finance. Apart from CCA, staff of State Loan Section (6), were involved in capturing and validating the data. The development team comprised of one manager, one systems analyst and one programmer.

9. Implementation

Initially the application was implemented as pilot in Department of Economic Affairs in Dec'2004 for six months to test proof the concept. On successful completion of the pilot phase, the application (LGIMS) was also implemented in Department of Expenditure. Since last two years, the system is fully operational in both the Departments. In December 2005 web module was also launched and this application was appreciated and extensively used by the State Govt./UTs.

10. Capacity Building

- For successful implementation of LGIMS, training was provided for 15 days to the all users (staff and officers) at all levels—Dealing Hand (DH)/Assistant Accounts Officer (AAO)/Pay and Account Officer (PAO)—before they were put on the job.
- Training was given to the users whenever a new service/module was included or any change in the application took place.
- Efficient change management policy is in place, and the changes are done with consent of the stakeholders.

Benefits

- Capture of sanctions at the origin thereby validation of data at the lowest level
- Effective monitoring of budget vs expenditure
- A reduction in data entry efforts
- Speedy and accurate reporting of accounts pertaining to loans, grant-in-aid and investment
- Elimination of human errors in processes
- Improve efficiency, performance and facilitate decision making process
- Speed up information flow State Governments and the Department of Economic Affairs, Ministry of Finance
- Provide accurate and fast calculation of loan breakups, viz., calculation of yearly and monthly repayment schedules
- GUI based-software for better user interface and adaptability.
- Provide different access levels on the basis of post to enhance security of the system
- Historical data maintenance

Road Ahead

- Continue enhancement of the application to make it more user friendly
- Generation of digitally signed Advice for exchange of electronic information with CAS Nagpur
- Incorporation of flat file format of Clearance Memo from CAS Nagpur to this application
- Security audit of the application
- Customization of application for implementation in other Departments of Govt. of India

11. Issues and their Solutions

Critical Success Factors

- a) Commitment of top management
- b) Efforts made by the staff to reconcile the output of the system with manual data and bring the desired level of accuracy)
- c) Feedback provided by stakeholders
- d) Adherence to the timelines by the development team

12. Status and Results

Present status

The system is in use since last two years and it has enabled creation of a centralized database for storing and monitoring of loans, grants-in-aid and investments to State Governments/UTs.

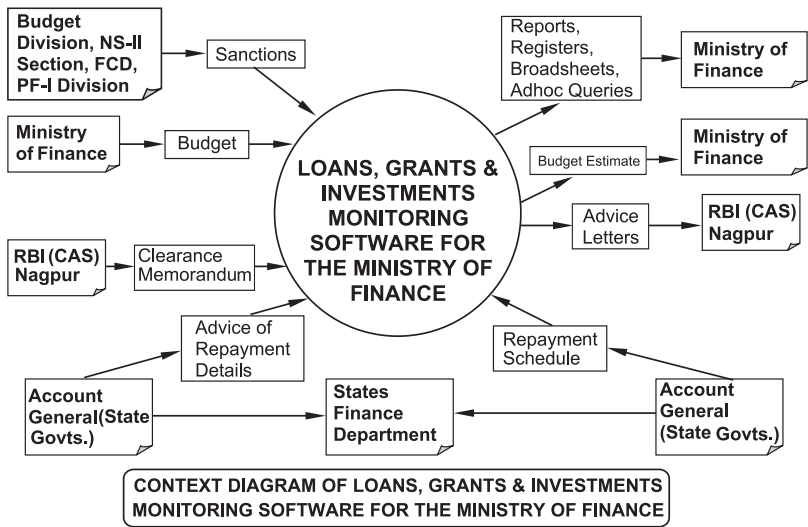
13. Achievements

- Manual system was discontinued after the successful implementation of the project from past 2 years
- Greater transparency and efficiency in the management and administration of State finances
- Better cash management by the States/UTs as they would now have access to repayment schedules on a monthly basis
- Reduction in time taken for dissemination of information of releases
- Timely assessment of repayment liability

14. Conclusion

The LGIMS application has systematized the entire centre fund transfer process of loans, grants-in-aid and investments to the State Governments/UTs for close monitoring, efficient flow of data, proper maintenance of registers, broadsheets and posting of appropriate transfer entries to achieve greater transparency and efficiency in the management.

Fig. 1



Human Resources Query Desk

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ABSTRACT

Human Resources Query Desk (INTELLIMATE) was developed for Directorate of Organization and Personnel Management (DOPM), Central Board of Excise and Customs, Ministry of Finance to create a database of personal and posting details of Group 'A' officers and provide a decision support system to facilitate their transfers/postings. It is used by the Board for its human resource deployment since last three years. The database contains all personal and posting details of nearly 2000 Group 'A' officers. Web module enables the officers to view their history of posting.

Personnel information in respect of officers is captured by the system, followed by history of posting of officers and training details. These details are collected from various chief commissioners for the officers working under their charge on paper form and entered into the system centrally. The data thus captured, forms the base to enable generation of queries.

1. Introduction

Central Board of Excise and Customs (CBEC) is a part of the Department of Revenue under the Ministry of Finance, Government of India. It deals with the tasks of formulation of policy concerning levy and collection of Customs and Central Excise duties and administration of matters relating to Customs, Central Excise and Service Tax. The Board is the administrative authority for its subordinate organizations, including Custom Houses, Central Excise Commissionerates and the Central Revenues Control Laboratory. Directorate of Organization and Personnel Management (DOPM), a directorate of CBEC, is maintaining and regularly updating Centralised Data Bank of IRS (CandCE) Group 'A' officers of Central Board of Excise and Customs.

2. Project Conceptualization

To keep track of posting of officers over entire period of their service and to use the information for facilitating decisions regarding their future postings is a challenging task for any organization. CBEC requested NIC to develop an application system to computerize the data of history of postings of

their Group 'A' officers. Scope of the application covered, capturing their personnel information, history of postings and training details and develop queries, in line with existing transfer policies to enable the Board to take informed decisions for posting and transfer of officers.

The system takes care of the following major functionalities like:

- Personal details
- Posting details
- Choice of posting
- Training details
- Leave details
- Query module
- Search criteria
- Audit trail

3. Project Vision

To develop a data bank of personal information and history of postings with a view to facilitate transparency and efficiency in the transfer process in Central Board of Excise and Customs (CBEC).

4. Stakeholders

1. Central Board of Excise and Customs
2. IRS (C and CE) Group 'A' officers

5. Goals and Objectives

- To facilitate transparency and efficiency in the transfer policy in CBEC
- To eliminate of human errors in processes
- To increase the reporting and querying capabilities
- To create a centralised database of personal information and history of posting
- Historical data maintenance

6. Project Plan

Technology Architecture

Human Resources Query Desk uses state-of-the-art IT tools. It was developed as 3-tier web based architecture. Microsoft Active Server Page 3.0 and

HTML was used for the front end design of the application. Microsoft SQL Server 2000 was used as backend database.

Software on server

- Microsoft Windows 2000 as Server OS
- Microsoft SQL Server 2000 as RDBMS
- IIS connectivity to establish connection between application and SQL Server 2000

Software on clients

- Microsoft Windows 98/XP/2000 as OS
- LAN connectivity to access the application
- Internet Explorer
- Trend anti-virus for virus protection
- Printer driver for printing purposes

Security

The web application is hosted on NIC web server behind the firewall to ensure its integrity and security. Apart from this, other security considerations are taken into account

- Server-level security
- Database-level security
- Application-level/role-based security
- User authentication and password using salted MD5.
- Backup facility

7. Milestones

- Creation of various master directories, viz., Chief Commissionerates, Commissionerates, Directorates, Stations, Qualification, State, Category, Languages, Pay scale, etc., to facilitate data entry
- To capture personal information and history of posting in respect of group 'A' Officers
- Analyse the information to facilitate generation of various reports in a timely manner to assist the Board officers in deciding transfer and posting of officers
- Generation of various reports for the officers completed specified period in Sensitive Post/Region/Station etc.
- Successful completion of consecutive 3 Annual General Transfer (AGT) through this application
- A specific search criteria is provided for better search option

8. Project Management Structure

Project Management Team is headed by Commissioner (DOPM), CBEC. Apart from Commissioner, Staff and Officers (8) involved in the capturing and validating the data. The development team comprised of one manager, one systems analyst and one programmer.

Implementation

Initially the application was implemented as pilot in Directorate of Organization and Personnel Management (DOPM), CBEC at Rajendra Place in July'2004 for six months to test proof the concept. On successful completion of the pilot phase, the manual system was discontinued. Since last three years the system is fully operational and three AGTs are successfully completed using this application.

Capacity building

- For successful implementation of application, 15 days training was provided to all the users (staff and officers) at all level (Data Entry Operator (DEO)/Supervisor/Assistant Commissioner) before they were put on the job.
- Training was given to the users whenever a new service/module was included or any change in the application took place.
- Efficient change management policy is in place, and the changes are done with consent of the stakeholders.

Benefits

- Centralized personnel database for CBEC
- Effective implementation of transfer policy
- Speedy and accurate reporting of officers pertaining to personal and posting details
- Elimination of human errors in processes
- Improve efficiency, performance and facilitate decision making process
- GUI-based software for better user interface and adaptability
- Provide different access levels on the basis of post to enhance security of the system
- Historical data maintenance

Road ahead

- Continue enhancement of the application to make it more user friendly
- Incorporation of officer's choice of posting on the grounds like medical, spouse's profession, children's education, etc.

- Security audit of the application
- Customization of application for Group 'B', 'C', 'D' officers and staff

9. Issues and their Solutions

Critical Success Factors

- Commitment of top management
- Efforts made by staff to verify the output generated by the computerised system
- Feedback provided by the stakeholders
- Adherence to the time line by the development team

10. Status and Results

Present Status

The system is in use since last three years and it has enabled creation of a centralised database of personal information and history of posting of Group 'A' officers of CBEC.

11. Achievements

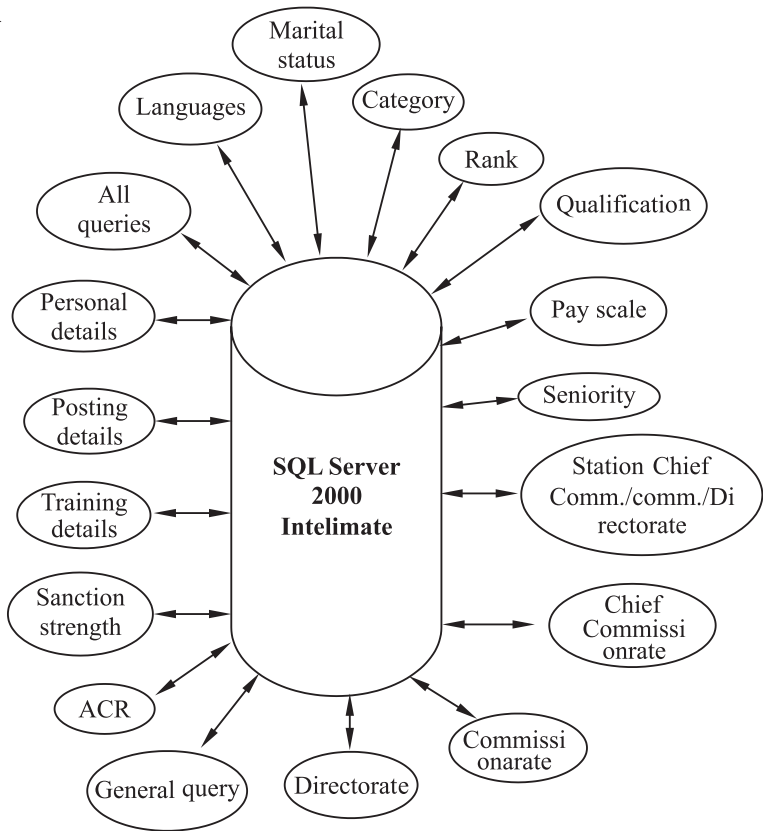
- Discontinuation of manual system was discontinued after the successful implementation of the project since past 3 years
- Greater transparency and efficiency in the transfer process in Central Board of Excise and Customs (CBEC)
- Reduction in time taken for generation of reports for Annual General Transfer (AGT)
- Generation of error free reports
- Generation of reports in the manual system used to take about 15 days. The computerised system provides flexibility in specifying query parameters and reports can be generated in a very short period

12. Conclusion

The application is used by Directorate of Org and Personal Management (DOPM), Central Board of Excise and Customs, Ministry of Finance to develop a data bank of personal information and history of postings with a view to facilitate transparency and efficiency in the transfer process in Central Board of Excise and Customs (CBEC).

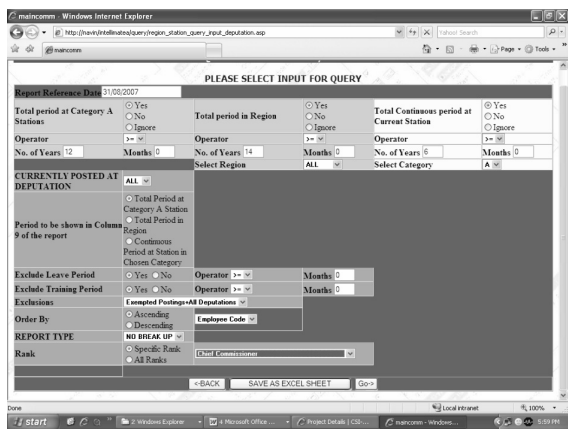
13. Software Architecture

Fig. 1



14. A View of Query Selection Screen

Fig. 2



Service and Payroll Administrative Repository for Kerala—SPARK

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ABSTRACT

SPARK is a G2E web based Personnel Administration and accounts software for Government of Kerala covering 5.25 lakhs employees. Permanent Employee Number for all employees is allotted through the system. Every department in Government has an establishment section to manage the human resources. The entire service information of an employee working in the sub-ordinate service (NGO) is maintained in the service book of the employee and is retained with the respective office in which the employee works at any given time. The service information of State Service (Gazetted) employee is maintained in the Entitlement Register and retained with concerned section at A.G office. When a non-gazetted employee is transferred and gets posted to another office, the service book is transferred to the new office whereas the Entitlement register is always kept at AG office. The establishment section mainly deals with Payroll, updating service book of the employees, preparation of gradation list, drawing up promotion list based on respective eligibility and reservation criteria, transfers and postings of employees and sanctioning of leave benefits as per directions laid down in the Kerala Service Rules. At present there is no way in which information from these books can be brought together to help decision making. There is no unified data or source of data for details about the employees who draw their pay from the Government.

A centralized integrated computerized personnel and payroll information system will help the government to get details of any employee immediately, achieve highest level of transparency in dealing with the employees, more consistent application of rules etc. On the payroll side, accurate and automatic payroll processing is facilitated. It also ensures that the rules and regulations are uniformly applied to all employees there by avoiding complaints and thereby achieving better employee relations.

The system addresses all requirements in service, salary, income tax and accounts matters. Centralized database helps in quick decision-making and applying rules and regulations uniformly for all employees. Activity driven procedure linked data capture is ensured. All reports are generated in PDF format. Provision is available to send alert messages to employees, when payments are credited. Provision to generate Identity Cards is another facility.

1. Introduction

Project Conceptualization

Government of Kerala has accorded high priority for the implementation of e-Governance in the departments for the effective and efficient administration and service to the people of the state. It has further realized that the mere usage of IT alone is not sufficient and has decided to revamp the administration through massive changes. It is evident from the fact that the Government has incepted a new department for modernizing Government Programs. The modernization will certainly pave the way for using IT in Government programs there by making e-Governance a reality. It is in this context the government has decided to implement an Integrated Payroll and Personnel Information System in its departments. This system helps not only the employees but also the management.

2. Project Vision, Stakeholders, Objectives and Services

There are over 5,25,000 employees working in more than 100 Government departments, several schools and colleges in Kerala State Government service. Every department in Government has an establishment section to manage the human resources. The entire service information of an employee working in the sub-ordinate service (NGO) is maintained in the service book of the employee and is retained with the respective office in which the employee works at any given time. The service information of State Service (Gazetted) employee is maintained in the Entitlement Register and retained with concerned section at A.G office. When a non-gazetted employee is transferred and gets posted to another office, the service book is transferred to the new office whereas the Entitlement register is always kept at A.G office.

The establishment section mainly deals with Payroll, updating service book of the employees, preparation of gradation list, drawing up promotion list based on respective eligibility and reservation criteria, transfers and postings of employees and sanctioning of leave benefits as per directions laid down in the Kerala Service Rules. At present there is no way in which information from these books can be brought together to help decision-making. There is no unified data or source of data for details about the employees who draw their pay from the Government.

A centralized integrated computerized personnel and payroll information system will help the government to get details of any employee immediately, achieve highest level of transparency in dealing with the employees, more consistent application of rules, etc. On the payroll side, accurate and automatic payroll processing is facilitated. It also ensures that the rules and regulations are uniformly applied to all employees there by avoiding complaints and thereby achieving better employee relations.

The system has been developed with a view to cater to the administration, payroll and accounts matters of all Government establishments. A centralized integrated computerized personnel and payroll information system will help the departments to get details of any employee immediately, achieve highest level of transparency in dealing with the employees and can have more consistent application of rules.

- Changes made in one module will be reflected in all related areas of activity
- On the payroll side, accurate and automatic payroll processing is facilitated
- Rules and regulations are uniformly applied to all employees
- Avoids complaints
- Achieves better employee relations

The stakeholders of SPARK project are Government of Kerala, Treasury, AG's office, establishment sections, employees, Kerala State IT Mission and National Informatics Centre.

3. Public Private Partnership (PPP)

SPARK project is fully owned by Government of Kerala.

4. Necessity/Needs

There are about 5.25 lakhs of employees working in the Kerala Government departments and the details about these employees are available in service books maintained in about 50,000 offices. At present there is no way in which information from these books can be brought together to help decision-making. There is no unified data or source of data for details about the employees who draw their pay from the Government. Moreover various requirements of employees are delayed for want of the availability of information at various decision-making points.

5. Project Plan

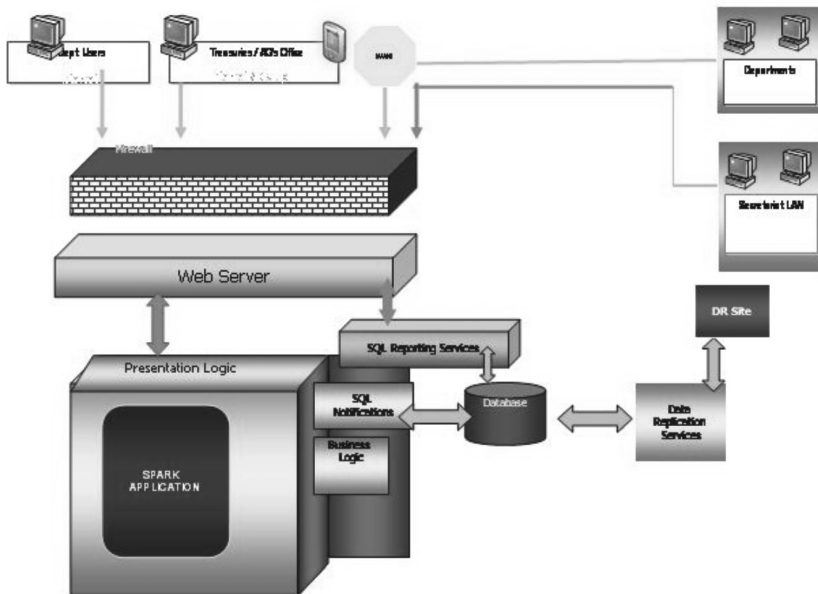
Requirements of Process Re-engineering and Legal Framework

Not much of business re-engineering was attempted initially. However it was decided to incorporate Permanent Employee number (PEN) for all Employees. Thereafter changes have been incorporated in a demand-driven manner. For example, when it was decided to adopt on-line filing of property returns, competent authority ordered necessary changes. The concept of demand-driven BPR has been adopted without affecting the initial database creation.

Technology Architecture

The SPARK Data center is a multi-layer architecture and has been designed to adhere to the industry standards and is optimized for hosting SPARK application. The architecture is represented below. The SPARK data center is the core of the SPARK application infrastructure. This will be used to house the main servers. These servers are protected from the other zones by firewalls.

Fig. 1



Platform/Technology used in the project: Windows 2003 Server, SQL Server 2000, SQL Reporting Services, and ASP.NET

6. Milestones

Project goal is to implement the SPARK software centrally covering all departments under Govt. of Kerala. The following milestones are envisaged.

- Design and development of the web enabled SPARK application software with modules for managing personnel data and payroll.
- Pilot implementation at Govt. Secretariat
- Roll out to line departments

7. Project Management Structure

SPARK is a joint venture of IT Department, Finance Department and National Informatics Centre. Ownership is entrusted jointly with IT and Finance Departments. Kerala State IT Mission is the implementing agency. A co-ordination Committee and a Technical Committee are functioning for guiding, reviewing and assisting the project implementation. KSITM implements the project with necessary consultations with the above committees, Finance Department, Accountant General's Office, NIC and the departments where SPARK is being implemented.

8. Implementation

Strategy for Pilot to Roll Out

As pilot phase, the project has been successfully implemented at government secretariat, Trivandrum having about 5000 employees. After the success of the pilot phase, the project is now in the roll out stage. As of now more 85,000 employees from different departments of Kerala has been covered under SPARK.

The state wide implementation of the project is being done by Kerala State IT mission. NIC provides necessary software support and consultancy for this project. NIC maintains the project by developing the new requirements as and when required. NIC also provides training to master trainers identified by KSITM and the participating departments. These master trainers further impart training to large number of staff. Workshops are arranged by KSITM and NIC to sort out issues and problems whenever necessary.

9. Evaluation and Measurement

The IT audit wing of Accountant General and audit findings intimated has recently audited the product. Corrective and preventive actions have been incorporated based on this.

10. Issues and their Solutions

Lessons Learnt – Critical Success Factors, Failure Factor

- A strong application software (Pilot phase at Govt. Secretariat was a success).
- Commitment from Government (Government has decided to roll out this product to all departments)

- Availability of data (Data with respect to about 85,000 employees have been entered so far).
- Connectivity (All the Departments/Offices are going to be connected through KSWAN which will ensure the reach).
- Training (The key officials need to be trained in using the application)

To accommodate all departments and offices under SPARK, Internet connectivity with proper bandwidth is required in all offices. Most of the offices are in remote villages where provision to provide connectivity is very less.

Now Government of Kerala has initiated a network, KSWAN, which will cover all offices together in a network, which will be completed within six months.

Replication in other States

The project has been further brought out as a product entitled '*Personnel administration and Accounts for Central Establishments (PACE)*' for implementation in any Government Establishment.

Road Ahead

- Online data sharing between departments, treasuries and the AG's office
- Norms-based transfer
- Vacancy forecasting
- Pension database maintenance
- Forecast the expenses on wages for planning
- 'What if analysis' on the expense on wages for various variations on allowances
- Analysis on pensioners for the next 5–10 years

11. Status and Results

Present Status

After the success of the pilot phase, the project is now in the roll out stage. As of now more 85,000 employees from different departments of Kerala has been covered under SPARK. Interoperability with Finance department (treasury) data has been initiated.

- Specific achievements during the year 2006–07: Pilot implementation in Government secretariat was a tremendous success.
- Future plans for readers seeking more information on project

Please visit the site <http://info.spark.gov.in> for information about the project.

Please visit <http://spark.gov.in> to access the application.

ICT in Delhi School Education System*

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ABSTRACT

The IT initiatives of the Directorate of Education, Government of NCT of Delhi entail a comprehensive action plan to usher in ICT enabling governance and academic innovations by addressing issues that have a direct or an indirect bearing on classroom teaching, students performance and accountability of teaching staff including office personnel. The project includes interventions such as computer aided learning in multimedia classrooms, admission of students and tracking their details, school information including geographical boundaries, student feedback, inspection of schools, assessment of classroom teaching, attendance of students online through various web based modules, continuous and comprehensive evaluation of student's performance.

The initiatives also include interventions for personnel and office management in the Directorate such as Employee information system, transfer posting module, finance module, library management, infrastructure module, file track, processing of vigilance cases, processing of court cases, and maintenance of electronic documents including Annual Confidential Reports, etc. As an outcome of these initiatives, there has been perceptible change in both administrative and academic output of the Department with human intervention and discretion being minimized resulting in a fair, transparent, accountable and responsive system.

The most important aspects of the ICT implementation are the following:

- The entire work flow of the Department has been woven into the system such that the users have to work through the system for producing deliverables like mark sheet of a child, rather than entering a data arrived at after a process has taken place.
- The implementation of a particular module is always complete. There has never been a pilot. All the users use the system simultaneously.
- The system is a product of an in-house process having organic growth. The needs are identified, solutions mooted, the simplest possible system implemented, tested and fine-tuned and further complexity introduced gradually till the system becomes complete. As a result, the system has started delivering perceptible results within a few days of its implementation.
- It is conceded that the web based system is not a technical marvel. Any perfection in terms of internationally laid norms is never claimed. But it is ensured every time and at every level that the system delivers the results it is meant for.
- The system has been pro-actively accepted by all the stakeholders. In fact, the Teachers Union claims that Computerization has been achieved as a result of their tireless efforts.

* CSI Nihilent e-Governance Awards 2006-07, Special Jury Award.

- There is a definite and unprecedented improvement on all the parameters upon which a School Education System can be evaluated.

1. Introduction

Project conceptualization

The Department of Education in Delhi, has a Herculean task of managing around 1000 schools with 40,000 staff to cater to about 11 lakh children with the sole aim to provide quality education in the government schools. The sheer extent of numbers to be provided this facility has its fall out on the effort required to ensure reasonable level of performance in all schools. There has been a variation in performance varying from 'par excellence' to 'below par'. A prime indicator of achievement for the department could be CBSE results where pass percentage in various schools could be a measure of success and failure.

Obviously, the better ones always perform whether the system exists or not. There were geniuses like Thomas Edison and Albert Einstein who became great scientists without the help of a good schooling system. However, average students are likely to fall below par in the absence of a systemic support. The success of a large system, thus, lies in not letting the performance fall below a prescribed minimum standard and to assist the brilliant ones in realizing their full potential.

'When the then Director joined the department, during initial exchange of pleasantries as a prelude to delving into finer issues, he enquired about the number of schools from his subordinate officers. To his utter surprise, the response varied from 980 to 1050.'

This stemmed the urge to delve into further details such as:

1. Number of teachers and number of students
2. The quantum of facilities available to them
3. Extent of PTR (Pupil Teacher Ratio) in each schools as it would have been an exercise in futile in absence of accurate information
4. A systemic methodology to assess performance of teachers
5. Ensure timely attendance of all officials, and to reduce truancy
6. To bring in accountability and transparency by evolving objective parameters against which the performance can be measured
7. To ensure equitable and timely distribution of available financial and manpower resources
8. To be able to plan for the required infrastructure well in advance and with accuracy
9. To ensure timely training to all the teachers
10. To introduce new and state of art techniques for education like computer aided learning, etc.

Each of these parameters which have a direct bearing on performance of schools is extremely important and pertinent but cannot be addressed at the systemic level if the number of schools is also not known accurately.

Appreciation of the problem and crystalization of the ideas to solve them

Keeping in view of the points of reference mentioned above, it was felt necessary that the entire system should facilitate correct decision making by enabling and ensuring real time collection and updation of data and have at least the following features.

1. The Information System should be web-based so that any user from any location can have access and use this system. Besides the changes/alterations in the programmes can be effected through a change in the central server only. There should be no need to change the software in each and every school.
2. Not only the data should be fed into the computers but the workflow should be embedded into the Information System so that the officials can transact business through the Information System, not merely entering transaction details after it has taken place. These two features could enable a real time updation of the data.
3. Every transaction should be followed by printing a report to be used in regular file work undertaken in various offices of the Department so that both the manual system and the IT based system should not entirely substitute each other but both the processes should be interwoven in such a manner that the best of both the systems can be used for the over all benefit of the Department.

For example, if an employee joins any school on the web-based system, a Joining Report should be printed out indicating all the particulars. Not only the report should be printed but it should be made mandatory to use MIS generated Joining Report to be used as official Joining Report for all official purposes hitherto being used for preparation of salary or keeping record of postings in the personal file of the individual.

4. There should be some enforcement mechanism. Every major transaction of the Department should be carried out through this Information System so that the people are forced to use this system. For example, if the salary bill is prepared through this system, personnel have no other alternative but to enter their employee details, salary details etc. in order to get their name included in the salary bills of the Branch/School.

In a nut shell, the proposed the web-based system should not only enable and ensure the entry of correct data in real time, but the system should automatically ensure that not so diligent employees, who lack the drive to work except under coercion, also fall in line.

2. Project Vision, Stakeholders, Objectives and Services

Project Vision

To provide enabling systems for quality, child-centred education.

Stakeholders

- Students
- Parents
- Public
- Teachers and other employees
- Administrative machinery

Objectives

- Universal enrolment
- Reduced drop out
- Improved quality of education
- Joyful learning
- All-round development

Services

Services to students

- i) Online admission
- ii) Online attendance
- iii) Online mark sheet including all the units tests and terminal exams
- iv) Online SLC
- v) Student feedback
- vi) Computer aided learning
- vii) MIS mail
- viii) Online CAL content.
- ix) CAL content in school library computer.
- x) Online syllabus
- xi) Issue of library books online.

Services to parents

- i) Online admission
- ii) Unique ID and tracking of every child in the school system.
- iii) MIS mail
- iv) Online school information.
- v) Online circulars and orders
- vi) Mail to minister
- vii) Computerized mark sheets for their wards.
- viii) Online attendance report of teachers and students

Services to the Public

- i) About us— details of all schools in delhi with phone numbers .
- ii) About the department
- iii) Act and rules
- iv) Telephone numbers of officers
- v) Right to information act
- vi) Public circulars
- vii) Website feedback
- viii) Current events
- ix) Important links to other government and educational institutions
- x) Online attendance report of teaching and non-teaching staff
- xi) Tenders— departmental purchases.
- xii) Search link

Services to teachers and other employees

- i) Online attendance
- ii) Timely emoluments through online payroll module
- iii) Online request facility for transfer to a desired school
- iv) Online transfer, posting, relieving and joining
- v) Optimal and transparent posting based on GIS data
- vi) Online data correction request facility
- vii) Online weekly syllabus and other guidelines
- viii) Internal MIS mail
- ix) Online salary slip
- x) Online marksheet management.
- xi) Online availability of week-wise syllabus
- xii) Online circulars and orders
- xiii) Online seniority list
- xiv) Online annual confidential reports
- xv) Online ACP (Assured Career Progression) scheme.
- xvi) Online monitoring of vigilance cases

Services to administrative machinery

- i) Online finance management module covering all the transactions right from allocation to disbursal of every rupee spent by the department
- ii) Online infrastructure management module
- iii) Online file track module
- iv) Online court cases monitoring
- v) Online module for extraordinary repairs
- vi) Result analysis and performance evaluation
- vii) MIS mail for all communications
- viii) Collection of any desired information online
- ix) Library module for monitoring of issuance of books to children

5. Public Private Partnership (PPP)

The programme is funded solely by the Government. All the developmental work has been done in-house by hiring contractual staff. The department has its own internal informal audit process. As there is no external service provider, the question of SLA does not arise. However, there are fixed timelines and frequency for different specific activities that have to be strictly adhered to. For example, there is a definite date/cut-off date for declaration of results and distribution of mark sheets, admission of students, applications for transfers, submission of payroll, writing of ACRs etc. that can not be extended at any cost. So the SLA is self-defined and implemented.

6. Necessity/Needs

- The ground situation was analysed on all parameters in finest possible details and overall strategy was evolved to improve the ground situation drastically. The analysis led to the conclusion that vision and will power combined with adequate support of ICT backbone can achieve the desired objectives.
- It was clear at the very outset that IT is an efficient tool that can help in the following:
 - To provide accurate and timely information about the system on desired parameters, benchmarks and bottlenecks and serve as decision support system
 - To implement transparency in all aspects of the functioning
 - To revolutionize communication at all levels
 - To shorten the response time
 - To reduce the digital divide
 - To re-engineer the government process
 - To simplify the logistics
- At the same time, it was also recognized that IT is only a tool and per se can not substitute for vision, good governance, strategizing, motivation, will power to implement reforms, team work, introduction of new ideas etc. in the actualization of true potential of the system.

In light of the above, different strategies were formulated for the problems keeping in view the desired objectives defined above. The following steps were taken in formulation of each strategy.

1. *Analyze* the data
2. *Identify* the problem areas from the above analysis (it is very important first to ensure accurate and timely data and then to believe in the findings even if it goes against the conventional wisdom). As the problems identified in the table of strategies below, examples 1, 2 and 5 were not in common knowledge and the findings did not tally with conventional wisdom.

3. *Workout the probable solutions/interventions*, then select and execute the one which has the maximum impact with minimum disturbance, something akin to keyhole surgery.
4. *Assiduous monitoring and follow up* of the intervention, often allowing for mid term correction, if required in light of new findings, continuously emanating/being collected in real time from the online application.

The table given below will bring about some of the examples of the strategies chalked out and implemented.

Strategies

Table 1

Sl.	Problem identification	Intervention	Outcome
1.	The low result in CBSE Class-X and XII examinations could be primarily attributed to bad performance in mathematics. Extrapolation techniques bring out the fact that if the result of mathematics is brought upto level of English, an equally tough subject for first generation learners, the overall result will increase by 12%.	1. <i>All maths teachers graded</i> in three categories Red-, Green- and Yellow-based upon the performance of their wards. 2. <i>Secretary and Director Education talk to all of them</i> bringing out the seriousness of situation. 3. <i>Academic training</i> imparted to all the maths teachers by subject experts.	<i>Result increased by an unprecedented and unthinkable 11.7% in Class-X in year 2006. In year 2007, it was 17.39%. The previous best increase being in the region of 4-6%.</i>
2.	1. <i>Co-Ed. Schools</i> perform significantly better than single sex schools. 2. <i>Single shift</i> schools perform significantly better than double shifted schools. 3. <i>Large schools</i> in terms of enrolment perform significantly better than that of the smaller ones.	<i>Merger</i> of two single sex schools running in two shifts in the same building. This effectively made the schools co-ed, single shift and had a large enrolment.	<i>Result of the merged schools went up by almost three times from 27.65%(2005) to 50.94%(2006) to 77.02%(2007) in two years.</i>
3.	There were complaints of <i>teacher absenteeism</i> .	<i>Online attendance</i> for teachers was introduced.	<i>Attendance of teachers can be verified at any given point of time either for individual teacher or in aggregates.</i>

Table 1 (Continues...)

Sl.	Problem identification	Intervention	Outcome
			One example of teacher attendance for a day is shown in the forthcoming pages.
4.	There was a fear that in lower classes less attention might be paid due to importance given to board results everywhere.	Performance of all the children was monitored by way of <i>online mark sheet</i> generated by entering the data of classes VI onwards. This empirical data was collated <i>to evaluate performance teacher-wise, class-wise, zone-wise, district-wise etc.</i>	<i>Pass percentage of all the classes improved substantially</i> except class VII. The reason of which was found out to be one of the papers being extraordinarily tough. It fixes the accountability on the supervisory officers at all levels.
5.	It was found that when children came to join Class VI in a Delhi Government School for the first time (from Municipal Schools), they faced <i>lots of inconvenience in obtaining admission</i> and as a result many of them even dropped out. Secondly, there were allegations of favoritism in the matters of admission in sought after government schools.	Government and MCD Schools were mapped in Parent-Feeder School relationship in GIS map. The data in respect of the batch passing out of Class-V from MCD was obtained in advance. The same was entered into the database. Once the database and mapping was ready, the admission was online and automatic, only the child has to present himself in the parent school and complete the minimal formalities. For children other than feeder schools, provision for online application and school allocation was made. The parent schools were made centres for online application.	1. In the first year of operation, the <i>enrolment of Class-VI increased by almost 14%</i> over the previous year. 2. <i>Innumerable man days (estimated to be more than 5 lakhs) of parents</i> were saved because they did not have to make repeated rounds to the school for obtaining admission. Since most of the parents are daily wage

Table 1 (Continues...)

Sl.	Problem identification	Intervention	Outcome
		The onus of taking admission was shifted from student-parents to Heads of Schools of Parent and Feeder Schools. The Heads of Schools were asked about children who did not take admission.	earners, this meant a lot for them. 3. Admission to preferred schools was on the basis of <i>merit</i>. 4. Discretion done way with resulting in <i>transparency</i>. 5. <i>Accountability</i> of HoS was fixed in case the child was not admitted.
6.	It was found that <i>children fail in Class-VI in massive numbers</i>, failure rate being more than 50%. On further research, it was found that only 33% of the children had the competence level expected of a class V child at the time of joining Class VI.	A <i>bridge course</i> was conceptualized with the following attributes: a) It should cover <i>all the important topics</i> from Class-I to V. b) It should take <i>much less time</i> and at the same time be <i>more effective</i> than the conventional methods of teaching. c) It should be <i>developed by the own teachers</i> of Delhi Government because they know the strength and weaknesses of their children the best.	A multimedia bridge course called '<i>CALtoonZ</i>' was made. This resulted in a) 7.51% <i>reduction in drop out rate</i> in CAL Schools compared to 5.71% reduction in drop out rate in non-CAL schools. b) 16.58% <i>increase in enrolment in Class VII</i> of CAL schools compared to 14.34% of non-CAL schools.
7.	The <i>distribution of available teachers in the state was uneven</i> inter district average deviation from mean in the PTR(Pupil Teacher Ratio) was 3.92 and inter zonal deviation was 4.55.	A choice based <i>computerized transfer system combined with GIS based posting</i> of new recruits, both of which ensures the	1. The average <i>deviation for districts reduced from 3.92 to 2.41 and for zones</i>

Table 1 (Continues...

Sl.	Problem identification	Intervention	Outcome
		minimum ITA(Index of Teachers Availability) with the most convenient postings for the teachers. The programme does billions of calculations and ensures optimal postings. So much so that the concept of rural posting or difficult posting has been done away with, and even then has resulted in better distribution of available manpower.	<i>reduced from 4.55 to 3.13.</i> 2. The discretionary powers for transfers and postings have been done away with, resulting in absolute transparency.
8.	It was found that Department of Education was such a large system that <i>communication was very slow</i> and at many times even failed to reach the destination.	<i>MIS Mail</i> was developed in which all the employees and branches of the department were allotted internal e-mail IDs (their branch id or employee id was their mail id).	This facilitated <i>real time communication</i> between employees and branches. The branches can and do send the circulars/ communication either in bulk or individually to intended school/branch/ employee. There is no question any time lag or failure to reach the destination.
9.	Distributing around Rs.1500 crores to 1100 DDOs under more than 100 Heads and then continuous monitoring and reallocation of the funds led to <i>inefficient financial management</i> . The plan schemes involving Uniforms, Scholarships etc. <i>could not be monitored efficiently</i> . It led to surplus funds at some places combined with deficiency at others.	<i>Online Financial Management</i> system was introduced which lent itself to real time and accurate allocation of funds based on data, reallocation based on real time expenditure reports, in time provision for monitoring of plan funds like Uniform, Scholarships etc.	<i>Accurate and efficient financial management system leads to almost 100% utilization of Plan Funds and in time.</i>

Table 1 (Continues...)

Sl.	Problem identification	Intervention	Outcome
10.	Management and <i>maintenance of huge infrastructure was not at the desired levels</i> and were always an issue. The situation was exacerbated due to involvement of schools, different level of branches and an external agency i.e. PWD. This often resulted in blame games without any tangible results.	<i>Online EOR (Extraordinary Repairs) track system</i> was implemented. It basically tracks the request for EOR from the Principal to the PWD via the defined channel. <i>Responsibility for delay at every level could be fixed.</i> In fact, at every quarterly meeting of zonal and district officers, online EOR sanctions are discussed upon and suitable directions are given.	The sanctions for Extraordinary Repairs increased from <i>Rs.14 crores to Rs.50 crores to around Rs.100 crores</i> in first and second years of implementation of online EOR track system.
11.	Sometimes the <i>problems of citizens</i> could not be brought to the notice of the Minister of Education or Officers of the Department.	<i>Online Feedback system for the citizens</i> has been made available.	Communicating with the Minister of Education or Officers of the Department has <i>become very easy.</i>
12.	Sometimes, <i>information</i> required for the public is <i>not easily accessible.</i>	All the relevant information have been <i>put online</i> for the public including the school information, their location, courses, map, acts and rules, tenders, circulars etc.	The effective communication has led to <i>transparency.</i>
13.	Some important documents were misplaced/lost and led to delays/inefficiencies in decision making. For example, unavailability of ACRs lead to delays in promotion.	<i>Digital record keeping</i> has been started with online ACRs being implemented currently. The ACRs thus written and kept shall be authenticated by <i>Digital Signatures</i> at every level. This is being done in conformity with the IT Act of India.	<i>All ACRs in the current year have been filled online.</i> This online generation and upkeep of digital records is going to be extended to almost all the records and would lead to <i>paper less office.</i>
14.	It was found that <i>libraries in schools</i> were not being optimally utilized.	<i>An online Library Management System</i> has been implemented.	<i>The quantity and quality of the books</i>

Table 1 (Continues...

Sl.	Problem identification	Intervention	Outcome
		The books are to be issued and returned using this module only. All the Librarians have also been given training in operation of the modules. All the Librarians have also been provided with computer and internet connection.	<i>being issued to children is going to be monitored at every level starting from the Principal up to the Director of Education at the time of their convenience.</i>
15.	It was found that in <i>cultural events</i> , children of Delhi Government Schools were not participating in adequate numbers.	Adequate emphasis on <i>training by choreographers and suitable costumes</i> was provided to the children of Delhi Government schools.	At Republic Day Function at Rajpath, <i>this year, four out of five participating schools belonged to Delhi Government.</i> Out of this, one school won the second prize in the exhibition.
16.	Last year for the first time CBSE introduced a <i>written examination based upon the prescribed practicals</i> to be done by the students. This exam had a weightage of 20 out of 100 in the Science paper.	First a <i>massive training</i> for teachers was organized and then a <i>campaign</i> to ensure that every child does the practicals, was launched.	<i>No child studying in Delhi Government schools failed</i> in the said examination introduced for the first time. A few students belonging to public schools had failed although.
17.	<i>Extra-curricular</i> activities did not find due weightage.	All schools were required to publish <i>school magazine, send two teams at zonal sports meet</i> , have facilities for at least two sports, one picnic inside Delhi and one tour outside Delhi.	For the first time, in the history of Delhi, may be even in the country, <i>all the Government Schools published School Magazines.</i> All schools went for tours and all schools prepared

Table 1 (Continues...)

Sl.	Problem identification	Intervention	Outcome
18.	It was found that some special talent was found in localized areas, for example natural swimmers were found in Munirka village where Tokas families live. Similarly, very good wrestling talent is found in Najafgarh and Bawana areas.	All the swimmers are provided training in R.K.Puram, Sector-6 Government School and the Wrestlers are nurtured under the personal supervision of Shri Satpal, DDE (Sports), Arjuna Awardee, and Gold Medalist in Asiad 1982 games.	teams for zonal sporting events. Two players won Bronze Medals in Doha Asian Games. Delhi School children won 26 Gold Medals in Wrestling in National School Games. Delhi won the team championship in National Sports Festival for Swimming.
19.	Sometimes <i>bottlenecks</i> were found in implementing the projects due to inflexibility and constraints of government functioning despite having adequate funds.	<i>Public Private Partnership</i> was employed in such areas. For example, for Pilot Project of CALtoonZ, EandY Foundation under their CSR activities provided the entire hardware including Computer, Television, Furniture, Audio recording etc. costing around Rs.1.5 crores for the 200 CAL schools.	The <i>pilot project</i> has taken off very well and buoyed by the success of the pilot, the hardware has been provided by the Government to all the schools. The <i>backing of one of the topmost consulting and audit firms</i> in the world, with funds, instilled enough confidence in the people working on the project about viability of the project.
20.	Instances of eve teasing and harassment of girl students is often found outside the schools.	Training in Self-Defence has been imparted to all the girl children belonging to Delhi government schools by experts from Delhi Police.	Confidence levels in the girl students have increased.

Table 1 (Continues...

Sl.	Problem identification	Intervention	Outcome
21.	There were issues in security and sanitation in the schools.	Private round-the-clock security has been started in all the government schools.	Much improved security and sanitation conditions in the schools.

7. Project Plan

The most radical process engineering was done in case of online admission of students where the onus of admission was shifted from the parent/ students to the Heads of Schools and the child coming to a school was admitted even before he showed up in the school.

Since Director of Education himself has all the powers for regulating the education system and almost no financial transaction from public are required, legal framework was never a problem.

The architecture is web based N-tier architecture. The front end is .NET and the back end is SQL server. All the required software is also used. Server farm is located at NIC data centre, Lodhi Road, Delhi. The same is maintained by the experts from the Department of Education through Remote Desktop Facility

8. Milestones

Target-surpassing in terms of quality and quantum of results and timeliness

Some of the achievements are depicted below graphically.

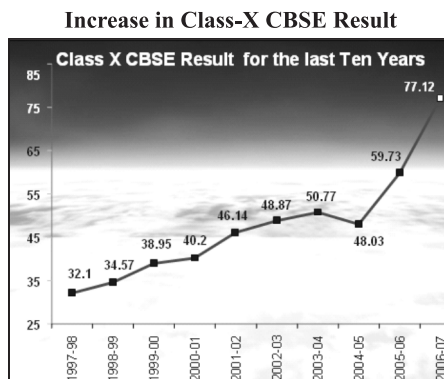
Fig. 1

Fig. 2

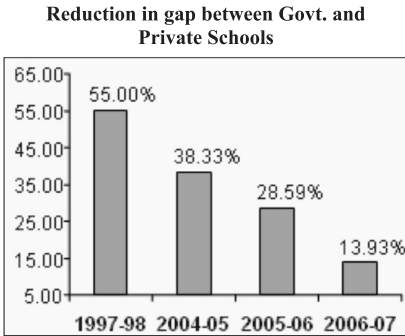


Fig. 3

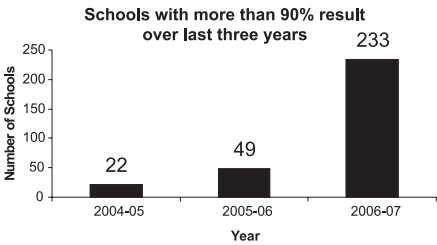


Fig. 4

Position amongst 5 CBSE Regions

In both Class X and XII Delhi Government schools are at Number One position among all the Regions.

Fig. 5

Teachers Attendance Report available on desired criteria

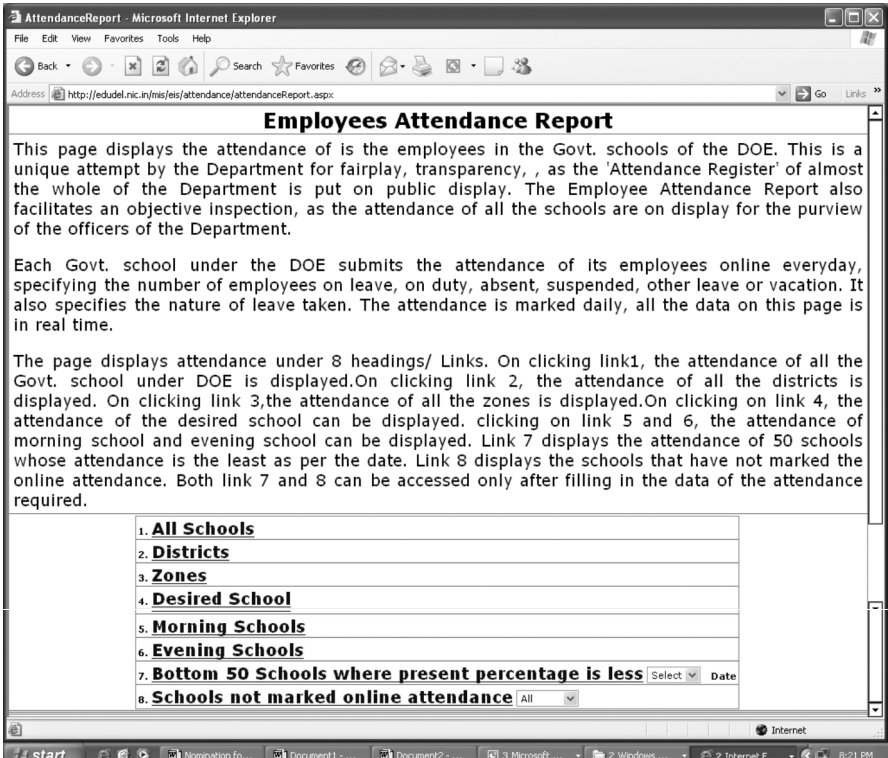


Fig. 6

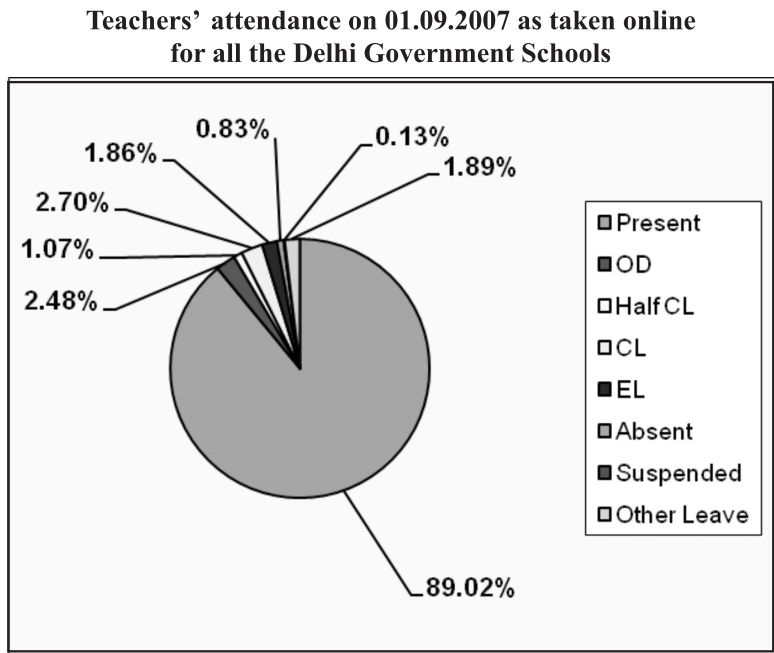


Fig. 7

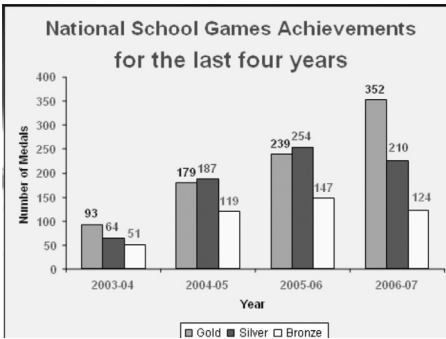


Fig. 9

**Govt. School SKV, Shakti Nagar No.1
students performing at Rajpath**



Fig. 8

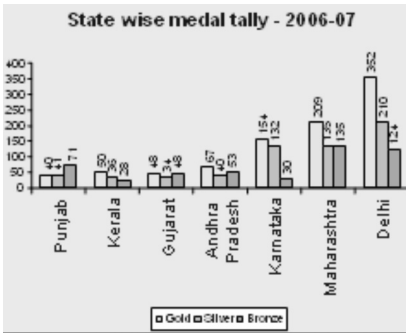


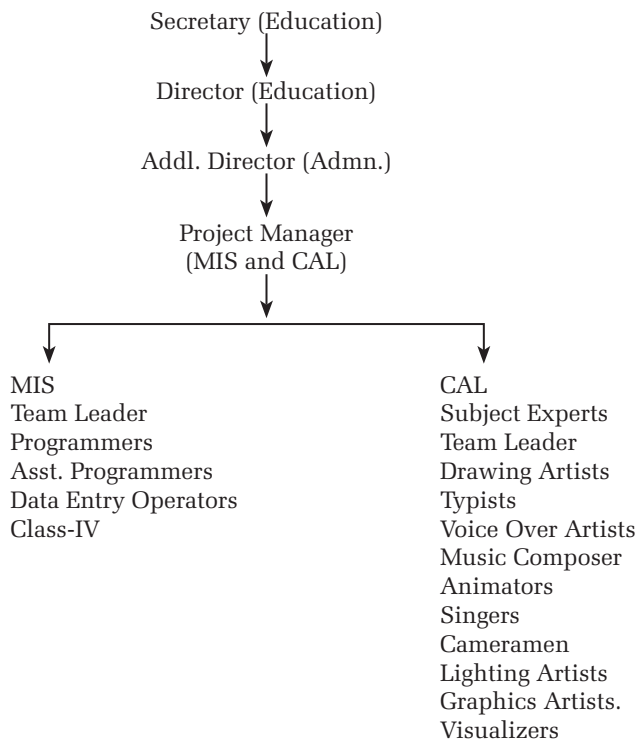
Fig. 10

**National e-Governance Awards for the
years 2005, 2006, 2007 for IT initiatives**



9. Project Management Structure

Fig. 11



10. Implementation

Strategy for pilot to roll out

As a matter of policy pilots are not resorted to. Simple module is mooted and implemented through out the State. The complexity of the modules may increase in newer version and newer modules are gradually added.

Capacity building

Initially all the Principals and Office Staff received around 5 days of training each, after that, this year, around 1100 teachers were given training of 13 days each in operation of computers, web based systems and Computer Aided Learning Modules. Besides, around 1000 trained IT Assistants get a refresher course of two days each every year. *It means the Department imparted IT training of around 22000 man-hours in this academic year itself. And the icing on the cake is every training is conducted in-house and no*

external resource persons or hardware is hired from outside. So, there is a large extent of capacity building being undertaken in the Department which is an ongoing exercise.

Every newly recruited Principal undergoes an IT Training Programme of 5 Days before joining his new assignment.

This year all the officers were trained.

However, the matter of fact is that almost everybody in the Department has become quite used to the online functioning and if one gets used to this the flow is so logical and based on common sense that no specific training as such is required.

11. Evaluation and Measurement

All the systems are evaluated in terms of ultimate goals of the department. The results achieved have been mentioned in *Strategies Table* under the heading *Necessity/Needs*.

12. Issues and their Solutions

Lessons learnt

The most critical factor deciding success and failure has been found out to be enforcement mechanism. Employee Database could be perfected only after the salary was paid online. Otherwise, even after tireless efforts of six months or so could not have an impact. Similarly, student database could be perfected only after mark sheets are issued online. Financial discipline could be enforced through an invented mechanism of sanction and disbursement orders that are not otherwise procedural requirements. Extraordinary Repairs could be enforced through sanctions tracking system. But the infrastructure, library etc. don't have a perfect enforcement mechanism and as such can not be said to be a perfectly working system.

Replication in other states

The system being online and the educational system being almost the same in the entire country, the system is entirely replicable.

Not only inter-state but inter-department replicability is also feasible, the functioning of government departments being the same all over the states and country. As an example, the Personnel Management Information System (PMIS) initially implemented by PWD, Delhi and later extended to CPWD in the entire country, was designed, constructed and implemented by the Department of Education for PWD, Delhi, in the first place.

Road ahead

Working towards paper less office (lessening the paper work) by electronic maintenance and authentication of records by means of Digital Signatures as per provisions of IT Act, 2000. The Department has already procured digital signatures for all the officers including Principals from MTNL for the purpose. Implementation of Computer Aided Learning in all the Classrooms and for all the classes in Delhi Government Schools.

13. Status and Results

Present status

Mentioned in **Strategies Table** under the heading

14. Specific Achievements during the Year 2006–07

Implementation of Online ACRs, implementation of Library Management System, implementation of Digital Signatures, ACPs, Extraordinary Repairs Module and complete implementation of Vigilance Module.

15. Future Plans for Readers Seeking More Information on Project

As almost all the administrative functions possible have been taken care of by the systems, the road ahead lies in consolidation as well as implementation of Computer Aided Learning in every classroom of Delhi Government Schools as there are only 10% classrooms have the necessary infrastructure and the Department has content only for Class-VI and X. We are developing content for all the classes. In the area of MIS, maintenance and consolidation, in itself is a huge task.

Web-LED

Web-enabled Lakshadweep Electricity Department (Total E-Governance Solution for Lakshadweep Electricity Department)

Sri. B.V. Selvaraj, IAS

Hon'ble Administrator, Union Territory of lakshadweep

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Sri. M. Hassan

Executive Engineer

Department of Electricity, Lakshadweep

Our e-Governance Vision

“A digitally integrated department where all the services to the consumers, employees and business are available online from anywhere”

1. Introduction

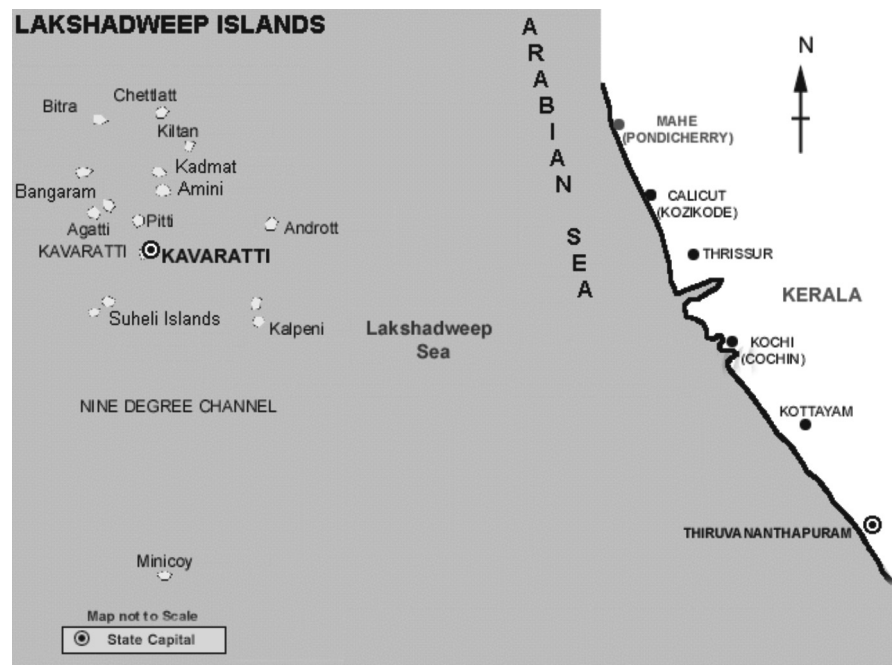
The Union Territory of Lakshadweep is a group of 36 coral islands and islets of which 11 are inhabited. The Islands are scattered randomly in Arabian Sea about 220 to 420 Kms off Malabar Coast. These Islands are geographically isolated and each Island is almost like a country by itself.

The power is generated in this union territory is entirely using diesel generators. This union territory is having the unique distinction of having hundred percent houses electrified and also the first territory to introduce “Self Meter Reading” by the consumers. Lack of adequate transport facilities and deficiencies in communications pose a major problem for the department to provide services to the consumers and also for the masses for availing the services. It used to take around 8 days during normal season and 15 days during monsoon season to for traveling to either to the capital island Kavaratti or to the nearest mainland port Kochi. The monitoring of movement of HSD Oil and spare parts for the power generators has a high priority.

2. Scope of the Project

This Project was, therefore, undertaken to bring electricity Consumer services to the doorsteps of the people of Lakshadweep; and to provide accessibility, transparency and accountability in the Electricity Consumer services (Government to Citizen). The project also envisages the digitization of materials and cargo management (Government to Government Services), integrated web-enabled Personnel and Payroll Management for all the officers and staff of the department (Government to Employee Services (G2E)) and implementation of a intranet for the department.

Fig. 1



3. Project Implementation

The project is implemented by National informatics centre, Lakshadweep Unit who has conceived this project. The entire E-governance infrastructure including Local Area Network required for the project was established in all the electricity sub divisions, sections and cash counters. Dedicated Leased Line for Internet facility extended to all electricity offices and cash counters from nearest NICNET Node. (Broadband facilities being limited in Kavaratti; Limited VSAT facility optimized for achieving 'last mile' connectivity). All the offices of Lakshadweep Electricity Department digitally integrated. All the officers are provided with e-mail accounts and the officials and

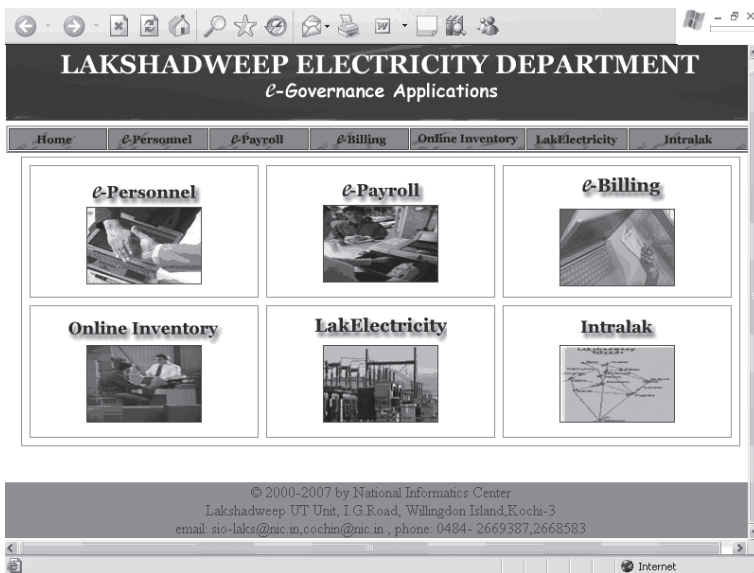
staffs including line men are provided with adequate training on various application software packages developed.

A detailed capacity building plan for the entire employees of the electricity department with special ICT training to the selected 25 officers on system administration and trouble shooting exits and action has been initiated to commence the training.

The design, development and implementation of software packages as a web-enabled workflow system with citizen interface completed after detailed discussions with all the stake holders. The following web-enabled applications are developed and implemented:

- Consumer Management and Energy Billing
- Complaint Management System
- Inventory/Cargo Management System (Materials Management System)
- e-Personnel System
- e-Pay Roll
- Intranet for the Department

Fig. 2

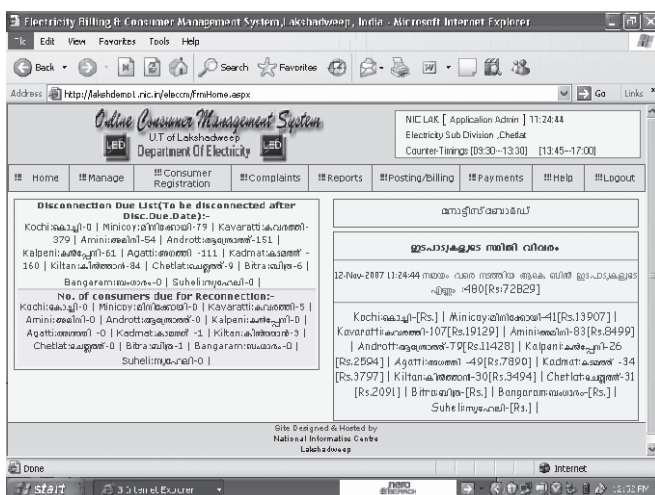


4. Major Features of the Applications

- i. Web-enabled Consumer Management System
 - On-line submission of application for service connection
 - On-line verification of the status of applications
 - Generation of Intimation Letter of inspection
 - Updation of estimation details

- Demand Note for the applicants for service connection
 - Generation of Service Connection Order
 - Execution of Service connection Order
- ii. Energy Billing System
- Acceptance of the energy bill at any counter
 - Consumers can generate their bills on-line
 - They can verify the history of payments
 - Consumers can report energy meter defect on-line
 - Calculation of consumption charges for belated consumers using the 'approximate consumption method'
 - Automatic generation of energy bill cum disconnection notice for defaulters
 - Facility for entering the surprise meter readings
 - Entering the reading of government consumers and generation of their bills.
 - The Section head can enter Reconnection, Meter stuck, Meter Change and Extension of temporary connection details from anywhere.
 - Head of Sub Division can monitor all transactions under the sub-division and has to intervene to generate Service Connection Order as required.
 - Higher authorities can monitor all the transactions and can get summary reports pertaining to whole Lakshadweep from anywhere anytime.
 - The collection details section-wise, sub division wise, island wise is available at any time from anywhere.
 - Centralized control for the cash counters
 - Facility to pay the bills on-line sitting at home (will be introduced shortly)

Fig. 3



iii. Complaint Management System

The features of Complaint Management System includes

- Registration of complaint on-line from all Fuse-off call centres
- Consumers can also lodge their service connection related complaints on-line.
- Updation of rectification details on-line
- Monitor the status of complaints from anywhere
- Generate pendency report
- A single database for the entire territory

Fig. 4

S.No	Compl.No.	Cons.Code/Name	Name of Complainant	Complaint	Location/Address	Db.No	Complaint Date & Time	Action Taken	Action Date
1	CMP-02-00001296 /2007		Athananammada alikoya vadakaveedu	കുറവ് (വോൾട്ടേജ്)	near graveyard		12/11/2007 07:37	ശരിയാക്കി	12/11/2007 08:31
2	CMP-02-00001297 /2007		Anugraha shop	കുറവ് (വോൾട്ടേജ്)	near almanar mazjid		12/11/2007 09:30	ശരിയാക്കി	12/11/2007 09:30
3	CMP-02-00001329 /2007		Port office	കുറവ് (വോൾട്ടേജ്)	Doordarshan		12/11/2007 08:30	ശരിയാക്കി	12/11/2007 12:35
4	CMP-02-00001330 /2007		Asyamma Hospitel	കുറവ് (വോൾട്ടേജ്)	Sercut house		12/11/2007 11:00	ശരിയാക്കി	12/11/2007 12:32
5	CMP-02-00001340 /2007		Air porte	3 ഘട്ട കുറവ് (വോൾട്ടേജ്)	Halipade		12/11/2007 13:00	ശരിയാക്കി	14/11/2007 09:46
6	CMP-02-00001341 /2007		Sakratariyate Planig	കുറവ് (വോൾട്ടേജ്)	Police CondrolRoom		12/11/2007 15:00	ശരിയാക്കി	12/11/2007 16:48
7	CMP-02-02PD001023		Khasali	കുറവ് (വോൾട്ടേജ്)	Pushpa Club		12/11/2007	ശരിയാക്കി	12/11/2007

iv. Web-enabled Personnel Management(E-Personnel)

The system keeps track of all the personnel details of the employees of Lakshadweep Electricity Department.

This system facilitates the following:

- The centralized system avoids unnecessary maintenance of separate data of each employee at different sections.
- All the employees can access the system with secured user id and password to know the status of their application for loans/advance, Leave personal profile, seniority etc. at anytime through Internet
- Each employee can submit the applications of loans and advances through online for speedy processing of the same
- Online status of the application also available for employees.
- Higher level monitoring of each office and employees profile can be accessed through this system

- This system is integrated with the E-payroll & Online Inventory Management System
- The applications of all types of advances/loans are processed through this system.
- The details of employees transfer, posting, promotion etc. are captured and processed.
- Leave management, LTC details etc are managed by the system
- Details of employee history such as probation clearance, disciplinary action, deputation etc are captured for future reference
- The centralized data also stores the personal photograph of each employees

v. Web-enabled Pay Roll Management (E-Payroll)

The web-enabled Payroll Management System (e-Payroll) is an Online Payroll Information system which keeps the data pertaining to pay of all the employees under Lakshadweep Electricity department in a centralized manner. This is integrated into the e-personnel System.

The Key features of E-payroll are

- Centralized management of payroll information.
- Generation of Pay bill for all the stream of employees
- Generation of all the schedules related to pay particulars of employees
- Generation of Pay slip for current month and previous months
- Pay & Allowance statement with classification of Office, Dept and year
- Income tax calculation based on pay and allowance and other savings
- Separate login for each employee and can view pay slip, income tax statement etc.
- Integration with E-personal system enables automated reflection of the following in the payroll
- Increment Processing
- Leave Particulars
- Loans & Advance Management Etc
- Government Quarter Allotment and Vacation

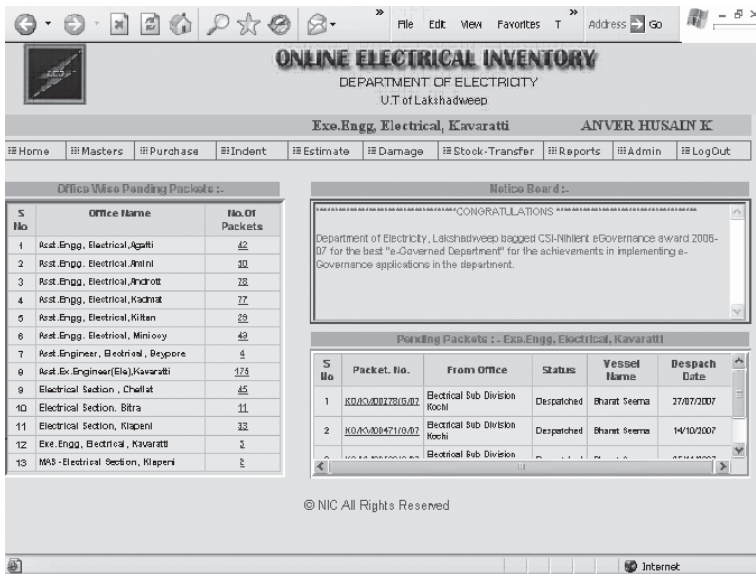
vi. Web-enabled Materials Management System

The system keeps track of not only the Inventory system but the overall management of the activities in a work flow model by using Internet Technology. The key users of the system are classified into four levels with different roles to each user. All the major activities are controlled and monitored with minimum two levels of users and it assures the transparency and security to the system. The Major Modules of the system are

- Supply order processing and Distribution
- Item Receipt

- Stock Transfer
- Packing Management
- Dispatch of Items
- Indent generation
- Damage Management
- Estimation
- MIS report

Fig. 5



The Key Features of the web-enabled Materials Management system are

- Online Monitoring of all the activities of the materials.
- Different levels of users and role management.
- Work flow management system from estimation to Indent generation.
- Multi level sanction for supply order and distribution list.
- Centralized stock management system.
- Supply order generation and Bill preparation against received items.
- Online Management of cargo movement includes packing and dispatch of items.
- Automated e-mail generation against receipt of the packets and item to the concerned users.
- Online packet status information to all the relevant users.
- Indent Management system with multilevel sanction.
- Billing of indented items for outside departments
- Estimate preparation for different work under various department

5. Benefits Accrued

- The dispersed offices of the department in the islands and mainland 'Virtually' integrated.
- The Electricity Consumer Services at the doorstep of the people.
- The process of providing service connection become transparent and structured and is free from human manipulations.
- Centralized management of all the Consumer Services, Complaint Management, Materials management, Human resource management and centralized accounting & monitoring possible. This can be accessed easily and quickly whenever required. Data and fact sheets are available in greater detail
- No need to physically send the reports/documents etc. to Kavaratti from outlying islands; Money and Time saved.
- Time taken for submitting application and processing the application is minimized
- Monitoring of the availability and movement of materials possible from anywhere anytime
- Various Statistical/MIS report easily generated
- The awareness about ICT and its benefits reaches the poor; the uneducated in the remote and isolated islands.

6. Future Plans

The department has worked out detailed plans for strengthening the e-governance activities of the department and also to improve the consumer services and also to improve the services. The future plans are detailed below.

- As the band width requirement for the numbers of applications are very high a dedicated VSAT's for each Sub Division is proposed.
- Introduction of Bar Coding system for Materials management
- Introduction of e-payment, payment through online banking, credit cards etc.
- Introduction of Interactive Voice Response System (IVRS) to get the status of bills/Complaint booking/Status and for other information
- Introduction of Digital Signature and on-line approvals
- Complaint booking and monitoring through SMS
- Energy Bill Payment details through SMS
- Submission of indent from islands for procurement of materials and its approval from Division office online.
- Digitization of file works and its movement in Electricity Department
- Remote monitoring of power generation & its distribution (SCADA)

7. Factors that Inspired Success

- There was continues dialogue with people's representatives at Dweep Panchayat and District Panchayat Levels. The proposal was duly discussed in public.
- The user friendly Portal designed and developed by NIC specifically for the consumer management and energy billing and complaint management and availability of reliable Internet access through the NIC VSAT were key factors for the success.
- The Awareness programmes and capacity building programmes organized to train the officials in remote islands played important role in the success of the project.
- There was a frequent co-ordination and review session at the level of Administrator, thereby continuously providing leadership and motivation for execution of the tasks. (The need for a strong political & administrative will for providing the services is a real challenge which often becomes critical for success or failure of e-governance projects).
- The Cooperation, mutual understanding and team work of the Lakshadweep electricity department and National Informatics Centre, Lakshadweep.

8. Learnings from the Project

- Use of right technology in the right place with appropriate administrative reforms benefit the masses at the base of the pyramid of society.
- Web based services are most suited for hinterlands like Lakshadweep and other geographically isolated territories.
- Geographical isolation can be minimized using the proper use of Information Technology

9. The Persons Associated with the Project

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Integrated Workflow and Document Management System—IWDMS

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ABSTRACT

Government of Gujarat (GoG) wants to use e-Governance as the tool to improve the Accountability, Transparency and Effectiveness in Government administration. The Integrated Workflow and Document Management System (IWDMS) project has been implemented for the same through automating the government functions and processes at all levels of the administrative hierarchy. GoG has given stress to Change Management and Top-down approach for successful implementation of IWDMS project.

IWDMS provides document management, workflow management, collaborative environment and knowledge management in an integrated fashion and delivers an electronic workplace that result in productivity improvement in Government.

The project initially covered all employees of the Government of Gujarat at New Sachivalaya, Gandhinagar. It is now being extended to the employees of the HoDs of the departments in Gandhinagar and Ahmedabad. In order to achieve Single File Management System across the state, IWDMS will be extended to all other HoDs in Gujarat in a phased manner. IWDMS has not only helped improve the accountability, transparency and effectiveness but also benefited the citizens directly through applications such as Grievance Redressal, CM Relief Fund, Surat Disaster Assessment Survey, etc., and benefited the industry through applications such as Investment Monitoring System.

1. Introduction

Project Conceptualization

e-Governance can never be effective without integrating the citizen centric delivery processes with the backend processes within the Government.

Over 80% of the day-to-day work executed by Government departments is of routine in nature and workflow driven.

IWDMS project was conceptualized by DST, GoG to automate the day-to-day work and improve upon the *accountability, transparency and effectiveness* in Government administration.

2. Project Vision, Stakeholders, Objectives and Services

Vision

To provide better service to citizens by improving the efficiency of Government employees by automating and streamlining the Government processes

Stakeholders

- Government employees (Secretariat and HoDs)
- Government departments
- Council of Ministers
- Citizens
- Total solution provider (Tata Consultancy Services Ltd.)

Objectives

- Ensure accountable, transparent and effective administration
- Use IT as an enabler for efficient workplace
- Create an automated office management system— Government does not innovate everyday: 80% of activities conducted comprises of Routine tasks

Services

The services available through IWDMS can be divided in to major components as follows:

- Core applications
- Common applications
- Departmental applications (300+)
- Knowledge management system
- File management system
- Workflow and organization model
- Security and access controls
- Dashboard
- MIS

The *Core Applications* address the core aspects of the system. Core functionality is the backbone of IWDMS on which the common and department specific applications are built. It covers functionalities such as correspondence creation, file creation, file approval, draft creation, etc.

The *Common Applications* addresses the automation of typical common processes that are performed across the Secretariat in all the departments e.g. leave processing, loan processing, etc.

The *Department Specific Applications* addresses the automation of those

processes which are specific to a particular department e.g. establishment of IPS/IAS/IFS Officers, processing of arms licensing, etc.

The *Knowledge Management System* consists of a repository of various Governmental documents. Any such document like GO, GR, Notification, etc. can be searched on the basis of its name, description, publish date, etc.

The *File Management System* is made up of applications that cater to the file processing requirements. This includes inward/outward, creating file and moving it, monitoring and tracking file, generating order and maintaining record room for files and correspondences.

The *Workflow/Organization Model* contains the organization structure which includes the hierarchy of people in the department, their roles, reporting relations, the subjects they deal with and the sections they belong to.

The *Access Control* provides access to various functionalities based on designation and delegation of powers.

The *Dashboard* provides an Executive Information System through which an officer can monitor and control the work done under his/her purview.

MIS consists of customized reports in various formats which cater to all the day-to-day activities at the Secretariat. The reports are parameterized and can be generated by taking a combination of the desired parameters.

3. Public Private Partnership (PPP)

IWDMS is not implemented on PPP model. The entire project has been funded by the State Government.

4. Necessity/Needs

IWDMS is intended to improve upon the following aspects of Government administration:

- Person dependency
- Tracking and tracing of files and correspondence
- Efficiency of day-to-day routine work
- Timely availability of relevant reference documents like Acts, Govt. Orders, Govt. Resolutions, Reports in required format and so on
- Inter-divisional consultations in some cases

5. Project Plan

Requirements of process re-engineering and legal framework

Central numbering system

IWDMS facilitates to eliminate several steps required right from inwarding a physical tappal till creating a file from it. IWDMS provides a central numbering system for all correspondences and files. This process eliminates registering of tappal and files at each step for traceability and hence reduces the number of steps.

Elimination of manual registers

Most of the registers required to be kept are automatically generated through the system.

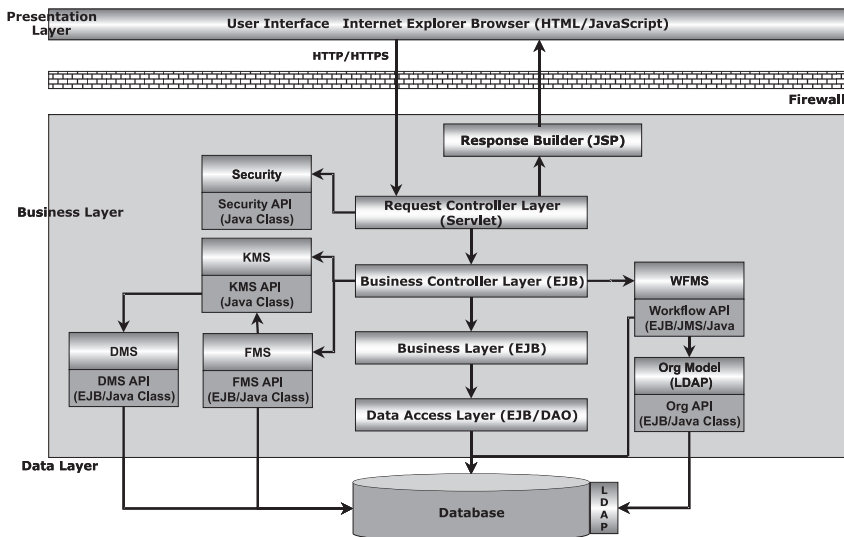
Online leave application

The employees can verify their leave balance online before making the leave application. Similarly, the establishment section need not refer the leave registers for processing the leave application.

Technology Architecture

The technology architecture for IWDMS is as follows.

Fig. 1 IWDMS 3-Tier Architecture



6. Milestones

Table 1

Milestone	Date
Project initiation	November 2004
Implementation	October 2005
Extension to HoDs	October 2006
Warranty and post Implementation support	April 2007

7. Project Management Structure

The following committees have been formed to ensure smooth implementation of IWDMS project:

- Project Implementation and Coordination Committee comprising of members from Science and Technology Department, GoG and Gujarat Informatics Ltd.
- Project Review Committee comprising of members from Science and Technology Department, General Administration Department, Finance Department and Legal Department

8. Implementation

Strategy for Pilot to Roll Out

The strategy adopted by Government was to follow Top-down approach. IWDMS was thereby implemented in Secretariat to set example and ensure continuous support from top leadership at all levels. Implementation at Secretariat was considered critical due to its vital encompassing areas including Policy Formulation, Allocation of Budgetary Resources, Monitoring and Supervision. Moreover, Secretariat is also directly accountable to Legislative assembly.

To ensure smooth implementation of project across various departments the implementation strategy comprised of two phases namely Phase-I and Phase-II. With 12 selective departments in Phase-I, kick-off presentations were carried out for all employees in the departments. These presentations highlighted current scenario of document processing in a sample department and how rendering IWDMS services would eliminate the repetition of processes. Presentations and training programmes have been conducted across all departments, and are in progress in HoDs.

After the successful implementation of IWDMS in Secretariat, the Government took the decision to roll out IWDMS in HoD's of Ahmedabad and Gandhinagar. Government has also ensured Warranty and Post Implementation Support for 3 years.

9. Capacity Building

Government of Gujarat has given stress on capacity building of its employees to ensure smooth implementation of IWDMS. Adequate provision has been made to provide training and build computer competency of the government employees through following:

- Basic computer training
- Gujarati Indic Training
- IWDMS training to all core users in the Secretariat
- Application specific training for Budget applications, Investment Monitoring System, Collector's Diary, Leave, etc.
- Refresher training

In addition, common resources and central support team has been made available to provide ongoing support to the government employees. Government has ensured Warranty and Post Implementation Support for 3 years.

10. Evaluation and Measurement

The Stakeholder Need Assessment is being done twice a year by taking structured customer feedback survey regarding the delivery of products and services and is based on following parameters:

- Quality of Deliverables
- Project Management
- Post-implementation support
- Documentations
- Responsiveness
- Communication
- Infrastructure
- Security and Confidentiality

The satisfaction of Government employees in using the IWDMS can be confirmed by the rating of more than 90% received during the last 2 Need Assessment surveys carried out.

11. Issues and their Solutions

Lessons Learnt - Critical Success Factors, Failure Factors

Critical success factors

- Change Management
- User Convenience
- Adequate Security and Authentication provisions

- Capacity building through Ongoing Training and Support
- Uniform and Integrated System

Replication in other states

The IWDMS project can be customized and easily replicated in other state governments.

Road ahead

After the successful implementation of IWDMS in Secretariat, the Government took the decision to roll out IWDMS in HoD's of Ahmedabad and Gandhinagar. In order to achieve Single File Management System across the state, IWDMS will be extended to all other HoDs in Gujarat in a phased manner.

12. Status and Results

Present status

Table 2 *The coverage and usage for IWDMS has been as follows:*

No. of departments covered	24
No. of HoDs (Ahmedabad and Gandhinagar) covered	92
No. of core modules	14
No. of common modules	49
No. of dept. specific modules	300+
No. of users	4,500+
No. of tappals inwarded	5,50,000+
No. of files created	70,000+
No. of budget files for 2007–08	8,900
Knowledge base— No. of GOs, GRs, Circulars, Acts, etc.	9,000+

13. Specific Achievements during the Year 2006–07

During 2006-07, Government of Gujarat has been able to institutionalize IWDMS through issue of many Circulars /GR's in support of use of IWDMS. Some of them are as follows:

- 27 March 2006: Online processing of leave application for IAS officers
- 22 June 2006: To implement the over-arching project IWDMS in all the all Departments of the Secretariat, Gandhinagar through M/s. TCS in supersession of GR dated 28th April 2000 in respect of common modules

- 15 September 2006: To use IWDMS for preparation of Budget 2007-08
- 6 October 2006: To extend IWDMS to HoD offices in Gandhinagar and Ahmedabad

Specific achievements during the year 2006-07 have been as follows:

- Rollout of 14 core and 37 common applications in all the departments of the Secretariat
- Rollout of 300+ department specific applications
- E-Budget: End-to-End State Budget Preparation through which
 - 8,909 budget files processed by 575 users
 - Budget proposal processing time reduced by 50%
 - Revisions in Budget proposals have been reduced by 50%
 - Real-time publication and online tracking of budget proposal
- Investment Monitoring System (IMS) – MoUs
 - Successfully monitoring 364 MoUs worth Rs. 4.6 Lac crores
 - Two way status update, Investor updates application (for land, water, power etc.) via e-mail and system also automatically updates investor about status
- Disaster Assessment Survey (DAS) - Surat Floods
 - 85,000+ relief applications were processed in 20 days
 - Immediate issue of certificates to affected for obtaining loans
 - Tracking and reconciliation of relief package disbursal
 - Comprehensive Database created on various categories including photographs, video footages, etc.
- Grievance Redressal System
 - Disposal of 3,877 (86.54 %) out of 4,480 grievances received
 - Quick and efficient generation of the preformatted instruction letters
- Hon. CM's Relief Fund System
 - 2,378 cases processed and more than Rs. 7 crore amount approved.
 - Single window system providing ease of submitting fund request

14. Future Plans for Readers Seeking more Information on Project

A strong foundation has been laid through IWDMS for providing better services to citizens, which has enabled backend computerization of all government departments and many HoD's. We are now in process of creating a portal, which will provide single sign on access to various stakeholders including the government officials and citizens. All the applications received through this portal would be processed internally using IWDMS and enable citizens to know the status of there applications on real time.

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